Specific language impairment in Afrikaans

Providing a Minimalist account
for problems with grammatical features and word order

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Specific language impairment in Afrikaans

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for problems with grammatical features and word order

een wetenschappelijke proeve op het gebied van de Letteren

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Vir Zoë

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ACC	accusative case
AdvP	adverbial phrase
Agr	agreement
ANOVA	analysis of variance
ARW	Afrikaanse Reseptiewe Woordeskattoets 'Afrikaans Receptive Vocabulary Test'
ASHA	American Speech, Language, and Hearing Association
AST	Afrikaanse Semantiese Taalevalueringsmedium 'Afrikaans Semantic Language Evaluation Medium'
ATOM	Agreement/Tense Omission Model
C	complemetiser
CA	chronological age
CCH	Computational Complexity Hypothesis
C_{HL}	computational system for human language
CONTR	contracted
CP	complementiser phrase
DAT	dative case
DIM	diminutive
DP	determiner phrase
EPP	extended projection principle
EOI	Extended Optional Infinitive Hypothesis
GEN	genitive case
Gr	(school) grade
I/INFL	inflection
INF	infinitive
IP	inflectional phrase
IQ	intelligence quotient
LARSP	Language Assessment, Remediation and Screening Procedure
LCA	linear correspondence axiom
LF	logical form
M	mean
MLU	mean length of utterance
MLUm	mean length of utterance measured in morphemes
MLUw	mean length of utterance measured in words
ModP	modal phrase

N	sample size
NOM	nominative case
NP	noun phrase
OSV	object, subject, verb
PART	participle
PASS	passive
PERS	person
PF	phonetic form
PL	plural
PLS-3	Preschool Language Scales – 3
PP	prepositional phrase
Q-feature	question feature
RDDR	Representational Deficit for Dependent Relations Hypothesis
R-expression	referential expression
S	subject
SC	small clause
SGL	singular
SLI	specific language impairment
SOV	subject, object, verb
Spec	specifier
SVO	subject, verb, object
T	tense
TACL-R/III	Test of Auditory Comprehension of Language – Revised / Third edition
TD4	typically developing 4-year-old
TD6	typically developing 6-year-old
TMT	Toets vir Mondelinge Taalproduksie 'Test for Oral Language Production'
TOLD-P	Test of Language Development – Primary
TP	tense phrase
UTAH	Uniform Theta-Assignment Hypothesis
V	verb
VO	verb, object
VP	verb phrase
*v*P	light verb phrase
VSO	verb, subject, object
V-to-I	verb to infinitive
λ	logical form
π	phonetic form

Chapter 1

Introduction

Specific language impairment (SLI) is a significant impairment in the spoken language ability of children in the absence of identifiable causal factors or obvious accompanying factors such as neurological deficits, mental challenges, hearing disabilities, and emotional or behavioral problems (Leonard 1998:vi; Stark and Tallal 1981). In this study, the characteristics of SLI as it presents itself in Afrikaans[1] – a descendent of Dutch, principally spoken in South Africa – are determined. As De Jong (1999:i) rightly states, "in SLI, target language matters. The fact that children are language-impaired does not spell out the symptoms that will testify to the disorder. The appearance of SLI is also dependent on the native language that the child is in the process of learning". English is the "native language" that has been studied most comprehensively by researchers interested in SLI. The characteristics of SLI as it presents itself in English are, therefore, comparatively well-known. This study of SLI focuses on Afrikaans and (i) provides data useful for the assessment and remediation of children with SLI who are acquiring Afrikaans – such data are very scarce – and (ii) contributes to the wider field of SLI research by providing language-specific data against which the explanatory merit of theoretical accounts of SLI can be tested.

Only a limited number of researchers has investigated the comprehension of grammatical morphemes by children with SLI. The research carried out by Fellbaum, Miller, Curtiss, and Tallal (1995) is one example; they found that English-speaking children with SLI perform worse than their typically developing peers. This finding is supported by one from clinical practice, namely that English-speaking children with SLI usually fare poorly on tests of receptive language such as the

[1] Afrikaans is a language with approximately 6 million mother-tongue speakers, which amounts to 13% of the South African population. It is the mother-tongue with the third largest speaker base in South Africa: Of the other 10 official languages, only Zulu (24%) and Xhosa (18%) have more mother-tongue speakers (Statistics South Africa 2003:14).

Grammatical Morphemes subtest of the Test for Auditory Comprehension of Language-Third Edition (TACL-III) (Carrow-Woolfolk 1999). A larger number of studies have been performed on the production of grammatical morphemes by children with SLI. As discussed in section 2.3.1, English-speaking children with SLI have been found to be especially weak in their use of grammatical morphemes.[2] It has been established that these children demonstrate a lower percentage of use of grammatical morphemes than do their typically developing peers. Also, English-speaking children with SLI sometimes insert grammatical morphemes into inappropriate contexts (see, e.g., Gopnik 1990a; Roberts and Rescorla 1995).

The question arises as to whether comprehension and production of grammatical morphemes would be a problem for Afrikaans-speaking children with SLI as well. Specific questions following from this broader one are:

(i) How well are grammatical morphemes comprehended and produced by Afrikaans-speaking children with SLI? Are all of the morphemes related to the grammatical features number, person, case, and tense equally difficult (or easy) to comprehend and produce correctly, and can any error patterns be detected?

(ii) How does the comprehension and production of grammatical morphemes by these children compare with that of their typically developing peers and that of younger, typically developing Afrikaans-speaking children?

Once it is known how Afrikaans-speaking children with SLI fare compared to age-matched and younger controls, one can establish whether the children with SLI present with a delay, a deviance, or both, in terms of their command of grammatical morphemes.

Another question is whether predictions regarding comprehension and production of grammatical morphemes made for Afrikaans by the Agreement/Tense Omission Model (ATOM) (Wexler and colleagues 1995, 1996, 1998), the Representational Deficit for Dependent Relations Hypothesis (RDDR)[3] (Van der Lely 1994, 1996, 2003, 2004), and the

[2] In section 2.3.2, it is shown that this also holds true for non-English-speaking children with SLI.

[3] Recently, the RDDR has been renamed the "Computational Complexity Hypothesis" (CCH). See, for example, Van der Lely (2005).

Feature Deficit Hypothesis (Gopnik 1994a) are borne out by the Afrikaans data. If not, the question is whether an alternative, comprehensive account of SLI as it presents itself in Afrikaans can be proposed.

The general question to be answered by this study was: How does SLI, which is characterised by a problem with grammatical morphemes, present itself in Afrikaans, a morphologically impoverished language? In order to answer this general question in a comprehensive manner – and to ascertain whether the predictions made for SLI in Afrikaans by current accounts of SLI are borne out by actual data – six specific questions were posed, as set out below.

1. How are grammatical morphemes – specifically those related to the features number, person, case, and tense – comprehended by Afrikaans-speaking children with SLI?
2. Do Afrikaans-speaking children with SLI present with a delay, a deviance, both, or neither in terms of their comprehension of these morphemes?
3. How are grammatical morphemes – specifically those related to the features number, person, case, and tense – morphologically realised (i.e., produced) by Afrikaans-speaking children with SLI?
4. Do Afrikaans-speaking children with SLI present with a delay, a deviance, both, or neither in terms of their production of these morphemes?
5. The ATOM, the RDDR, and the Feature Deficit Hypothesis make specific predictions regarding the comprehension and/or production of grammatical morphemes by Afrikaans-speaking children with SLI, as well as about the word order of their utterances. Are these predictions borne out by the Afrikaans data obtained in this study?
6. If the answer to question 5 is "partially" or "not at all", can one propose an adequate alternative account of SLI as it presents itself in Afrikaans?

The dissertation is structured in the following way. In chapter 2, the reader is introduced to the characteristics of SLI as it presents itself in English as well as in a selection of other languages. A number of processing and linguistic accounts of SLI have appeared in recent years.

In this chapter, three current linguistic accounts are set out, namely the ATOM, RDDR, and Feature Deficit Hypothesis.

In chapter 3, the discussion turns to Afrikaans, explicating why the way SLI presents itself in Afrikaans should be studied and what properties Afrikaans has that makes it an interesting language to study when investigating SLI. A brief exposition of the syntactic framework in which the work in this study is done (viz. Minimalist syntax) is then given, indicating how Afrikaans is analysed in terms of Minimalist syntax.[4]

Several subgroups of children have been identified (see, for example, Leonard 1991; Conti-Ramsden, Crutchley, and Botting 1997, Van der Lely 2003; Van Daal, Verhoeven, and Van Balkom 2004); those who participated in this study all had so-called Grammatical (G)-SLI. Chapter 4 describes the methodology used to select participants for this study, to obtain data on aspects of the language of typically developing Afrikaans-speaking children as well as of their counterparts with SLI, and to analyse these data. Data were gathered in such a manner as to provide answers to the specific research questions above. A description of the experimental tasks that were administered to gather these data is included in chapter 4, with the test items appearing in appendix D. A second data source was the spontaneous language samples collected from each child.

In chapters 5 to 7, the results of the language sample analysis and those of the experimental tasks assessing the comprehension and production of grammatical morphemes in the language of Afrikaans-speaking children are presented. In chapter 8, an overview is given of the results of the previous three chapters: The performance of (i) the participants across experimental tasks, (ii) some participants individually on the experimental tasks, and (iii) the three groups of participants on aspects

[4] The version of Minimalist syntax set out in section 3.4 is not the most recent one; rather, it is the one generally associated with the proposals made in Chomsky (1995a). Footnotes are used to refer to more recent ideas and terminology. The development of Minimalist syntax is still very much "a work in progress". Leading ideas about, for example, Move as a combination of Copy and Merge, internal vs. external Merge, probes, goals, phases, and edge features, amongst many others, are still being developed. For this reason, the present study will be couched within the somewhat older but more "established" version of Minimalist syntax.

(relevant to chapters 5 to 7) of the language samples are considered. Also in chapter 8, the errors made by the participants – including some errors not involving aspects focused on in chapters 5 to 7 – are discussed. The general finding was that the Afrikaans-speaking children with SLI fared significantly worse than their age-matched typically developing peers on the experimental tasks; the children with SLI present like younger typically developing ones. In terms of their spontaneous use of the grammatical morphemes in question, the two groups of typically developing children fared the same, with the children with SLI faring worse than both. The children with SLI mostly made the same errors as did the typically developing 4-year-olds; however, some errors were unique to the children with SLI.

Chapter 9 contains a discussion on the extent to which the three linguistic accounts correctly predict the comprehension and production of grammatical morphemes by Afrikaans-speaking children with SLI. This discussion comprises the answer to research question 5, which, in short, is "no". Then, regarding research question 6, a comprehensive account of the characteristics of SLI as it presents in Afrikaans – more comprehensive than the accounts provided by the theories discussed in chapter 2 – is proposed. The proposed account essentially states that the problem of Afrikaans-speaking children with SLI lies not with the narrow syntax, or computational system, but with the mapping of the syntactic component onto the phonological one.

Chapter 10 concludes the dissertation, by providing a summary of its content and by pointing the way forward for subsequent examinations of SLI as it presents itself in Afrikaans.

Chapter 2

Characteristics and theoretical accounts of SLI

2.1. INTRODUCTION

The aim of this chapter is to describe some of the characteristics of SLI as it presents itself in a variety of languages, and to discuss some current theoretical accounts of SLI. The general reasons for studying SLI (in any language) are presented in section 2.2. This is followed, in section 2.3, by a brief discussion of the characteristics of SLI as it has been found to present itself in English and in a selection of other languages. In section 2.4, the content and merit of three theoretical accounts are presented: the ATOM (section 2.4.1), the RDDR (section 2.4.2), and the Feature Deficit Hypothesis (section 2.4.3).

2.2. WHY STUDY SLI?

The reasons for studying SLI are three-fold. The first two concern the practical application of knowledge and understanding of SLI. In a study designed to determine the prevalence of SLI in the United States of America,[5] Tomblin, Records, Buckwalter, Zhang, Smith, and O'Brien (1997) found that an estimated 7.4% of all 5-year-olds – 8% of all boys and 6% of all girls – have SLI. SLI is of a long-standing nature (cf. Brinton, Fujiki, and Robinson 2005; Clegg, Hollis, Mawhood, and Rutter 2005; Gopnik 1994a): 40% of kindergarten children identified as having SLI still exhibit significant language problems 4 to 5 years after kindergarten (Aram and Nation 1980). This means that a number of school-going children (possibly 3%) present with SLI. The effect of SLI on academic activity is widely documented (see, for example, Conti-Ramsden, Knox, Botting, and Simkin 2002; Aram and Nation 1980). The first reason for studying SLI is that, with greater understanding of this impairment, it might be possible to remediate these children in more

[5] Participants were from two Midwestern states, but were chosen in such a way as to represent the demographics of the larger American population.

effective ways, and in ways that would lead to the containment of the effect of SLI on the cognitive activities of these children earlier in their educational careers.

The second reason is the contribution that a study of SLI could make to a better understanding of other, non-SLI, language problems. As children with SLI, per definition, have no other disability, data on their knowledge and use of language could act as baseline data for other disabled groups who have a language impairment but also other disabilities, such as other developmental disorders or hearing impairment (Leonard 1998:9).

The third reason for studying SLI concerns the insights such a study might offer into the nature of the human language faculty. The central task of a theory of grammar could be said to be that of providing a unified account of the properties of human language. A reasonable assumption would then be that such a theory must also be able to account for the language of children with SLI, seeing that SLI is, after all, a form of human language. The study of SLI can therefore contribute to our knowledge and understanding of the nature of human language and may reveal shortcomings of current grammatical theory, thereby indirectly contributing to the revision of such theory.

2.3. SOME CHARACTERISTICS OF SLI

Although some crosslinguistic data are available,[6] most studies of SLI examine data from one language only, the most common language studied being English. What follows in section 2.3.1 is a brief discussion of some of the characteristics of SLI as it presents itself in English. In section 2.3.2, the characteristics of SLI as it has been reported for a selection of other languages are presented.

[6] See, amongst others, Bortolini, Leonard, and Caselli (1998); Clahsen, Bartke, and Goellner (1997); Leonard, Sabbadini, Volterra, and Leonard (1988); Linder and Johnston (1992); Morgan, Herman, and Woll (2007); Paradis, Crago, and Genesee (2002).

2.3.1. Some characteristics of SLI as it presents itself in English

2.3.1.1. Grammatical morphemes

Children with SLI do not form a homogeneous group (Aram 1991:84-85), neither when compared to others of the same language nor when compared across languages. Despite their heterogeneity, one characteristic is shared by most children with SLI. This is that they are especially weak in their use of grammatical morphemes, with some morphemes appearing to be disproportionately difficult to master (Dromi, Leonard, and Shteiman 1993:760). Several studies have shown that children with SLI exhibit a lower percentage of use of grammatical morphemes than age-matched controls.[7] Grammatical morphemes are omitted in obligatory contexts, as in **He lick it* (from Loeb and Leonard 1991:124), but are also sometimes inserted in inappropriate contexts (cf. Gopnik 1990a; Roberts and Rescorla 1995). The example **You got a tape recorders* from Gopnik (1990a:147) illustrates such inappropriate insertion of a grammatical morpheme, where the plural form of *tape recorder* is used to refer to a single entity. In chapters 5 to 8, the comprehension and production of grammatical morphemes by Afrikaans-speaking children with SLI are discussed. It will be seen that these children also omit such morphemes from obligatory contexts, substitute one morpheme with another, and, to a lesser extent, insert grammatical morphemes inappropriately.

2.3.1.2. Word order related phenomena

Question constructions produced by children with SLI often exhibit the incorrect word order. Leonard (1995) found that children with SLI exhibit less movement of the auxiliary verb when producing *wh*-questions than do mean length of utterance (MLU)-matched controls. Hence, children with SLI more frequently produce question forms such as **What we can make?* instead of *What can we make?* than do MLU-matched controls. Furthermore, De Villiers, De Villiers, Roeper, and Seymour (2001) reported that children with SLI have more problems than typically developing peers with the production of multiple *wh*-questions, such as *Who ate what?*. In contrast to the production of *wh*-questions, no published research has been done on the production of

[7] See, amongst others, Leonard, Bortolini, Caselli, McGregor, and Sabbadini (1992); Loeb and Leonard (1991); Rice, Wexler, and Cleave (1995); Ullman and Gopnik (1994).

yes/no-questions by children with SLI. Even so, one would expect that these children often do not make use of subject-verb inversion when producing *yes/no*-questions; the fact that a question has been produced would probably have to be inferred from rising intonation. In chapter 8, some examples of question constructions with the incorrect word order produced by the Afrikaans-speaking children with SLI are given. No instances of multiple *wh*-questions occurred, but single *wh*- and *yes/no*-questions were produced.

Regarding passive constructions, Van der Lely (1996) found that, when compared to typically developing children who obtain similar language test scores, children with SLI show greater difficulty in interpreting "full" passives, such as *The teddy is mended by the girl*. Children with SLI are also more likely to interpret "short" passives, such as *The teddy is washed*, as an adjectival construction – which can be paraphrased as *The washed teddy* – than as an agentless passive, i.e., a passive construction without the prepositional (*by*) agent phrase. As Leonard (1998:59) points out, "The [adjectival – FS] interpretation is not incorrect, of course; however, the difference between the children suggested a possible avoidance of a passive interpretation on the part of the children with SLI". The comprehension of passive constructions by Afrikaans-speaking children was not assessed for the purposes of this study. The production of passive constructions was considered when analysing the spontaneous language samples; some results in this regard are presented in chapter 8.

2.3.1.3. (Non-)co-referential relationships

According to Van der Lely and Stollwerck (1997), children with SLI experience problems in establishing (non-)co-referential relationships between nominal expressions. For example, these children find it difficult to determine the referent of personal and reflexive pronouns when they have to make use of syntactic clues only. When they do not receive any visual or semantic clues, nor have the opportunity to use real-world knowledge, they typically have problems deciding to what/whom the *him* and *himself* refer in constructions such as *Peter is washing him*, *Dad says that Peter is washing himself*, and *The boy says that every soldier is washing himself* (Van der Lely and Stollwerck 1997:276-278). Note, however, that even typically developing children (some as old as 7 years) experience problems in establishing such binding relationships (De

Villiers, Cahillane, and Altreuer 2006).[8] The comprehension and production of these relationships were not investigated for the purposes of this study.

2.3.2. How SLI presents itself in other languages, in terms of grammatical morphology

Presented here is a selection of languages other than English in which SLI has been studied. The participants with SLI in these studies mostly ranged from 4 to 9 years. In contrast to English, in which SLI has been studied widely, the number of studies of SLI in these other languages is often very limited.

2.3.2.1. Germanic languages

Dutch-speaking[9] children with SLI experience difficulty with verb morphology. Regarding number, the third-person marker *-t*,[10] and to a lesser extent the plural *–en*, may be omitted in obligatory contexts. An example given by De Jong (2003:157) is given here as (1).

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[8] Interestingly, De Villiers et al. (2006) found that these children's correct production of constructions containing (non-)co-referential relationships surpassed their correct comprehension of such constructions.

[9] Dutch is considered by some to be an SOV language (Koster 1975; but see Zwarts 1993 for an analysis of Dutch as an underlyingly SVO language). In embedded clauses, the finite verb occurs in the final position, following the object, as shown in example (i); in subject-initial declarative matrix clauses, the finite verb is in the second position, following the subject but preceding the object, as shown in (ii) (both examples from Bastiaanse and Bol 2001:276).

(i) (Ik denk) dat de boer de koe melkt
(I think) that the farmer the cow milks
'(I think) that the farmer milks the cow'

(ii) De boer melkt de koe
The farmer milks the cow
'The farmer milks the cow'

Apart from inverted constructions involving the second person singular pronoun – such as *kom jij* 'come you' – tense is indicated by means of overt morphology – specifically, by means of suffixation – on all verbs except for the first-person present tense singular form.

[10] *-t* is also a second-person singular marker, as shown in *jij kijkt* 'you-SGL look'.

(1)	*Target:*
dan kijk mama naar kas	dan kijkt mama naar de kast
then look mother at cupboard	then looks mother at the cupboard
'Then the mother looks at the cupboard'	

Also, the number feature may be represented inappropriately, usually by producing a singular verb form where the subject is in the plural form (De Jong 2003:156). An example of such an error is given in (2), taken from De Jong (2003:157).

(2)	*Target:*
boeken valt	boeken vallen
books falls	books fall
'The books fall'	

Furthermore, the verb may appear in its infinitival form (and remain in the sentence-final position) but without a (compulsory) auxiliary to indicate number (and person) (De Jong 2004:274-276). Regarding tense, past tense marking may be omitted or substituted by present tense marking, or the verb may appear in its infinitival form (De Jong 2004:273-274). Wilsenach (2006:116) reports that Dutch-speaking children with SLI more frequently omit auxiliary verbs and the prefix *ge-* (used for the inflection of the past participle) than do age-matched controls.

German-speaking[11] children with SLI often omit the article in determiner phrases (DPs). Alternatively, they use an incorrect gender for the article, e.g., **die Lehrer* 'the teacher-MALE' instead of *der Lehrer* 'the

[11] German reembles Dutch as far as word order is concerned. It has frequent overt constituent movement. Amongst other movement operations, German demonstrates object scrambling, as shown in (i) and (ii) below, which have the same "deep structure", i.e., theta role-related meaning.

(i) Sie hat meinem Bruder den Umschlag gegeben
she has my brother the envelope given
'She gave my brother the envelope'

(ii) Sie hat den Umschlag meinem Bruder gegeben
she has the envelope my brother given
'She gave my brother the envelope'

Number (singular and plural), person (first, second familiar, second formal, and third), gender, case (nominative, genitive, dative, and accusative), and tense are indicated by means of grammatical morphemes, usually suffixes.

teacher-MALE' (Clahsen 1989:904). They also demonstrate problems with number marking, in the sense that they fail to indicate number, as required, on the article (Clahsen 1989:903-904). As regards case marking, German-speaking children with SLI appear to have a binary system – nominative and non-nominative (either dative or accusative) (Clahsen 1989:906) – even though the grammar of adult speakers contains four cases, which are indicated by means of grammatical morphemes. In the language of German-speaking children with SLI, case is not indicated, as required, on the article **and** the adjective **and** the noun,[12] but only on one of the three, mostly on the article (Clahsen 1989:905). Furthermore, when case is indicated, it is often done incorrectly, as illustrated in example (3), from Clahsen (1989:905).

(3)	*Target:*
und den dosse Tommel	und die grosse Trommel
and the-MASCULINE-ACC big drum	and the-FEMININE-NOM/ACC big drum

'And the big drum'

German-speaking children with SLI do occasionally omit verb inflection – as is the case for Dutch-speaking children with SLI – but are more likely to use ungrammatical yet inflected forms (Clahsen 1989:907; Lindner and Johnston 1992:124). Participles appear to be inflected correctly most of the time, with the only source of errors being so-called strong verbs classified incorrectly as weak verbs (Clahsen 1989:907; Clahsen and Rothweiler 1992:13). This leads, for example, to the past participial form of the strong verb *gehen* 'go' being phonologically realised as (i.e., receiving the sound form) **gegeht* instead of as *gegangen*. Clahsen (1989:908) and Clahsen and Rothweiler (1992:27) conclude that it appears that German-speaking children with SLI do not have a general morphological deficit as regards verb morphology; rather, these children experience problems with subject-verb agreement specifically. According to Clahsen (1989:909), what have previously been termed "verb placement errors" in the language of German-speaking children with SLI could, in fact, be viewed as secondary effects of the children's problems with verb inflection, specifically with subject-verb agreement: Verb-final patterns are used with uninflected verb forms or infinitives, whereas

[12] Indicating case on nouns pertains to genitive case, which is indicated on singular masculine or neuter nouns, e.g., *der Mann* 'the-NOM man' but *des Mannes* 'the man's'.

verb-first or verb-second is (correctly) used with inflected verbs, verbs in the imperative form, irregular verbs, modals, and auxiliaries (Clahsen 1988:205ff).[13]

Lindner and Johnson (1992) compared German- and English-speaking children with SLI and found (i) that there is a trend – which could not be confirmed statistically – for German-speakers with SLI to show less impairment on tests of grammatical morphology than their English-speaking counterparts, and (ii) that the gap between the performance on measures of morphology and vocabulary was statistically significantly smaller for these German-speaking children than for the English-speaking ones. Lindner and Johnson (1992:124) explained their results by stating that children pay more attention to that which is most useful for their current communicative needs: As basic meaning relations are identified primarily by morphological cues in German and primarily by word order in English, German-speaking children with SLI fare better in terms of grammatical morphology than do English-speaking ones. This seems to contradict Clahsen's (1989:916) finding that German-speaking children with SLI use word order to distinguish grammatical relations.

Swedish-speaking[14] children with SLI have greater difficulty with the use of genitive inflections, indefinite articles, and article-adjective-noun constructions than do MLU- and age-matched controls (Leonard, Salameh, and Hansson 2001). Both omissions and substitutions occur.

[13] Note that optional infinitives are normal when children are still in the process of acquiring non-null subject languages. The occurrence of optional infinitives per se is therefore not an indication of SLI; what is an indication of SLI is that the grammar of German children with SLI present with this (normal) phenomenon for a longer time than does the grammar of typically developing German children.

[14] Swedish, a North Germanic language, is verb-second, without overtly indicated subject-verb agreement (Platzack 2001). The language differs from Dutch and German in the sense that Swedish demonstrates an SVO word order in embedded sentences, and not an SOV one. As stated in Hansson and Nettelbladt (1995:590), verbs, nouns, and adjectives may appear as bare stems, and, when inflected, such inflections take the form of suffixes, sometimes consonantal and sometimes syllabic in nature. For instance, the stem *titta* 'look' takes the suffix *-r* in its present tense form (*tittar*), whereas the stem *bygg* 'build' takes *–er* (*bygger*). Article-adjective-noun agreement occurs with regard to gender, number, and definiteness – compare *en stor stol* 'a big chair' with *den stora stolen* 'the big chair' and with *att stort tåg* 'a big train' (from Leonard, Salameh and Hansson (2001:620,621). Nouns are inflected for plural and case (nominative and genitive).

The omission of articles occurs more frequently in article-adjective-noun target constructions than in article-noun ones.

Swedish-speaking children with SLI appear to be less proficient than age-matched controls with regard to present tense inflection (Hansson and Leonard 2003:364), past tense inflection, and irregular past tense forms (Hansson and Leonard 2003:365). These children with SLI use copula, auxiliaries, and modals (viz. the verbs that are considered to be grammatical morphemes) less often than their MLU would predict (Hansson 1997:209). They also experience more problems with marking perfect tense, which is done by means of an auxiliary, than they do with marking the simple (past and future) tenses, which is done by means of suffixation (Håkansson 1998:319-320; Hansson and Nettelbladt 1995:593).

Problems with word order appear to be a common characteristic of the language of Swedish-speaking children with SLI (Hansson and Nettelbladt 1995:592). In sentences in which topicalisation occurs and in question constructions, the obligatory inverted word order is not consistently used (Hansson and Nettelbladt 1995:595), and the verb is not consistently placed in the second position in negated main clauses (Håkansson 1998:320-321). For example, a 6-year-old boy with SLI produced the utterance in (4), where the verb 'sleeps' should have occurred before 'not' (from Håkansson 1998:321), as is indicated in the grammatical sentence produced by a non-impaired 3-year-old.

(4) *6-year-old with SLI:*	*3-year-old without SLI:*
hon inte sover	hon hoppar inte
she not sleep	he jump not
'She does not sleep'	'He does not jump'

Furthermore, Swedish-speaking children with SLI omit subjects, verbs, and complementisers more frequently than do MLU-matched controls (Håkansson 1998:321-322; Hansson and Nettelbladt 1995:594). This led Hansson and Nettelbladt (1995:595) to conclude that syntax, in addition to grammatical morphology, is a problem area for Swedish-speaking children with SLI.

2.3.2.2. Romance languages

Paradis and Crago (2000:840) found that **French**-speaking[15] children with SLI produce significantly fewer finite verbs in obligatory contexts than do age-matched controls. The children with SLI also produce significantly fewer past and future tense constructions in obligatory contexts than do age-matched controls, substituting these constructions mostly with an infinitival verb form but also at times with the present tense form (Paradis and Crago 2000:841; Rose and Royle 1999:87; also see Jakubowicz 2003:189-190). Rose and Royle (1999:77) furthermore found that French-speaking people with SLI, but not controls, have difficulty with correcting ungrammatical sentences if these sentences contain agreement and tense violations.

Regarding **Italian**,[16] Bortolini, Caselli, Deevy, and Leonard (2002:79) state that (i) most of the differences between Italian-speaking children with SLI and MLU-matched controls revolve around function words – an example is that the language of Italian-speaking children with SLI demonstrates a lower percentage of articles in obligatory contexts than does that of MLU-matched controls (Leonard, Sabbadini, Volterra, and

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[15] French is a Romance language with overt verb movement, although to a lower position than that found in German, Dutch, and Swedish main clauses. French word order is SVO (as can be seen in examples (i) and (ii)), except when the object is a pronoun, in which case the word order is SOV (as can be seen in example (iii)). Tense, number, person, and agreement are marked overtly. Case is indicated on pronouns.

(i) La femme voit la fille
the woman sees the girl
'The woman sees the girl'

(ii) Les femmes voient les filles
the women see the girls
'The women see the girls'

(iii) L'homme l'a vue
the man her saw
'The man saw her'

[16] Italian is highly inflected: As regards verbs, no bare stems are allowed; every finite verb is marked for both person and number. Regular past tense is indicated by means of an auxiliary verb and the past participial form of the main verb, the latter formed for some verbs by changing the word-final *–are*, *–ire*, and *–ere* into *–ate*, *–ito*, or *–uto* (Leonard, Sabbadini, Leonard, and Volterra 1987:240). There is overt gender and number agreement between nouns, possessive pronouns, and adjectives (Leonard et al. 1987:236,239). Regular singular-plural distinction is made by means of a word-final vowel change (Leonard et al. 1987:239), as in *libro* 'book' – *libri* 'books' or *palla* 'ball' – *palle* 'balls'.

Leonard 1988:45) – and (ii) only a few select inflections produce differences between these two groups. Present third-person plural inflection on verbs is one of the inflections that do pose problems for Italian-speaking children with SLI (Leonard, Sabbadini, Leonard, and Volterra 1987:241-242). Because Italian does not allow bare stems, these children do not omit the inflection but rather substitute it, usually with the present third-person singular inflection (Bortolini, Leonard, and Caselli 1998:11, 2002:80) and less often with the infinitival form (Bortolini et al. 1998:11). Leonard et al. (1987:244-245) furthermore found that regular past tense marking and copulas have a low percentage of use in obligatory contexts in the language of Italian-speaking children with SLI.

2.3.2.3. Other languages

The remaining five languages to be reviewed here are too diverse to be grouped together according to language family. **Hebrew**-speaking[17] children with SLI show lower percentages of use than do age-matched controls of the free-standing accusative case marker *et* and of

[17] Hebrew, a Semitic language, has a rich system of overt grammatical morphology. Verbs, nouns, and adjectives are always inflected; bare stems do not occur. Stems, which convey core meaning, almost without exception consist of a tri-consonantal root, to which syllabic prefixes, syllabic suffixes, and vowel infixes are added. Grammatical distinctions are made through this affixation, through word-internal vowel changes, or through both (Dromi et al. 1993:761,763; Leonard 1992:124). Finite verbs are inflected for number and gender in the present tense form, and for number, gender, and person in the past tense form (Dromi et al. 1993:763; Rom and Leonard 1990:96) as illustrated in (i). Nouns are mostly inflected for number (specifically plural) and gender through suffixation, as shown in (ii). Adjective-noun agreement in terms of number and gender occurs (Dromi et al. 1993:764; Rom and Leonard 1990:97). Accusative case is marked by means of a free-standing morpheme (viz. *et*) when the noun is specific (Rom and Leonard 1990:98), as shown in (iii), from Dromi et al. (1993:764).

(i)	***m**o**x**e**r***	***m**o**x**r**im***
	sell-PRESENT-MASCULINE-SGL	sell-PRESENT-MASCULINE-PL
	m**a**x**a**r**ta	***m**e**x**a**r**tem***
	sell-2ND PERS-MASCULINE-SGL-PAST	sell-2ND PERS-MASCULINE-PL-PAST
(ii)	***x**a**v**e**r***	***x**a**v**e**r**im***
	friend-MASCULINE-SGL	friend-MASCULINE-PL
	*u**g**a*	*u**g**ot*
	cake-FEMININE-SGL	cake-FEMININE-PL

(iii) Ha-jeled roxets et ha-mexonit
the boy washes *accusative-marker* the car
'The boy washes the car'

connectives, which take the form of prefixes (Rom and Leonard 1990:100). Substitutions of these morphemes do occur, but the most frequent error is that of omission. Regarding the use of present and past tense verbal inflections, Rom and Leonard (1990:100) found that Hebrew-speaking children with SLI and age-matched controls perform similarly on plural noun inflection and adjective-noun agreement, with errors involving mainly substitution. However, Dromi et al. (1993:766) found that Hebrew-speaking children with SLI fare worse with the use of present verb inflections, present-past verb contrasts, and singular-plural noun contrasts than do age-matched controls.

There is some limited information available on how SLI presents itself in **Inuktitut**.[18] Crago and Allen (1994) performed a single case study in which the language of a 64-month-old Inuktitut-speaking child with SLI was compared to that of a typically developing peer and a 25-month-old MLU-matched control. They found a lower percentage of use of the following verb-internal or noun-internal morphemes to be characteristic of the language of the child with SLI: (i) verbal inflections to mark person, number, and modality; (ii) verb-verb affixes to mark causative, passive, and adverbials; and (iii) verbalisers to change verbs to nouns. However, the child also inappropriately used *–mi*, which is a suffix frequently used on nouns – and occasionally on verbs as an internal morpheme meaning "also" – as a suffix on verbs and locatives, where it

[18] Inuktitut is an Eskimo-Aleut, null-subject language. As explained by Crago and Allen (1994:206), "It is a highly polysynthetic language with an ergative case marking system and prolific nominal and verbal inflectional paradigms. Verbal inflection agrees with both subject and object for four persons, three numbers, and ten verbal modalities. Nominal inflection represents eight cases and three numbers, and the possessive paradigm encompasses four persons and three numbers. In addition, there are over 1000 verb- and noun-internal productive morphemes that serve as nominalisers, verbalisers, valency-changers, and modifiers. This language has no uninflected infinitival form." Note that there is no inflectional form for tense (Crago and Paradis 2003:100). Examples of Inuktitut utterances are found in (i) and (ii), from Crago and Allen (2001:64,67).

(i) Qailanganngnavit = Qai langa nngit gavit
come FUTURE NEGATION CAUSATIVE-2ND PERS-SGL-SUBJECT
'You won't come'

(ii) Nuvujaaluk paaniittuq = Nuvujaq aluk pa ani it juq
cloud big-ABSOLUTE-SGL upthere LOCATIVE be PARTICIPATIVE-3rd PERS-SGL-SUBJ
'The big cloud is up there'

can never appear in the adult grammar. Furthermore, the child at times used overt pronouns instead of inflecting the verb. For instance, in the two examples given by Crago and Allen (1994:210), the child used the pronoun *ivvit* 'you' instead of inflecting the verb and locative for second-person and subject, amongst others, which would have been the norm in Inuktitut, seeing that it is a pro-drop language. This lack of verbal and locative inflection[19] (i.e., the use of bare stems) "contradict[s] the polysynthetic nature of her language and [is] highly irregular" (Crago and Allen 1994:210). Lastly, the child also did not use any passive constructions in the 200 utterances examined. This is highly unusual, as Allen and Crago (1993:115) found that typically developing 2- and 3-year-old Inuktitut-speakers use passive constructions frequently.[20]

Greek-speaking[21] children with SLI experience problems with inflectional morphology, specifically with mapping affixes onto stems (Dalalakis 1997). According to Dalalakis (1997:121), this is because the children "have trouble judging where the root ends and the affix begins which is reflected in the root boundary errors". In an earlier study (Dalalakis 1994), it was found that Greek-speaking children experience problems with tense marking (making use of substitutions but not omissions) and with pluralisation (making use of substitutions and also omissions).[22] Tsimpli and Stavrakaki (1999:71-72) found that correct subject-verb agreement in obligatory contexts is low for second-person singular and second-person plural. Dalalakis (1994:225) also found that

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[19] As stated by Crago and Allen (1994:209), the Inuktitut locative system is quite complex: "Locatives require a verbaliser and then a verbal inflection in certain obligatory pragmatic and semantic contexts but not in all contexts."

[20] An average of 3.7 passives per hour was recorded.

[21] Greek is a Hellenic language. It is highly inflected and does not allow bare stems. Nominals are marked for case, gender, number, and, in the case of pronouns, for person. Verbs are marked for number, person, tense, aspect, voice, and mood (Dalalakis 1994:217). It appears that there is still little consensus regarding the unmarked word order in Greek. VSO has been taken to be the basic order by Alexiadou and Anagnostopoulou (1998), but SVO orders also occur, and VOS is seen to be an order derived via so-called short object shift (cf. Alexiadou 1999). Greek is a pro-drop language (as shown in example (i) – from Tsimpli and Stavrakaki 1999:43), but subject pronouns may be used emphatically for emphasis (Dalalakis 1994:217).

(i) Parakoluthisa dhialeksis
attended-1stPERS-SGL lectures
'I attended lectures'

[22] For another study on pluralisation, with similar results, see Dalalakis (1999).

Greek-speaking children with SLI experience problems with derivational morphology; again, errors consist mostly of substitutions. These children also fare more poorly than MLU- and age-matched controls in terms of forming compound nouns (Dalalakis 1999).

Concerning production of *wh*-questions, Stavrakaki (2002) found that Greek-speaking children with SLI fare significantly more poorly than MLU-matched controls. They also have difficulty understanding sentences containing passive constructions and negation. Furthermore, their ability to judge whether or not a sentence is grammatical, as well as their ability to correct ungrammatical sentences, are impaired (Dalalakis 1994:224). These children also interpret semantically reversible relative clauses[23] qualitatively differently to MLU- and age-matched controls (Stavrakaki 2001).

Japanese-speaking[24] children with SLI, when compared to age-matched controls, experience difficulties producing morphology related to tense and aspect (Fukuda and Fukuda 1994:163-168). The children with SLI also fare worse than the controls in grammaticality judgements of ungrammatical sentences where the ungrammaticality is caused by incorrect or omitted morphemes related to case, tense, and aspect. Furthermore, Tanaka Welty, Wanabe, and Menn (2002:185) found that Japanese-speaking children with SLI produce fewer case particles in

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[23] An example of such a construction is given by Stavrakaki (2001:427): *The woman is kicking the girls that hold the man*, in which *the girls* and *the man* could have been reversed. Although this reversal would lead to the sentence having a different meaning, the sentence would still be interpretable.

[24] Japanese is agglutinative, with rich overt morphology. Regarding verbs, bare stems do not occur. Verbs are marked for, among other things, tense, aspect, voice, negation, and causation (Tanaka Welty, Wanabe, and Menn 2002:177), but not for number, person, or gender; i.e., subject-verb agreement is not indicated overtly (Fukuda and Fukuda 1994:153-155; Tanaka Welty et al. 2002:177). Passives are formed by suffixing a passive morpheme to the verb stem (Fukuda and Fukuda 2001:309). Tense is indicated by means of overt morphology on both verbs and adjectives, and aspect is indicated overtly by verbal affixation followed by an auxiliary. All lexical noun phrases (NPs) are marked for one of eight cases. Furthermore, overt and null pronouns occur (Kanno 1998:1126). A Japanese sentence illustrating some of these properties is given in (i), from Fukuda and Fukuda (2001:309).

(i) Kazuo-ga Tatako-ni os-are-ta
Kazuo-NOM Tatako-DAT push-PASS-PAST
'Kazuo got affected by the event that Tatako pushed him (Kazuo)'

obligatory contexts and that, where case particles are produced, a greater percentage is incorrect, compared to age-matched controls. Verb morphology is also used less, and more often incorrectly, by the children with SLI than by MLU- and age-matched controls (Tanaka Welty et al. 2002:186-187).

Moreover, Fukuda and Fukuda (1994:162,164) found that Japanese-speaking children with SLI fare significantly worse than age-matched controls on the comprehension of passive constructions as well as on correctly performing grammaticality judgements on illicit passive constructions.

As is the case for Inuktitut, there is limited information available on how SLI presents itself in **Zulu**.[25] Demuth and Suzman (1997) did a single case study on a 31-month-old boy whose language development was regarded by his family to be delayed. When comparing his language to that of two typically developing Zulu-speaking children – one younger (24 months old) and the other age-matched (31 months old) – it was found that his language was not merely delayed, but that it also deviated in significant ways from that of the typically developing children. Unlike the younger typically developing child, the boy with SLI did not produce possessives and demonstratives at all. He did use nouns, with which he used one of two prefixes. However, noun class prefixes were omitted twice as often as in the language of the younger typically developing

[25] **Zulu**, a Nguni language, is a pro-drop language which demonstrates very little overt movement, and has an elaborate system of prefixes (Suzman 2002:156). As stated by Demuth and Suzman (1997:125), Zulu is a head-initial language – "that is, nominal and verbal modifiers follow the noun and verb respectively, and grammatical morphology is prefixed to both nouns and verbs". Verbs are inflected for number, tense, aspect, agreement, negation, and mood, amongst others (Suzman 2002:158). There are 15 noun classes, each with its own prefixes for marking possession, adjectives, subject agreement, object agreement, and noun class number. The prefix for marking noun class number, in fact, consists of a prefix and a pre-prefix, the latter being a vowel which is identical to the vowel of the prefix. Demuth and Suzman (1997:125) give the example in (i), where the noun class marker for the class-8 noun consists of the pre-prefix *i-* and the prefix *–zi-*:

(i) Izi-cathulo za-mi ezi-bili zi-lahlek-ile
noun class 8-shoes *possession 8*-my *numeral 8*-two *1st pers-sgl-subject 8*-lose-*perfect aspect*
'My two shoes are lost'

Note that the hyphens above serve to demarcate affixes and stems and do not occur in standard Zulu orthography.

child (Demuth and Suzman 1997:132). Subjects were prefixed with the same two prefixes as the nouns were. Verb phrases (VPs) mostly consisted of single verbs (not of a verb and a DP), and tense was indicated by overgeneralising one tense marker (Demuth and Suzman 1997:130). Suzman (2002:162) studied the language of a 66-month-old Zulu-speaking girl with SLI and found her noun morphology to be similar to that used by a younger (41-month-old) typically developing child, with the exception of lower use of object markers and relative prefixes by the child with SLI. Furthermore, Suzman (2002:163-165) reported that both of these Zulu-speaking children with SLI primarily produced simple sentences.

2.3.2.4. Summary: How SLI presents itself in languages other than English

It appears that, regardless of the typology of the language which they speak, children with SLI demonstrate problems with grammatical morphology, omitting and/or substituting grammatical morphemes and/or function words.

2.4. THEORETICAL ACCOUNTS OF SLI

Although SLI is not a new field of study, the development of theories to account for the characteristics of SLI is a relatively new focus in this field. At present, accounts of SLI fall into two main groups, which may be referred to as "linguistic accounts" and "processing accounts". Briefly, linguistic accounts assume a deficit in the linguistic knowledge of the children with SLI, whereas processing accounts assume a limitation in processing capacity. For the purposes of this study, we will focus on linguistic accounts only,[26] particularly on that of Wexler and colleagues

[26] There are several types of processing accounts. Some view SLI to be the result of limitations in information-processing capacity. This capacity can be limited in a number of ways, for example in terms of space (memory), energy ("fuel" available to complete a task), and speed (rate at which information can be processed) (see, e.g., Kail 1994; Kail and Salthouse 1994; Roediger 1980). As stated by Thal (1999), the limited processing capacity hypothesis is applicable to a wide range of tasks and operations (not all of them language-related), but it is precisely because of its generality that the hypothesis has difficulty explaining the exact nature of SLI. Because this study aimed to establish and account for the characteristics of SLI in Afrikaans, an account centred around a general processing limitation was not considered, as it was assumed that such a general account would not be specific enough to explain and account for the exact nature of

(1995, 1996, 1998), Van der Lely (1994, 1996, 2003, 2004), and Gopnik (1994a). In this section, the content of each account is given. After the Afrikaans data have been presented in chapters 5 to 8, these three accounts are evaluated in chapter 9, where the general merit of the explanations they offer (for the characteristics of SLI discussed in section 2.3) is examined. Thereafter, predictions that they make for SLI in Afrikaans are set out, after which it is determined whether these predictions were borne out by the Afrikaans data, i.e., whether these accounts are adequate for the data on SLI in Afrikaans.[27]

2.4.1. The Agreement/Tense Omission Model

Wexler (1994) claimed that typically developing children, at least those acquiring English, go through a stage in which they optionally use the infinitival verb form in contexts where the finite verb form is required in the grammar of adults. By "optionally" is meant that the use of infinitival forms is alternated with that of finite forms, resulting in infinitival forms appearing in contexts where the adult grammar only allows finite forms. Rice, Wexler, and Cleave (1995) subsequently posited the Extended Optional Infinitive Hypothesis (EOI) which states that children with SLI remain in this early, normal stage in the development of tense marking of verbs – either for an extended period or not progressing past it at all. In contrast, typically developing children progress to a more advanced stage in which finite verb forms are consistently used in obligatory contexts.

The predictions of the EOI have to be understood against the background of Wexler's (1994) claims regarding the use of overt tense marking by typically developing children (see Wexler 1994:312 for a summary): In the Optional Infinitive stage, these children sometimes refrain from overtly marking tense by means of a grammatical

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SLI in Afrikaans. Furthermore, the more "narrow", or specific, processing accounts (such as the Surface Hypothesis of Leonard 1989; Leonard, Eyer, Bedore, and Grela 1997) have shortcomings of a nature that makes their cross-linguistic testability questionable (cf. Leonard 1994; Leonard and Eyer 1996).

[27] The accounts in question are presented below as the authors set them out. However, in chapter 9, they are critically commented on from the viewpoint of Minimalist syntax, the reason being that the framework of assumptions and concepts of Minimalist syntax are accepted for the purposes of this study; this is the framework in which the Afrikaans data will be analysed.

morpheme in matrix clauses (i.e., in clauses in which tense marking is obligatory). The morphemes by which tense is marked overtly in English, and which are (sometimes) omitted even by typically developing children in the Optional Infinitive stage, include the following (Rice and Wexler 1996:1241):[28] (i) the third-person singular *-s*, as in *She sings*;[29] (ii) the regular past tense morpheme *-ed*, as in *She/They played the game*; (iii) *be* forms, as in *She is teaching him*, *They are teaching him*, and *He was happy*; and (iv) *do* forms, as in *They do spot him from time to time*, where *do* is used in an emphatic sense, or as in *She does not spot him*, where the auxiliary verb *does* is used unemphatically.[30]

Wexler (1994:335) claims that children fail to mark tense overtly because they treat the grammatical category tense (T) – i.e., the head of the tense phrase (TP), on the split-INFL Hypothesis of Pollock (1989) – as optional. On this view, if TP is present in a derivation, then the verb will move from the VP to the TP so that the verb can be marked for tense. For certain languages, such as English, it is assumed that this move takes place covertly. Evidence for this comes from the fact that the finite verb occurs after the adverb in a sentence such as *He always brushes his teeth*, with the adverb taken to mark the left-periphery of the VP. However, if TP is not present, the construction will be treated as an infinitival one. This would mean that the verb does not move to TP (because TP is not present), resulting in the verb not being marked for tense. Hence, the grammatical tense marker is omitted in the phonological realisation, with the verb instead displaying the infinitival form. For this reason, children with SLI often produce utterances like **Yesterday we walk home*, where the grammatical tense marker *-ed* has been omitted, rather than *Yesterday we walked home*.

[28] Interestingly, Rice and Wexler do not include *have* forms, as in, for example, *She had seen the cat*, where the temporal auxiliary *had* appears in its past tense form.

[29] The plural equivalent, namely *sing* in *They sing*, also represents a finite verb form, even though tense is not indicated overtly. In *She makes him sing*, the verb *sing* is, however, in the infinitival form (whereas *makes* is in the finite form), as is *sing* in *She likes to sing* (where *likes* is finite).

[30] In these examples, the *do* forms are marked for tense and *spot* is in the infinitival form throughout. As in the examples in note 29, finite and infinitival verb forms may be found in the same clause.

According to Rice and Wexler (1996:1240), the term "omitted" in the above analysis is an abbreviation for "not apparent in the surface forms, i.e., in the phonological forms". They stated that the absence of surface tense markers can be attributed to the non-occurrence of the functional category tense in a given derivation. It is thus not the case that tense is **totally** absent in the grammars of children with SLI and that surface tense markers are **always** omitted. Rather, on their view, these children's grammars allow utterances with TPs as well as utterances without TPs, whereas the adult grammar, in this context, would accept as grammatical only utterances with TPs. Hence the qualification "optional" in Rice et al.'s (1995) Extended Optional Infinitive hypothesis: The tense-marked phonological form is optional in the grammars of children with SLI – at least for a markedly longer period than is the case for typically developing children.

In recent years, both the Optional Infinitive and the Extended Optional Infinitive accounts have been expanded to accommodate the observation by Schütze and Wexler (1996) and Wexler et al. (1998) that the inappropriate use of infinitival verb forms seems to be related to pronoun case error by English-speaking children. Specifically, they observed that these children's "subject case marking in clauses with a fully-specified INFL is essentially perfect" (Schütze and Wexler 1996:672); by contrast, all non-nominative subjects occur with optional infinitives.[31] This led to the proposal that optional infinitives can result from the underspecification of either the tense or agreement features (or both) in children's grammars.[32] Accordingly, this underspecification can result in the combinations in (5) if the lexical entries in (6) are assumed (based on Schütze and Wexler 1996:678,679):

[31] Wexler and Schütze (1996:677) assume "the separation of T and Agr", where "Agr" refers to subject (S) agreement. In other words, a clause is taken to contain an AgrSP(hrase) and a TP, which together replace the category inflectional phrase (IP) of earlier theories of phrase structure. Wexler and Schütze (1996:677) further assume that "Agr, not T, assigns/checks NOM case".

[32] It is assumed that by "underspecification" Wexler and colleagues mean that the feature's value is negative. They use several terms in this regard, presumably all synonyms: "missing (or have a negative value)" (Schütze and Wexler 1996:678), and "omitted" and "deleted" (Wexler 1998).

(5a)	[+tense, +agr]	(Nominative case assigned)	*he walks*
(5b)	[+tense, -agr]	(Nominative unassignable; default accusative surfaces)	*him walk, him walked*
(5c)	[-tense, +agr]	(Nominative case assigned; agreement invisible)[33]	*he walk*
(5d)	[-tense, +agr]	(Nominative case unassignable; genitive case assigned)	*his walk(ing)*

(6a)	[+tense=present; +agr=3sg]	→ *-s*
(6b)	[+tense=past]	→ *-ed*
(6c)	[-tense; -agr]	→ Ø

Under Schütze and Wexler's (1996:678) analysis, in the Optional Infinitive stage, either tense or agreement may be independently missing (or have a negative value) in finite environments. In other words, Schütze and Wexler (1996) and Wexler et al. (1998), accepting the assumption that agreement licenses nominative case, propose that either tense or agreement or both may be missing in the grammars of children, giving rise to optional infinitives. If both tense and agreement are present (and marked), the utterance will contain a nominative subject. If agreement is missing, nominative case will not be licensed, and the structural subject will occur in the default case of the language, which, for English, is taken to be the accusative case (Schütze 1999:750). This proposal has been termed the "Agreement/Tense Omission Model" (ATOM).[34] The EOI has thus been amended to become a two-factor

[33] Non-nominative subjects are said to be produced with non-agreeing verbs when Agreement is "present but hidden" because Tense is missing (Pine, Joseph, and Conti-Ramsden 2004:913).

[34] Rispoli (2005:94) summarises the proposals as follows: When the subject pronoun occurs in the accusative case form (e.g., when *him* occurs instead of *he*), the main verb must lack tense/agreement marking. However, when the subject pronoun is correct, there may be agreement, but not necessarily; i.e., if a verb lacks agreement, one cannot predict the form of the subject pronoun. The examples in (i) and (ii) – found in Charest and Leonard (2004:232-33) – of possible utterances according to the ATOM illustrate Rispoli's latter point:

(i)	Third person singular context:		(ii)	Past tense context:	
(ia)	*She plays*	+agr, +tense	(iia)	*She played*	+agr, +tense
(ib)	*She play*	+agr, -tense	(iib)	*She play*	+agr, -tense
(ic)	*Her play*	-agr, +/-tense	(iic)	*Her play*	-agr, -tense
			(iid)	*Her played*	-agr,+/-tense

account of SLI. For children with SLI, the following has been observed (summary based on Lin 2006):

(i) Children with SLI make more frequent case-marking errors on subjects than do language-matched controls.
(ii) Children with SLI (English-speaking ones, at least) use the accusative case form of the subject where adults require the nominative form.
(iii) Case-marking of subjects is dependent on whether or not clauses contain an auxiliary or main verb which agrees in person and number with the subject.
(iv) Children with SLI may leave verbs underspecified for tense and agreement in finite contexts, resulting in the production of optional infinitives with accusative subjects.

2.4.2. The Representational Deficit For Dependent Relations Hypothesis

According to Van der Lely's (1994) account of SLI, known as the RDDR, the language deficits of children with SLI stem from a selective impairment in establishing the structural relationship between dependent constituents. This impairment leads to some obligatory constituent movements being optional in the grammar of children with SLI.

Before discussing the details of Van der Lely's account, it may be useful to first consider what is meant by "movement" within Minimalist syntax. The operation Move[35] takes place because uninterpretable grammatical features, specifically those associated with functional categories like T, complementiser (C), and others, need to be checked. If these features are not checked, the expression, according to the principle of Full Interpretation (cf. section 3.4.1), will not be interpretable – i.e., the derivation will crash on one or both of the interface levels. In the sentence *The children played rugby*, the head T of TP has a uninterpretable V feature which must be checked against the tense feature of *played*. For this reason, *played* moves to the TP (covertly, in the case of English). The T thus attracts the V feature, and with it the lexical item which contains

[35] Cf. note 77.

that feature (in this case, *played*).[36] In short then, feature checking is driven by the need for (full) semantic and phonetic interpretation, and is accomplished by means of Move. According to Van der Lely (2003:126), "a dependent structural (syntactic) relation is formed in a sentence for the purpose of linking and checking (matching, copying, or moving) grammatical features associated with lexical items (or constituents)"; or, in what Van der Lely calls "more theory-neutral terms", "this syntactic dependency occurs when one sentence constituent 'looks for' a 'sister constituent' for feature checking/matching/copying".

Van der Lely (2003:127) claims that the linguistic deficits in children with SLI should not be ascribed to the total absence of Move, but rather to the optionality[37] of this operation in the grammar of such children. She considers two principles involved in movement. The first, which is obeyed by children with SLI, is that constituents only move if (i) they have features that need to be checked, or (ii) they have features against which those of some other constituent must be checked. Thus, a verb with the feature [+past] will only move to the TP if the TP has a V feature that must be checked, and not for any other reason. On the RDDR, children with SLI experience problems in establishing the dependent relationship between different constituents and thus in establishing the syntactic domain in which the feature can be checked. Therefore, these children often fail to move the constituent to the correct syntactic domain for checking purposes. According to Van der Lely (1996:246), the past tense feature of a verb can, in the grammar of children with SLI, be checked either against the finite TP or against another constituent which is marked for "time" (such as an adverb of time). For this reason, it often seems as if the phonological realisation of such features is optional in the language of children with SLI. Moreover, Van der Lely (1996:246) argues that this optionality leads to the omission of grammatical morphemes in obligatory contexts and not to their insertion in inappropriate contexts. According to Van der Lely (1996:246), this means that a checked tense feature will be realised correctly in the phonological form; however, an unchecked feature will

[36] See section 3.4.3 for a brief discussion of the proposal that features can be moved on their own, without the lexical item of which they form part moving with them.

[37] The reason why Move would be optional in the grammar of children with SLI is not obvious.

not appear in the phonological form of the utterance and therefore the verb will appear in the infinitival form.

The second principle involved in movement, according to Van der Lely (2003:127), is that Move is forced if a constituent's features have not yet been checked. She claims that this principle is "missing" in the grammar of children with SLI. This absence results in Move being an optional operation in the grammar of children with SLI; accordingly, some features are left unchecked.[38] To illustrate a tense/Q-feature error and a *wh*-movement error, Van der Lely (2004) gives the following example.

(7)	*Target:*
What did colonel Mustard had something in his pocket?	What did colonel Mustard have in his pocket?

In this example, a *wh*-movement error called "gap-filling" (i.e., leaving the referential phrase in the base position; Van der Lely 2004) can be observed. Also, while *do*-support does occur, the past tense form *had* is produced instead of *have*.

2.4.3. The Feature Deficit Hypothesis

A third linguistic account of SLI is Gopnik's (1994a) Feature Deficit Hypothesis, originally termed "the Feature Blindness Hypothesis" and then, in revised form, the "Implicit Grammatical Rule Deficit" (Gopnik 1990a, 1990b).[39] On Gopnik's hypothesis, SLI is the result of a deficit in

[38] Note that Van der Lely does not state that the absence of this second principle implies that an item can move even though its features have already been checked.

[39] In contrast to the analyses set out in sections 2.4.1 and 2.4.2, Gopnik's analysis of impaired language use is not limited to that of children. Gopnik (1990b, 1994a, 1994b) presents the results of a study of a family comprising three generations as evidence for what eventually became known as the Feature Deficit Hypothesis. She and her colleagues administered a battery of 14 tests to the 30 family members (one grandmother, her five children, and her 24 grandchildren), and also analysed samples of their spontaneous language use (spoken and written). They found that 16 of the family members (the grandmother, all three of her daughters, one of her sons, six of her 13 granddaughters, and five of her 11 grandsons) performed significantly more poorly than the rest on the four tests evaluating syntactic-semantic abilities, but not on the other 10 tests.

As an example, Gopnik (1990b:715) mentions that the performance of the two groups did not differ significantly when their knowledge of possessive relations (*The baby's*

the knowledge of rules regarding the morphological marking of a specific class of linguistic features (which includes number, gender, person, tense, and aspect). This deficit is claimed to result in an inability to formulate implicit grammatical rules. For example, according to the Feature Deficit Hypothesis, English-speaking children with SLI will not acquire the rule that the verb ends in an *-s* if the subject is in the third-person singular form.

Gopnik claims that children with SLI can compensate for the absence of these implicit rules in two ways. The first is through rote learning (Gopnik 1990b:715), whereby they must memorise all inflected forms. For example, the regular past tense form *played* has to be learnt by children with SLI in the same way as the irregular form *bought* is learnt by all children, whether language-impaired or not. Typically developing English-speaking children subconsciously acquire the rule that *-ed* is added to the end of the verb to form the past tense and therefore only

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mother vs. *The mother's baby*), reflexive pronouns (*He washes him* vs. *He washes himself*), and negative passive constructions (*The car is not being pulled by the truck*) was assessed.
It should be noted that other researchers (e.g., Leonard 1995) found that children with SLI do experience significant problems with the possessive *'s* in English. Also, it is not clear why Gopnik's participants did not demonstrate problems with reflexive pronouns, whereas Van der Lely and Stollwerck (1997) found that children with SLI do experience such problems. It could be that the tasks and visual materials used by the two research teams to evaluate the knowledge of (non-)co-referential relationships differed from each other in such a way as to influence the participants' responses. Furthermore, it is interesting that the example construction provided by Gopnik (1990b:715) to illustrate the negative passive construction is reversible, and is therefore the type of passive construction that Van der Lely and Stollwerck (1997) found to be problematic for children with SLI. Again, the two different responses could be task-related: Gopnik aimed to test negative passive constructions, and it could thus well be that the visual test material, coupled with real-world knowledge, caused the reversibility of these constructions to be of no consequence to its comprehension – in this case, it is probably more likely for a truck to pull a car than vice versa.
Returning to Gopnik's (1990b, 1994a, 1994b) results, the two groups of family members did differ significantly in their abilities to provide the plural of nonsense words (such as *zat*) and to alter tense (when, for example, they were requested to complete *Every day he kisses his nanny. Yesterday he* _____) (see also Goad and Rebellati 1994; Gopnik 1994a; Ullman and Gopnik 1994). From the results of these studies, it appeared that the family members with SLI could not acquire implicit rules and that, where they did provide the correct surface form of words (such as verbs in the past tense form and nouns in the plural form), they made use of forms that they had memorised.

have to memorise irregular forms such as *bought*, *saw*, and *went*. By contrast, children with SLI have to memorise every stem (such as *play*) as well as every inflected form (*plays*, *played*, *playing*). The second way in which children with SLI can compensate for the absence of implicit rules, is by applying rules that were explicitly taught to them. For example, when such children are cognitively mature enough, they can consciously learn and apply rules like "add an *–s* if there is more than one" (Paradis and Gopnik 1994:146).

According to Gopnik, the phonetic form of the utterance is not a reliable indicator of the features involved. In other words, when it does occur, the grammatical morpheme does not necessarily reflect the feature usually associated with it. The phonetic form of a multimorphemic word can thus be regarded as an unanalisable unit by a person with SLI. Gopnik (1994a:77) gives the following example – a written utterance by a person with SLI – to illustrate her point: **On Saturday I got up and I wash myself and I get dress and I eat my breakfast and I watched TV all day and I went to bed.* The phonetic form of three of the verbs (*got*, *watched*, and *went*) suggests that the person knows how to express past tense grammatically in English, but the absence of past tense marking on the other three verbs raises the question whether *watched* was not rather a memorised form.[40]

2.5. CHAPTER CONCLUSION

In this chapter, some characteristics of SLI as it presents itself in English and in a selection of other languages were outlined. The characteristics include problems with grammatical morphology and movement operations. Three theoretical accounts of these characteristics of SLI were presented. On the first account, the ATOM, the optional presence of a TP is proposed to be responsible for some of the problems with grammatical morphology, specifically those related to finiteness. The second account, the RDDR, states that children with SLI experience problems in establishing the dependent relationship between different constituents and thus in establishing the syntactic domain in which a grammatical feature can be checked. On the third account, the Feature

[40] The verbs *got* and *went* are irregular past tense forms and, as such, have to be memorised by all speakers of English.

Deficit Hypothesis, SLI is the result of a deficit in the marking of certain grammatical features (including number, gender, person, tense, and aspect). In chapter 9, it will be determined whether the predictions that these three accounts make for SLI in Afrikaans are borne out by the Afrikaans data obtained in this study. In the next chapter, though, the reader is introduced to the characteristics of (non-impaired) Afrikaans, as well as to some of the devices of Minimalist syntax, which constitute the syntactic framework within which the data of this study were analysed.

Chapter 3

Afrikaans and its syntactic analysis in terms of Minimalist syntax

3.1. INTRODUCTION

As is clear from the previous chapter, the characteristics of SLI have already been studied in several languages. The reasons why the present study of SLI in Afrikaans is warranted are given in section 3.2. In section 3.3, the reader is introduced to some characteristics of Afrikaans morphology and syntax. Finally, in section 3.4, some assumptions and devices of Minimalist syntax – the syntactic framework used for the analysis of the Afrikaans data in this study – are discussed. An indication is also given of how (non-impaired) Afrikaans is analysed in terms of Minimalist syntax. This serves to familiarise the reader with the Afrikaans of adult speakers, so that a comparison can be made between the utterances of the Afrikaans-speaking children in this study and that of adult speakers of the language.

3.2. WHY STUDY AFRIKAANS?

Apart from the languages discussed in chapter 2, there are several others in which SLI has been studied.[41] The question arises as to why it should be deemed necessary to perform yet another study on SLI in a language such as Afrikaans.

There are several clinical and theoretical reasons for studying SLI as it presents itself in Afrikaans. With regard to the clinical reasons, it should be noted that no agreed-upon protocol exists for the identification of SLI in Afrikaans-speaking children. Two of the obvious reasons for this are (i) the lack of information on the precise characteristics of the

[41] For example, Croatian was studied by Ljubešić and Kovačević (1992), Hungarian by Vinkler and Pléh (1995), and Spanish by Merino (1983) and Simon-Cereijido and Gutierrez-Clellen (2007).

language of Afrikaans-speaking children with SLI, and (ii) the lack of assessment instruments for Afrikaans-speaking children. To date, only three standardised tests have been developed for use with Afrikaans-speaking children, viz.:

(i) *Toets vir Mondelinge Taalproduksie* 'Test for Oral Language Production' (TMT) by Vorster (1980). This test is not widely used, amongst other reasons because it is seen as dated and because it has poor test-retest reliability (according to the author himself). Also, due to its age, this test is not informed by any recent developments in the field of grammar.

(ii) *Afrikaanse Semantiese Taalevalueringsmedium* 'Afrikaans Semantic Language Evaluation Medium' (AST) by Pretorius (1989). This test evaluates the receptive and expressive semantic abilities of Afrikaans-speaking children. The test comprises 17 subtests, amongst others, ones evaluating receptive vocabulary; spatial relations and preposition groups; synonyms; and antonyms.

(iii) *Afrikaanse Reseptiewe Woordeskattoets* 'Afrikaans Receptive Vocabulary Test' (ARW) by Buitendag (1994). As its name implies, this test evaluates the receptive vocabulary of Afrikaans-speaking children.

Despite the fact that only three instruments have thus far been developed for use with Afrikaans-speaking children, these instruments are not at all routinely administered by speech-language therapists, even if their client is Afrikaans-speaking and in the age range for which the instruments have been standardised. There are two main reasons for this.

Firstly, it is common practice among South African speech-language therapists to administer (mostly non-standardised) Afrikaans translations of British or American English-medium tests. The norms obtained for the English-speaking population for which these tests were developed are then used to determine the language ability of Afrikaans-speaking children. This is especially, but not exclusively, the case when receptive morphological and syntactic abilities are evaluated,[42] as none of the three

[42] For instance, even though an Afrikaans-medium instrument, namely the ARW, is available to evaluate receptive vocabulary, some speech-language therapists prefer to use the Afrikaans translation of the Peabody Picture Vocabulary Test – Revised (Dunn and Dunn 1981).

available Afrikaans-medium tests evaluates these abilities – apart from one subtest of the AST which evaluates passive relations.

Secondly, as regards evaluating language production, the TMT is not the speech-language therapist's instrument of choice, for reasons given in (i) above. Because no other test has been developed to evaluate the expressive morphology or syntax of Afrikaans-speaking children, most South African speech-language therapists make use of spontaneous language sample analysis when evaluating these aspects of the language of their Afrikaans-speaking clients.

Whether any of these three tests have been performed or not, the general judgement of the speech-language therapist regarding slow and/or abnormal development determines whether or not an Afrikaans-speaking child is diagnosed with SLI. This general judgement is based on the results of two or more of the following: (i) a detailed case-history regarding language and other development; (ii) standardised testing in the form of one or more of the above-mentioned three tests developed for Afrikaans-speaking children; (iii) testing with non-standardised Afrikaans translations of tests developed for English-speaking children; (iv) informal testing; and/or (v) language sample analysis.

A study of the characteristics of SLI as they appear in Afrikaans will be of clinical value, as it will enable speech-language therapists to (i) select standardised tests which target relevant aspects of language, (ii) devise informal test material which targets these aspects, (iii) analyse language samples of Afrikaans-speaking children in a more sensible manner, and (iv) plan remediation (including therapy activities) in a more informed and focused manner.

A study of the characteristics of SLI as they appear in Afrikaans will, however, also be of theoretical value. As mentioned in section 2.3.1, the characteristics of SLI include problems with the use of grammatical morphemes, movement operations, and the establishment of (non-)co-referential relationships. Within the framework of Minimalist syntax (Chomsky 1995a, 1998, 1999, 2001, 2002),[43] these problems could be

[43] Cf. section 3.4.

shown to be related;[44] if so, a unified account of SLI in terms of a problem with grammatical features may be proposed. On the one hand, the problem might lie with the existence (or absence) of grammatical features themselves in the grammar of children with SLI. On the other hand, the problem might lie with the requirement that semantically uninterpretable grammatical features need to be checked by means of movement of lexical items or expressions[45] – in order that a derivation does not crash (Chomsky 1995a:230; Hornstein, Nunes, and Grohmann 2005:293).

Afrikaans differs from the other languages in which SLI has thus far been studied: Unlike in the languages discussed in section 2.3 above, very few grammatical features are realised phonologically in Afrikaans. However, Afrikaans shows word order variation, amongst others, due to scrambling and left dislocation.[46] The limited phonological realisation of grammatical features and the frequent overt movement of syntactic constituents in Afrikaans make this language an interesting one to study, from a theoretical perspective, when looking at the characteristics of SLI. The question arises: If children with SLI experience problems realising grammatical features correctly, how does SLI present itself in a language in which grammatical features are, in any case, realised phonologically to a very limited extent, but where overt movement – which is assumed in Minimalist syntax to be driven by the need to check features – occurs frequently?

To summarise then, it appears that a study of SLI in Afrikaans-speaking children could be of both clinical and scientific import, contributing to the (relatively limited) knowledge base on SLI in two ways. Firstly, such a study could provide data useful for clinical practice, i.e., for the identification, assessment, and treatment of Afrikaans-speaking children with SLI. At present, no comprehensive study has been made of how

[44] In order to achieve this for the problems with co-referential relationships, a so-called feature based account of co-reference (see Oosthuizen, forthcoming, for Afrikaans) needs to be assumed.

[45] It is assumed that it is this need for checking which licenses movement (Belletti and Rizzi 2002:33).

[46] See section 3.3 for a more detailed discussion of some of the syntactic characteristics of Afrikaans. For descriptive grammars of Afrikaans, see, e.g., De Villiers (1971); Donaldson (1993); Ponelis (1979).

SLI presents itself in Afrikaans, and no relevant data have been collected. Secondly, Afrikaans has properties (such as being morphologically impoverished) useful for testing theoretical accounts of SLI based on other languages. Hence, such a study could shed light on the explanatory merit of various theoretical accounts of SLI.

Several researchers have set out to provide such linguistic accounts of SLI based on the characteristics of SLI, amongst others those presented in section 2.3 above (see, for example, Clahsen 1989; Gopnik 1990a, 1990b, 1994b; Rice and Wexler 1996; Rice et al. 1995; Van der Lely 1994, 1998, 2003, 2004). In these accounts (some of which are discussed in section 2.4), reference is often made to grammatical features that are phonologically observable in the language of non-impaired speakers but are omitted or substituted in the language of children with SLI. The following brief discussion provides an indication of how (non-impaired) Afrikaans presents in terms of the phonological realisation of grammatical features and in terms of movement and co-reference relationships. This should give the reader some indication of what could potentially "go wrong" in the language of Afrikaans-speaking children with SLI.

3.3. SOME PROPERTIES OF THE MORPHOLOGY AND SYNTAX OF AFRIKAANS

This section describes aspects of the morphology and syntax of Afrikaans (some of which have already been referred to above). Specifically, how Afrikaans presents in terms of grammatical morphology, constituent movement, and co-referential relationships will be discussed.

3.3.1. Grammatical morphology

The grammatical features number, person, case, and tense are realised phonologically in Afrikaans. Semantic gender is also indicated morphologically, but not grammatical gender, which is absent from the language.

3.3.1.1. Number

In Afrikaans, agreement in terms of number is not phonologically realised on verbs. As can be seen in the examples in (8) and (9), the verb has the same form whether the subject and object are singular or plural.

(8a)
Die kind vra 'n vraag
the child ask a question
'The child is asking a question'

(8b)
Die kind vra vrae
the child ask questions
'The child is asking questions'

(9a)
Die kinders vra 'n vraag
the children ask a question
'The children are asking a question'

(9b)
Die kinders vra vrae
the children ask questions
'The children are asking questions'

With regard to nouns, there are no bound morphemes to indicate the cardinal *one*, and there is no single default rule for forming the plural of any noun. There are two regular plural suffixes, namely *–e* (as in *katte* 'cats', the plural form of *kat*) and *–s* (as in *bekers* 'mugs', the plural form of *beker*). The decision whether a noun is pluralised by means of suffixing *–s* or *–e* can be described as being rule-based, but there are many rules determining which suffix is the correct one[47] (cf. Donaldson 1993:69-84). There are also many exceptions to these rules. Hence, to a certain extent, the correct plural form of a noun has to be learnt, i.e., speakers of Afrikaans must learn whether

(i) the plural form is an irregular one (such as *kinders* 'children', the plural form of *kind*; *vrouens* 'women', the plural of *vrou*; *volksliedere* 'national anthems', the plural of *volkslied*; *hemde* 'shirts', the plural of *hemp*; or *berigte* 'reports', the plural of *berig*);
(ii) the plural is formed through both a suffix and a vowel change (as in *stede* 'cities', the plural of *stad*; or *skepe* 'ships', the plural of *skip*);

[47] Two examples of such rules are

(i) Nouns ending in [a], [ɑr], [ɑrt], [ə], [i̯u], [əl], [əm], [ən], [ər], [ərt], [i], [ir], [ləm], or [rəm] are pluralised by means of affixing *–s* (Donaldson 1993:69). For instance, the plural form of *kamera* 'camera' is *kameras*; that of *skakelaar* 'switch' is *skakelaars*; and that of *opinie* 'opinion' is *opinies*.
(ii) Nouns containing the long vowels [ɑ], [i̯ə], [o], or [y] in a closed syllable are pluralised by means of affixing *–e* (Donaldson 1993:72). For example, the plural of *plaas* 'farm' is *plase*; that of *skool* 'school' is *skole*; and that of *vuur* 'fire' is *vure*.

(iii) the noun takes one of the two regular plural suffixes *–s* or *–e*, but not the one specified by the rules for forming regular plurals. For instance, the plural form of *tenk* 'tank' is *tenks* and not the expected *tenke* (on analogy to *wenke* 'tips', the plural of *wenk*). Also, the plural form of *oom* 'uncle' is *ooms* and not the expected *ome* (on analogy to *bome* 'trees', the plural of *boom*).

3.3.1.2. Person

In Afrikaans, neither verbs nor nouns are inflected for person. As can be seen from example (10), the verb remains in the same form, regardless of the person of the pronoun.

(10)
Ek /Jy /Hy lees die tydskrif
I /you-SGL /he read the magazine
'I am /You are /He is reading the magazine'

However, as can also be seen from example (10), personal pronouns have different forms for first-, second- and third-person, as do possessive pronouns (cf. section 3.3.1.4).

3.3.1.3. Gender

Agreement in terms of gender is not indicated in Afrikaans. In other words, no distinction is made between semantic gender and grammatical gender. In a language such as German, a grammatically female noun, such as *Katze* 'cat', can refer to a male or female object (thus to a tomcat or a female cat) and a grammatically male noun, such as *Hund* 'dog', can refer to a male or female object (thus to a bitch or a male dog).[48] By contrast, semantic gender is often indicated overtly in Afrikaans.[49]

[48] In German, gender distinctions are also sometimes lexically encoded – for instance, *Kater* only refers to a male cat and *Löwin* only to a lioness.

[49] Semantic gender is indicated on some nouns denoting people and (less commonly) animals, mostly by the use of derivational suffixes. Speakers of Afrikaans have to learn whether semantic gender is indicated (i) lexically, i.e., phonologically in the form of separate/different words due to the occurrence of suppletion, as in *ram* 'ram' and *ooi* 'ewe'; (ii) by compounding, as in *leeunyfie* 'lioness' which is the female form of *leeu* 'lion'; (iii) not at all, as in *outeur* 'author' or 'authoress'; or (iv) by affixation, as in *kelnerin* 'waitress' the female form of *kelner* 'waiter'. Note that there are several suffixes to indicate semantic gender, not only *-in*.

Example (11) indicates the lack of agreement in terms of grammatical gender in Afrikaans.

(11a)
Die vriendelike[50] man
the friendly man
'The friendly man'

(11b)
Die vriendelike vrou
the friendly woman
'The friendly woman'

3.3.1.4. Case

The form of the definite article in a very limited number of archaic Afrikaans expressions indicates that Afrikaans is largely descended from a language – specifically 17th century Dutch – in which case was realised phonologically to a greater extent than it is currently in Afrikaans. Examples of such archaic expressions are given in (12) and (13).

(12)
In der waarheid
in the-DAT truth
'in fact'

(13)
Om den brode
for the-DAT bread(s)
'in order to make a living'

Except in such archaic expressions, the form of the definite article is *die* 'the' and that of the indefinite article is *'n* 'a(n)'. In other words, case is not realised phonologically on the article. However, it is realised on singular personal and possessive pronouns. The pronoun system in Afrikaans is summarised in (14). Note that, unlike in languages such as French and Dutch, there is no weak (clitic)–strong distinction in Afrikaans.[51]

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[50] In Afrikaans, some attributive adjectives are inflected with *–e*, specifically those consisting of more that two syllables (*'n vinnige nota* 'a quick note'; *dankbare mense* 'thankful people') and monosyllabic ones ending in /d/ (*'n vreemde gevoel* 'a strange feeling'), /f/ (*stywe spiere* 'stiff muscles'), /x/ (*die klere is droog* ' the clothes are dry', but *die droë klere* 'the dry clothes'), and [s] (*snaakse dinge* 'funny things') (Donaldson 1993:163-167).

[51] For example, in Dutch, there is a distinction between the stong *mijn* 'mine', *jouw* 'your', *zijn* 'his' and *haar* 'her', on the one hand, and the clitic *m'n*, *je*, *z'n* and *d'r*, on the other.

(14)	*Nominative*	*Oblique*	*Possessive*
1st person singular	Ek 'I'	My 'me'	My kar 'my car'
1st person plural	Ons 'we'	Ons 'us'	Ons kar 'our car'
2nd person singular (familiar)	Jy 'you'	Jou 'you'	Jou kar 'your car'
2nd person plural (familiar)	Julle[52] 'you'	Julle 'you'	Julle kar 'your car'
2nd person singular/plural (formal)	U 'you'	U 'you'	U kar 'your car'
3rd person singular masculine	Hy 'he'	Hom 'him'	Sy kar 'his car'
3rd person singular feminine	Sy 'she'	Haar 'her'	Haar kar 'her car'
3rd person singular neuter	Dit 'it'	Dit 'it'	Sy kar 'its car '
3rd person plural	Hulle 'they'	Hulle 'them'	Hulle kar 'their car'

In contrast to the prenominal possessive pronouns given in (14), the substantively used possessive pronominal forms are indicated in (15) to (17).

(15a) Myne /Joune /U s'n /Syne /Hare /Syne is weg
mine /yours-SGL-FAMILIAR /yours-SGL-FORMAL /his /hers /its be gone
'Mine /Yours /Yours /His /Hers /Its is gone'

(15b) Ons s'n /Julle s'n /U s'n /Hulle s'n is weg
ours /yours-PL-FAMILIAR /yours-PL-FORMAL /theirs be gone
'Ours /Yours /Yours /Theirs is gone'

(16a) Hy is nie by Stan se huis nie; hy is by myne /joune /u s'n /syne /hare /syne
he be not at Stan *possessive-marker* house not; he be at mine /yours-SGL-FAMILIAR /yours-SGL-FORMAL /his /hers /its
'He is not at Stan's house; he is at mine /yours /yours /his /hers /its (house)'

(16b) Hy is nie by Stan se huis nie; hy is by ons s'n /julle s'n /u s'n /hulle s'n
he be not at Stan *possessive-marker* house not; he be at ours /yours-PL-FAMILIAR /yours-PL-FORMAL /theirs
'He is not at Stan's house; he is at ours /yours /yours /theirs'

(17a) Dit is myne /joune /u s'n /syne /hare /syne
it be mine /yours-SGL-FAMILIAR /yours-SGL-FORMAL /his /hers /its
'It is mine /yours /yours /his /hers /its'

(17b) Dit is ons s'n /julle s'n /u s'n /hulle s'n
it be ours /yours-PL-FAMILIAR /yours-PL-FORMAL /theirs
'It is ours /yours /yours /theirs'

[52] *Julle* and *hulle* may be reduced to *jul* and *hul*, respectively, regardless of their case.

Afrikaans has a possessive construction consisting of a DP with the structure given in (18) (Oosthuizen and Waher 1994:21; see also Den Besten 2006) and illustrated in (19) to (23), where the particle *se* indicates possession and is to some extent equivalent to the English possessive *'s*. The form of *se* is invariant, regardless of the characteristics of the antecedent possessor (which is phrasal). For instance, in (19), the possessor is singular, whereas it is plural in (20). In (21), *se* is preceded by a DP with a relative phrase and, in (22), by one with a relative clause. Example (23) indicates that *se* can be used recursively.

(18) XP se NP

(19)
Pieter se idee
Peter *possessive -marker* idea
'Peter's idea'

(20)
Die kinders se storie
the children *possessive-marker* story
'The children's story'

(21)
Die man met die swart pak se sambreel
the man with the black suit *possessive-marker* umbrella
'The umbrella of the man in the black suit'

(22)
Die ou motor wat daar staan se pap wiel
the old car which there stand *possessive-marker* flat tyre
'The flat tyre of the old car standing there'

(23)
My oom met die kierie se vrou se suster se ... se kleinkind se dosent se lesing
my uncle with the walking-stick *possessive-marker* wife *possessive-marker* sister *possessive-marker* ... *possessive-marker* grandchild *possessive-marker* lecturer *possessive-marker* lecture
'My uncle with the walking stick's wife's sister's ... grandchild's lecturer's lecture'

The particle *se* in Afrikaans is also used with the interrogative and relative pronoun *wie* 'who' and, in informal speech, with the relative pronoun *wat*, as illustrated in (24) to (26).

(24)
Wie se boek lees jy?
who *possessive-marker* book read you
'Whose book are you reading?'

(25)
Ek ken die vrou wie se boek jy lees
I know the woman who *possessive-marker* book you read
'I know the woman whose book you are reading'

(26)
Hier is die boek wat se bladsye geskeur is
here be the book that *possessive-marker* pages torn be
'Here is the book of which the pages are torn'

3.3.1.5. Tense

Present tense, on the one hand, is indicated on the modal auxiliaries in Afrikaans constructions containing (one or more of) these auxiliaries.[53] As illustrated in (27), these auxiliaries co-occur with the infinitival form of the main verb.

(27)
Ek sal /wil /kan /moet /mag baie praat
I will /want-to /can /must /may a-lot talk-INF
'I will /want to /can /must /may talk a lot'

When modal auxiliaries do not occur, present tense is "carried" by the main verb. Such a verb has the same form as the infinitive, regardless of the person and number features of the subject, as can be seen in (28). *Hê* 'to have' and *wees* 'to be' are the exceptions, as shown in (29) and (30), respectively: The present tense form of *hê* is *het*, and the past tense form either *had*[54] or *het gehad* (with *gehad* being the past participial form). The

[53] In section 3.3.1.5, active constructions are at issue. Passive constructions are discussed in section 3.3.2.3.

[54] The *had* form – as in (29c) – is now rarely used (De Villiers 1971:24).

present tense form of *wees* is *is*, and the past tense form either *was* or *was gewees* (with *gewees* being the past participial form).

(28)
Ek /Ons /Jy /Julle /Hy /Sy /Dit /Hulle /Die seun(s) praat
I /we /you-SGL /you-PL /he /she /it /they /the boy(s) talk-PRESENT
'I /We /You /You /He /She /It /They /The boy(s) talk(s)'

(29a) Ek /Ons /Jy /Julle /Hy /Sy /Dit /Hulle het twee bene
I /we /you-SGL /you-PL /he /she /it /they have-PRESENT two legs
'I /We /You /You /He /She /It /They have/has two legs'
(29b) Gister het ek vrede gehad
yesterday did[55] I peace have-PAST PART
'Yesterday I had peace'
(29c) Gister had ek vrede
yesterday have-PAST I peace
'Yesterday I had peace'

(30a) Ek /Ons /Jy /Julle /Hy /Sy /Dit /Hulle is hier
I /we /you-SGL /you-PL /he /she /it /they be-PRESENT here
'I am /We are /You are /You are /He is /She is /It is /They are here'
(30b) Gister was ek hier gewees
yesterday be-PAST I here be-PAST PART
'Yesterday I was here'
(30c) Gister was ek hier
yesterday be-PAST I here
'Yesterday I was here'

The present tense form of the main verb may also facultatively be used in contexts where past tense is denoted by, for example, an adverbial phrase (AdvP), as shown in (31). This is called the "historic present tense form".

(31)
Gister stap hy dorp toe
yesterday walk he town to
'Yesterday he walked to town'

[55] 'have' would be a more accurate translation for the temporal auxiliary *het*, but in order to differentiate between the main verb *het* which is translated as 'have' and the temporal auxiliary *het*, the latter is translated as 'did' throughout.

Past tense, on the other hand, is expressed by the obligatory temporal auxiliary *het* in constructions **not** containing modal auxiliaries. The *het* co-occurs with the past participial form of the main verb, as shown in (32). This form resembles the infinitive, but has the prefix *ge-*, except in the case of verbs beginning with the derivational morphemes *be-*, *ge-*, *her-*, *er-*, *ont-*, or *ver-*, or another unstressed prefix, as shown in (33) (cf. Donaldson 1993:section 8.5.1).

(32)
Die man het kos gekoop
the man did food buy-PAST PART
'The man bought food'

(33)
Sy het dit vermy /ontken /erken /begryp
she did it avoid-PAST PART /deny-PAST PART /admit-PAST PART /grasp-PAST PART
'She avoided/denied/admitted/grasped it'

Another exception is the second verbal element of a hendiadys. A hendiadys in Afrikaans is a syntactic construction in which two verbal elements are connected by means of the conjunctive particle *en* 'and' to express a single complex idea (Roberge 1994:45). An example is *loop en eet* 'walking along eating'. According to Roberge (1994:45), this second verbal element is the main verb. Yet, this element occurs in the form resembling the infinitival one in a past tense hendiadys, whereas the first element can occur either in the form resembling the infinitival one or in the *ge-* past participial form, as shown in (34).

(34a)
Hy het gesit en eet
he did sit-PAST PART and eat-INF
'He was (sitting and) eating'

(34b)
Hy het sit en eet
he did sit-INF and eat-INF
'He was (sitting and) eating'

When expressing past tense in constructions containing a modal auxiliary, the use of the temporal auxiliary *het* and the past participial (*ge-*) form of the main verb is optional. If *het* and the past participle are **not**

used, the main verb remains in its infinitival form. In such cases, the modal auxiliary takes its past tense form, as can be seen in (35b).[56]

(35a)	(35b)
Sy wil /moet /kan sien	Sy wou /moes /kon sien
she want-to-PRESENT /must-PRESENT /	she want-to-PAST /must-PAST /
can-PRESENT see-INF	can-PAST see-INF
'She wants to /must /can see'	'She wanted to /had to /could see'

The two exceptions here are the modals *mag* 'may' and *durf* 'dare', the latter exclusively found in negative and interrogative constructions. The past tense form of *mag*, namely *mog*, is virtually extinct. In constructions expressing past tense, the phonological form of *durf* is either *durf*[57] or – less commonly and in combination with the temporal auxiliary *het* – *gedurf*.[58] In sentences containing these two modals, the past tense form is formed by using the modal, the temporal *het*, and the past participial form of the main verb, as shown in (36) and (37).

(36)
Ek mag dit gesien het
I may it see-PAST PART did
'I was allowed to see it' / 'There is a possibility that I saw it'

---

[56]Less commonly, the *ge-* is bound to the modal instead of to the main verb, as shown in (i).

(i) Sy het gewou /gekon deelneem
she did want-to-PAST PART / can-PAST PART participate-INF
'She wanted to / could participate'

[57] As in *Ek het dit nie durf sê nie* 'I dared not say it'.

[58] In some cases, the *ge-* that is to be expected on the main verb, is bound to the modal *durf*, as illustrated in (ia) below. Note that whereas the absence of *ge-* is acceptable in constructions such as (ib), two occurrences of *ge-* (one on the modal and one on the main verb) lead to ungrammaticality, as shown in (ic).

(ia) Ek het dit nie gedurf sê nie
I did it not dare-PAST say-INF not
'I dared not say it'

(ib) Ek het dit nie durf sê nie
I did it not dare-PAST say-INF not
'I dared not say it'

(ic) *Ek het dit nie gedurf gesê nie
I did it not dare-PAST PART say-PAST PART not
'I dared not say it'

(37)
Ek durf dit nie gesê het nie
I dare it not say-PAST PART did not
'I dared not say it'

If the temporal *het* and the past participial form of the main verb are used in past tense constructions containing modal auxiliaries (apart from *mag* and *durf*), then these modals may occur in either of the two tense forms (present or past). The past tense feature is then presumably "carried" by the *het*, and not by the modal(s). The following examples serve to illustrate this, where (38a) and (38b) are synonymous with the past tense constructions in (35) above.

(38a)
Sy wil /moet /kan gesien het
she want-to /must /can see-PAST PART did
'She wanted to /had to /could see'

(38b)
Sy wou /moes /kon gesien het
she want-to-PAST /must-PAST / can-PAST see-PAST PART did
'She wanted to /had to /could see'

In other words, the three sentences in (39) could have the same temporal reference.

(39)
Ek kon dit doen
Ek kan dit gedoen het
Ek kon dit gedoen het
'I could do it'

An interesting property of Afrikaans modal auxiliaries is that they may be "stacked", i.e., more than one modal auxiliary may occur in one and the same construction, together with or independent of the temporal *het*, as can be seen in (40).

(40a)
Ek sou dit moes kon doen
I will-PAST it must-PAST can-PAST do-INF
'I would have had to be able to do it'

(40b)
Ek sou dit moes kon gedoen het
I will-PAST it must-PAST can-PAST do-PAST PART did
'I would have had to be able to do it'

3.3.1.6. Summary: Morphosyntax

In Afrikaans, agreement is not realised morphologically, not in terms of number, person or grammatical gender features. Case is realised morphologically, but only on pronouns. Present tense is not realised morphologically, but past tense is, and in more than one way.

3.3.2 Word order related phenomena[59]

Afrikaans is a verb-second[60] language. Since Koster (1975), verb-second languages which demonstrate a verb-second surface word order in matrix clauses but a verb-final one in embedded clauses have been analysed as SOV underlyingly (Biberauer 2002:22). Because Afrikaans patterns like Dutch (its parent) in terms of being verb-second, it has been analysed together with Dutch as an SOV language since the 1970s and 1980s (see, for example, Waher 1982). However, after Zwart (1993, 1994) proposed that Dutch is a SVO language and particularly since Kayne's (1994) proposal that all phrase structure could be seen as underlyingly head-initial, Afrikaans VPs are increasingly considered to have an underlying VO structure (cf. Oosthuizen 1996, 1998). For the purposes of this study, Afrikaans is taken to be a verb-second language which demonstrates an underlying SOV word order. Specifically, (i) for the projections within the *v*P, the traditional SOV underlying order will be adopted; and (ii) I will abstract away from the existence of object movement within the verbal domain; but (iii) the functional layers TP and CP will be analysed as being head-initial.

Aspects of word order pertaining to (i) the placement of the finite verb, (ii) the derivation of question constructions, (iii) the derivation of passive constructions, and (iv) preposing and scrambling are discussed below, as are aspects of co-reference in Afrikaans.

[59] See section 3.4.3 for a discussion on movement.

[60] The verb-second phenomenon entails the obligatory occurrence of finite verbs in the clause-second position, preceded by some clause-initial (usually phrasal) constituent (Biberauer 2002:19).

3.3.2.1. Placement of the finite verb

In simple declarative sentences containing one verb, this main verb is placed in the second position of the sentence. The sentence-initial position can be occupied by a single word, as is illustrated in (41)[61,62] and (42), or by a multi-word phrase, as in (45).

(41)
Hy eet piesangs
he eat bananas
'He is eating bananas'

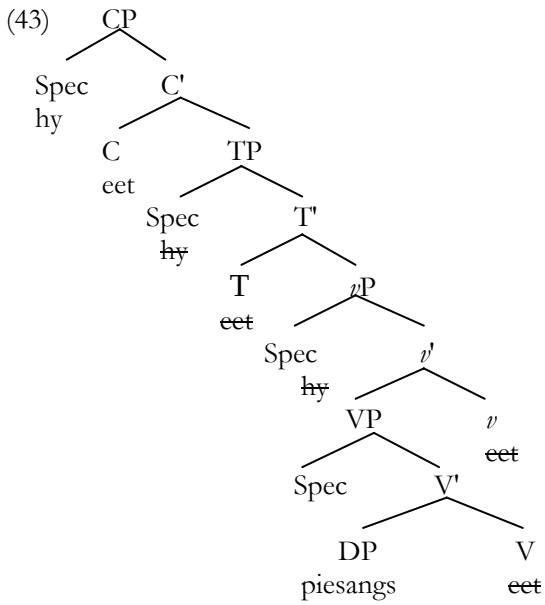
(42)
Vandag eet hy piesangs
today eat he bananas
'Today, he is eating bananas'

[61] Tree diagrams are used to indicate the derivation of the surface word order of some of the utterances. Where the derivation of different utterances is rather similar, the diagram of only one is given. For instance, the derivation of (45) is not given, as it is similar to that of (43). These tree diagrams now precede the discussion on Minimalist syntax, which is not ideal, but which makes it possible to indicate how a construction is derived while the construction is still under discussion.

[62] In previous versions of generative syntax, it was argued that a syntactic object (a head or a phrase) is moved as a whole; in the process, it leaves behind a "trace" of itself, i.e., a phonetically empty element. It is currently generally accepted, however, that movement rather implies copying a syntactic object, i.e., duplicating the object involved in movement (see the discussion of the Inclusiveness Condition in section 3.4.1; see also Chomsky 2006:7). This copy then merges with some other syntactic object, with feature checking taking place in the process. The two copies are identical, except that the one which is (re-)merged has a fuller set of checked features. The copy which was left behind, i.e., the one which did not merge, is (usually) deleted later, for reasons pertaining to PF (Hornstein et al. 2005:242; also see Corver and Nunes 2007; Nunes 2004). Thus, usually only the copy occurring in the highest position created by internal merge (cf. note 77) is pronounced (Chomsky 2006:8), because presumably this copy is the only one which has had all its uninterpretable features checked (cf. Hornstein et al. 2005:242). So instead of a lexical element moving and leaving a trace, such a lexical item is copied and then merges with other lexical items, with all but one copy being deleted later. Note that Merge is recursive, and it can be applied to both lexical items and expressions which are themselves a result of the application of Merge (Hornstein et al. 2005:209). In chapter 9, when explaining the word order errors of the participants in the present study, I draw on this copy theory. In the tree diagrams, copies instead of traces are entered, with deleted copies indicated by means of strike-through notation.

From the tree diagram in (43), it can be seen that the subject is taken to originate in the specifier position of *v*P, from which it moves first to the specifier position of TP and then to the specifier position of CP. The verb originates in the V-position and moves from there first to *v*, then to T and then to C.

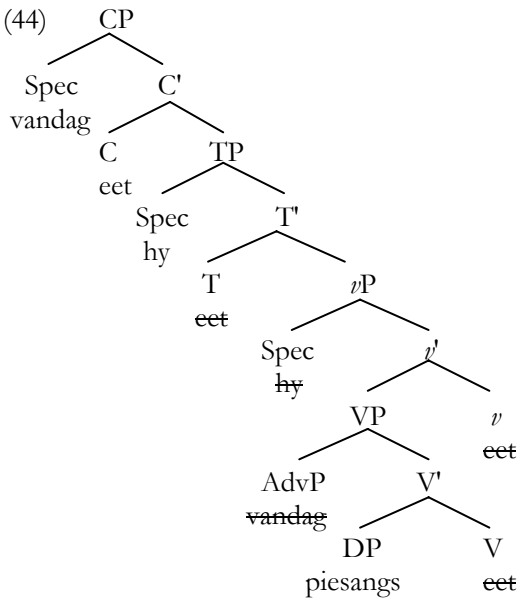
(43)



In (44), the verb undergoes the same movement as it did in (43), but the subject does not undergo the final move to the specifier position of CP. This is because this position is occupied by the adverb, which originated adjoined to the *v*P from where it moved to the specifier position of CP.

In (45), *op die trappe naby die biblioteek* is seen as one constituent, which would have originated adjoined to the *v*P, from where it would move to the specifier position of CP. The sentence demonstrates a verb-second surface word order, with the verb *eet* occupying this second position (which is C). The subject *hy* is in the third position (in the specifier position of TP to which it moved from the specifier position of the *v*P).

(44)



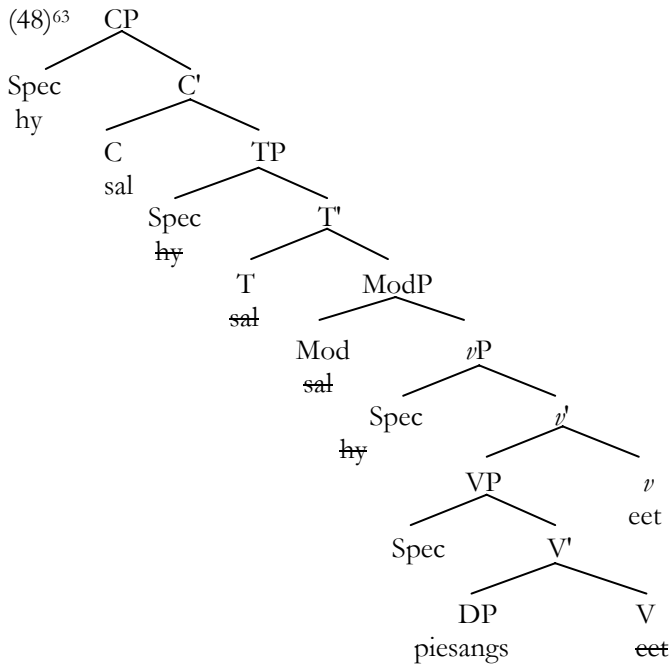
(45)
Op die trappe naby die biblioteek eet hy piesangs
on the steps near the library eat he bananas
'On the steps near the library, he is eating bananas'

In sentences containing auxiliary verbs, the auxiliaries appear in the second position and the finite verb or past participle in the sentence-final position, as shown in (46) which contains a temporal auxiliary, and (47) which contains a modal one. The derivation of (47) is given in (48).

(46)
Hy het piesangs geëet
he did bananas eat-PAST PART
'He has eaten bananas'

(47)
Hy sal piesangs eet
he will bananas eat-INF
'He will eat bananas'

(48)[63]

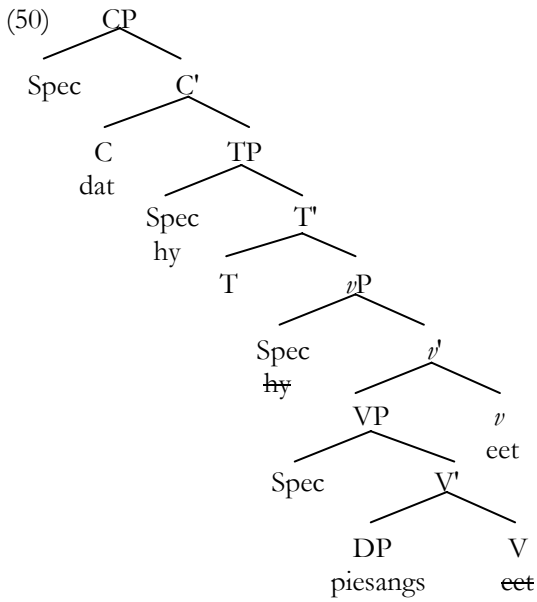


In embedded sentences, the object appears before the verb (and before any auxiliaries), as shown in (49), (51), and (52). In the case of modal auxiliaries, the infinitive appears in the sentence-final position, as shown in (51). If an embedded sentence contains the temporal auxiliary *het*, this auxiliary occurs in the sentence-final position, directly preceded by the past participle, as shown in (52).

(49)
Hy het bevestig dat hy piesangs eet
he did confirm that he bananas eat
'He confirmed that he eats bananas'

[63] Whereas this derivation is unproblematic for matrix clauses containing modal auxiliaries, the same cannot be said of embedded clauses containing modal auxiliaries, because there the modal needs to occur, in the surface word order, between the object and the verb in its infinitive form: *dat hy piesangs sal eet*. A proposed solution to this problem, offered by Biberauer and Richards (2004), entails that the modal does not merge in the ModP but in the *v*-position. The infinitive merges in the V-position and moves from there to the *v*, right-adjoining the modal, rendering *piesangs* ~~*eet*~~ *sal eet*. Subsequent tree diagrams will follow this proposal.

(50)



(51)
Hy het bevestig dat hy piesangs sal eet
he did confirm that he bananas will eat-INF
'He confirmed that he will eat bananas'

(52)
Hy het bevestig dat hy piesangs sou geëet het
he did confirm that he bananas will-PAST eat-PAST PART did
'He confirmed that he would have eaten bananas'

Note that where the object is [+animate] and definitely where it is [+human], the object itself can (and, in some cases, must) be preceded by *vir*[64] – which Den Besten (2000:950) glosses with 'for' (see also Molnárfi 2002). This is illustrated by (53), in which both Afrikaans sentences have the same meaning.

[64] Note that this *vir* is often found in spoken Afrikaans, but is not encouraged in written Afrikaans.

(53a)	(53b)
Ek sien hom /die vrouens /die pot	Ek sien vir hom /vir die vrouens /*vir die pot
I see him /the women /the pot	I see for him /for the women /for the pot
'I see him /the women /the pot'	'I see him /the women /the pot'

3.3.2.2. Question constructions

The derivation of *yes/no*-questions in Afrikaans involves what is generally called "subject-verb inversion", as shown in (54) to (59). In (55), the main verb *sien* moves to the head position of the complementiser phrase (CP);[65] this is in contrast to English, in which *do*-support is required to derive the equivalent sentence. As in English, auxiliary verbs in Afrikaans can also undergo subject-verb inversion, as illustrated in (55) and (56).

(54) *Declarative:*	*Interrogative:*
Hy sien dit	Sien hy dit?
he see it	see he it
'He sees it'	'Does he see it?'

In a tree representation, the derived structure of (54) would look as in (57), where *sien* has moved to C (via T) and *hy* has moved from within the *v*P to the specifier position of TP.

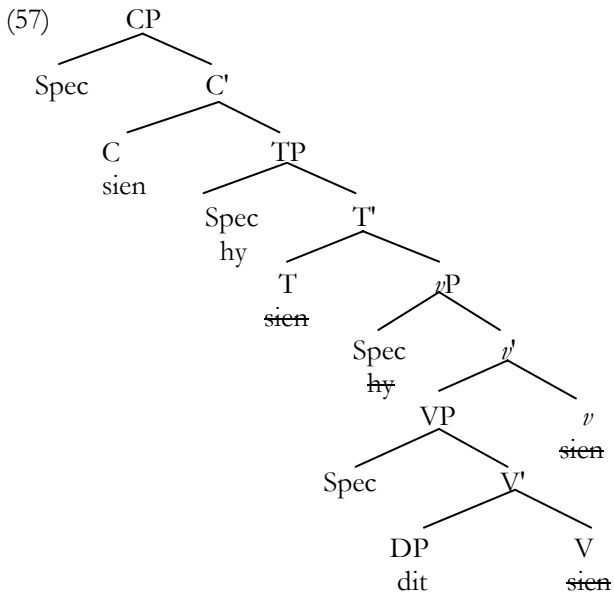
With a modal auxiliary, the sentence looks like (55) and has the derived structure shown in (58). The equivalent question construction containing the temporal auxiliary *het* is shown in (56).

(55) *Declarative:*	*Interrogative:*
Hy sal dit sien	Sal hy dit sien?
he will it see	will he it see
'He will see it'	'Will he see it?'

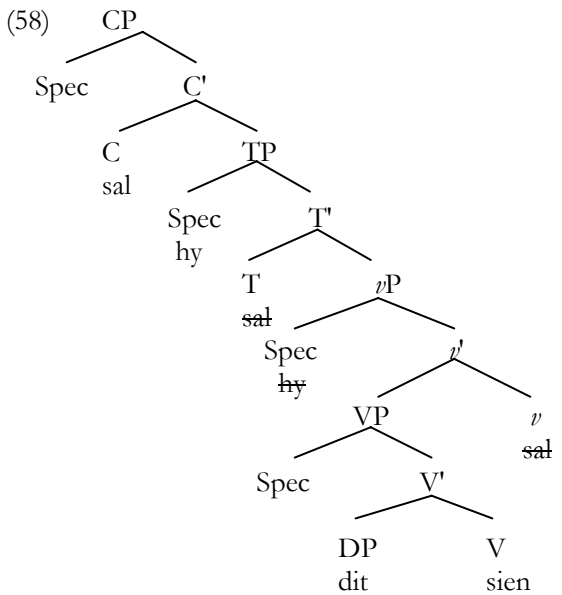
(56) *Declarative:*	*Interrogative:*
Hy het dit gesien	Het hy dit gesien?
he did it see-PAST PART	did he it see-PAST PART
'He saw it'	'Did he see it?'

[65] For simplicity's sake, the CP is treated here as if it is a single phrase. Recently, it has been proposed that CP is a domain, consisting of a force phrase, topicalisation phrase, focus phrase, and finiteness phrase. Cf. Benincá and Poletto (2004); Botha (2006); Rizzi (1997).

(57)



(58)



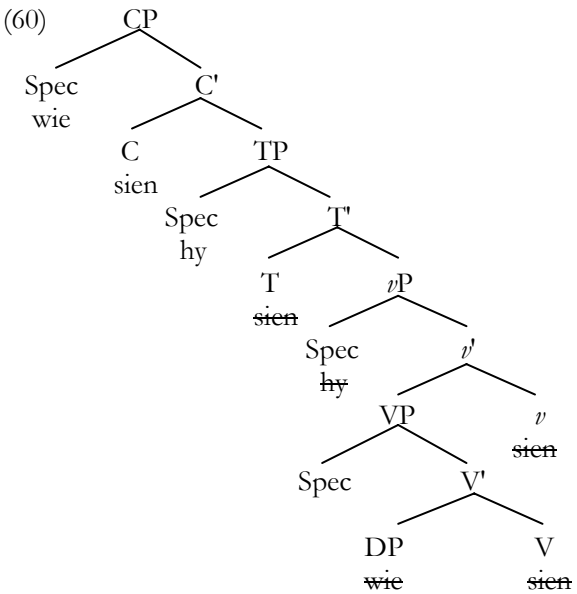
In the derivation of Afrikaans *wh*-questions, as is the case in English, the phrase containing the *wh*-element moves to the specifier position of the CP. Where this element is in a prepositional phrase (PP), the whole PP can move to the specifier position of the CP – an operation known as

pied-piping (Ross 1967; cf. (61a)) – or the *wh*-element can move on its own, leaving the preposition "stranded" (cf. (61b)). In the course of the derivation, the verb also moves into the head position of the *v*P and then the head position of the TP and from there to the head position of the CP. Again, the equivalent of *do*-support does not occur in Afrikaans.[66]

(59) *Declarative:*
Hy sien die kind
he see the child
'He sees the child'

Interrogative:
Wie sien hy?
who see he
'Who does he see?'

(60)



(61a) *Declarative:*
Hy betaal met note
he pay with notes
'He pays with notes'

Interrogative:
Met wat /Waarmee betaal hy?
with what /what-with pay he
'With what does he pay?'
[but: *Waar betaal hy mee?]

[66] As can be seen in example (61), the *wh*-element and the preposition often change form when the whole PP is fronted in an interrogative structure: *met wat* changes to *waarmee*, *op wat* to *waarop*, *vir wat* to *waarvoor*, etc. In this regard, see, for example, Oosthuizen (2000).

(61b)	*Declarative:*	*Interrogative:*
	Hy betaal met note	Wat betaal hy mee?
	he pay with notes	what pay he with
	'He pays with notes'	'With what does he pay?'
		[but: *Waar betaal hy mee?]

Wie ('Who/m')-questions are ambiguous in Afrikaans, if (i) the sentence is in the active voice, and (ii) the post-verbal element is not clearly either nominative or accusative. A question such as *Wie sien die man?* could mean 'Who sees the man?' or 'Whom does the man see?'. Likewise, *Wie jaag hulle?* could mean 'Who is chasing them?' or 'Whom are they chasing?'. This ambiguity does not occur when pronouns are in the singular form, because the form of these pronouns indicates whether they are nominative or oblique. For example, *Wie volg hom?* could only mean 'Who is following him?', and *Wie volg hy?* could only mean 'Whom does he follow?'.[67]

3.3.2.3. Passive constructions

In Afrikaans, passive constructions are formed by means of a non-infinitival form *word* in the present indicative form or *is* (present perfect) or *was* (pluperfect). Note that in the present perfect and pluperfect tenses, the past participle form of *word*, namely *geword*, is implied (except for some Afrikaans dialects, in which it is present in the passive construction). See example (62).

(62a)	*Present indicative:*	
	Ek word gesien deur die skare	
	'I am seen by the crowd'	
(62b)	*Present perfect:*	
	Ek is deur die skare gesien (geword)	*but* *Ek is gesien deur die skare geword
	'I was /have been seen by the crowd'	*and* *Ek is gesien geword deur die skare

[67] *Wie sien die man?* 'Whom does the man see?' is equivalent to *Vir* ('for') *wie sien die man?* and *Wie jaag hulle?* 'Whom are they chasing?' is equivalent to *Vir* ('for') *wie jaag hulle?*. The *vir* unambiguously marks a non-subject and therefore *vir*–questions cannot be ambiguous in the way their *vir*–less counterparts can (cf. Raidt 1969). Due to *vir* being a type of accusative marker for animate objects, *vir* cannot occur before *wat*, as in **Vir wat sien die man?* 'What does the man see?'. In fact, *Vir wat sien die man* is an informal way of asking **why** the man sees.

(62c) *Pluperfect:*

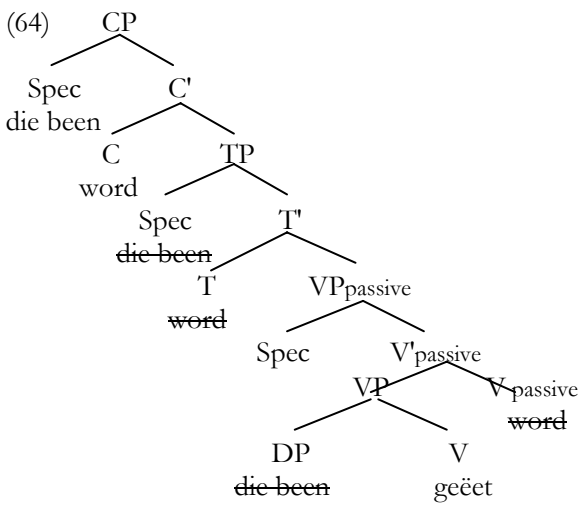
Ek was deur die skare gesien	*but* *Ek was gesien deur die skare geword
'I had been seen by the crowd'	*and* *Ek was gesien geword deur die skare

As in English, the theme argument occupies the subject position (i.e., the specifier position of TP) in Afrikaans passive constructions, that is, the position associated with the subject in active constructions. In main clauses, the theme argument may move on to the specifier position of CP. This is illustrated by the example in (63) and the tree representation in (64).

(63)

Active:	*Passive:*
Die hond eet die been	Die been word geëet
'The dog eats the bone'	'The bone is eaten'

(64)



In "full" or agentive passives, the phrase expressing the theta-role of agent forms part of a *deur-* ('by') phrase which can occur either before or after the main verb, as illustrated in (65).

(65a)	(65b)
Ek word deur hom gesien	Ek word gesien deur hom
'I am seen by him'	'I am seen by him'

3.3.2.4. Preposing and scrambling

As mentioned, Afrikaans simple main declarative sentences have a surface verb-second word order, but subordinate clauses with an overt complementiser like *dat* 'that' or *of* 'whether' have a surface SOV order.[68] Compare the examples given in (66).

(66a) Hulle sien my[69]
they see me
'They see me'
(66b) Ek dink dat hulle my sien
I think that they me see
'I think that they see me'
(66c) Ek wonder of hulle my sien
I wonder if they me see
'I wonder if they see me'

In linear terms, the finite verb appears in the second position in constructions with a non-subject phrase (such as a preposed object DP, PP, *wh*-phrase, AdvP, etc.) in the left-most position. In such cases, the finite verb is followed by the subject and any other phrasal constituents that may be present. Compare the examples given in (67) to (70).

(67)
[Daardie meisie] sien [hy] [dikwels] [by die winkel]
that girl see he often at the shop
'That girl he often sees at the shop'

(68)
[Op die stoep] sit [die kinders]
on the veranda sit the children
'The children are sitting on the veranda'

[68] Where the sentence contains a auxiliary, the auxiliary occurs in the second position of the sentence and the infinitive or the past participle follows the object, as shown in *Hulle sal my sien* 'They will see me' and *Hulle het my gesien* 'They saw me', respectively.

[69] Afrikaans also demonstrates an SVO surface word order in so-called parenthetical constructions, as shown in (i), where *ek dink* is the parenthetical part, and *hulle sien my* displays the (main clause) SVO order.

(i) Ek dink hulle sien my
I think they see me
'I think they see me'

(69)
[Waar hy nou staan] het [ek] [al] [ook] gestaan
where he now stand did I already also stand-PAST PART
'Where he stands now, I have also stood'

(70a)
Almal bring geld
everyone bring money
'Everyone brings money'

(70b)
Vandag bring almal geld
today bring everyone money
'Today everyone brings money'

Besides the fronting of a constituent to a clause-initial position (i.e., to the specifier position of CP), Afrikaans also demonstrates scrambling in the so-called middle field,[70] as shown in (71). Here, direct objects can precede or follow sentence adverbs, resulting in an adverb-object or object-adverb order.

(71a)
Omdat hy gister 'n appel geëet het
because he yesterday a apple
eat-PAST PART did
'Because he ate an apple yesterday'

(71b)
Omdat hy 'n appel gister geëet het
because he a apple yesterday
eat-PAST PART did
'Because he ate an apple yesterday'

3.3.2.5. Co-referential relationships

In Afrikaans, a reflexive pronoun can take one of two surface forms: either the same form as that of the non-reflexive personal pronoun, or that of such a pronoun plus *–self*. Unlike in English, for example, where *He bites him* means 'He bites a male entity other than himself', *Hy byt hom* can mean either 'He bites a male entity other than himself' or 'He bites himself'.[71] However, as is the case for the English equivalent, *Hy byt homself* can only mean 'He bites himself'.

Afrikaans also has a number of "reflexive" verbs, that is, verbs which can only take a reflexive pronoun as complement.[72] Some examples are *misgis* 'miscalculate', *verbeel* 'imagine', and *vererg* 'loose one's temper', the latter illustrated in (72) and (73).

[70] For differences between scrambling in Afrikaans, on the one hand, and scrambling in Dutch and German, on the other, see Molnárfi (2002).
[71] When *hom* is preposed, a reflexive reading is no longer possible: *Hom byt hy* can only mean 'Him he bites' and not 'Himself he bites'.
[72] See Reinhart and Reuland (1993) for inherently reflexive predicates in Dutch.

(72)
Hy vererg hom[73] /*Hy vererg haar /*Hy vererg hulle
He looses his temper /He looses her temper /He looses their temper

(73)
Ek vererg my /Sy vererg haar
I loose my temper /She looses her temper

3.3.3. Conclusion: Some properties of the morphology and syntax of Afrikaans

Afrikaans is a morphologically impoverished language; few grammatical features are realised overtly. Afrikaans sentences demonstrate a verb-second surface word order, and scrambling is possible. Unlike in English, *yes/no*-questions do not require *do*-support. As in English, the *wh*-element moves to the specifier position of CP in *wh*-questions. This position of CP is occupied by the subject in declarative sentences (those without a fronted adverb), a position the subject moves to from the specifier position of TP after originating in the specifier position of *v*P.

Whereas the problems that Afrikaans-speaking children experience with grammatical morphemes and word order will be discussed in chapters 5 to 9, we will not return to examine any problems they might demonstrate with the comprehension or production of constructions in which co-referential relationships occur.

In the next section, the reason for working within the framework of Minimalist syntax is given. It will be argued that two well-documented characteristics of SLI, namely problems with grammatical morphology and problems with constituent movement, can both be related to a problem with grammatical features. In order to give a precise account of SLI as it presents itself in Afrikaans, it is necessary to use a theoretical framework that enables one to account for the main characteristics, which are presumed to involve problems with grammatical morphology and problems with constituent movement, as in other languages in which SLI has thus far been examined. One framework which enables such an account is that of Minimalist syntax. As mentioned above, Afrikaans is

[73] Increasingly, the pronoun co-occurring with these reflexive verbs take the –*self* form (possibly under the influence of English), as in *Hy misgis / vererg / verbeel homself.*

an interesting language when examining SLI from the perspective of Minimalist syntax: Although few grammatical features are overtly realised morphologically in this language, it has many instances of overt constituent movement. In sections 3.4.1 to 3.4.3, some of the assumptions and devices of Minimalist syntax are discussed, and an indication is given of how non-impaired Afrikaans is analysed in this framework.

3.4. WHY WORK WITHIN THE FRAMEWORK OF MINIMALIST SYNTAX?

Jakobson (1971:40), referring to aphasia, stated that "any individual case offers highly complex and intricate linguistic material which cannot be satisfactorily analysed without the cooperation of a linguist equipped with all the technical means and methods of the modern science of language". It seems reasonable to assume that these remarks hold for SLI as well. This section outlines a number of "technical means and methods" of Minimalist syntax. Firstly, some general assumptions of Minimalist syntax are set out. This is followed by a brief discussion of two interrelated aspects of Minimalist theory, namely those involving feature checking and movement. The question is subsequently addressed whether such theories could offer possible explanations for the problems experienced by children with SLI – specifically, problems with the (phonological) realisation of morphosyntactic features, the production of *wh*-questions and interpretation of passive constructions, as well as the interpretation of (non-)co-referential relations. It will be argued that the Minimalist theories in question provide an adequate framework for describing and explaining the language characteristics of children with SLI. Specifically, central to Minimalist syntax is the notion of formal (or grammatical) features – linguistic expressions are considered to be arrangements of features – and it seems to be the formal features that children with SLI have difficulties with: at the level of phonology (at the sensorimotor or articulatory-perceptual interface),[74] in their interpretation (involving the conceptual-intentional interface),[75] and with the syntactic structure of their utterances (involving movement operations).

[74] See section 3.4.1.
[75] See section 3.4.1.

3.4.1. General assumptions of Minimalist syntax

A distinction should be made between the Minimalist Programme (or Minimalism, for short) and Minimalist syntax. The Minimalist Programme is not a theory, but a research programme. Chomsky (1995a:1) puts this point as follows:[76]

> This work is motivated by two related questions: (1) what are the general conditions that the human language faculty should be expected to satisfy? and (2) to what extent is the language faculty determined by these conditions, without special structure that lies beyond them? The first question in turn has two aspects: what conditions are imposed on the language faculty by virtue of (A) its place within the array of cognitive systems of the mind/brain, and (B) general considerations of conceptual naturalness that have some independent plausibility, namely, simplicity, economy, symmetry, nonredundancy, and the like?

Chomsky, in an interview in Cheng and Sybesma (1995:32), stated that one cannot speak of a Minimalist approach to something, as "there is no specific Minimalist approach. There is a set of Minimalist questions", which implies that the Minimalist Programme is a "set of questions that guide inquiry". The task of the Minimalist Programme, according to Chomsky (2001:3), is to critically examine the devices that are used to characterise language, and to determine the extent to which such devices can be eliminated. The general goal is to develop a principled account of the language faculty based on general conditions of computational efficiency and interface conditions that the language faculty must satisfy in order to function.

Although there is no unique Minimalist approach to a specific linguistic phenomenon, research carried out from a Minimalist perspective has led to the development of a number of theories to account for various syntactic phenomena (Hornstein et al. 2005:6). These theories can collectively be referred to as "Minimalist syntax". Thus, within Minimalist syntax, there may be a theory of phrase structure and movement (both involving Merge), a theory of feature checking (or

[76] See also Chomsky (1999; 2000; 2002:108; 2006).

feature valuation), a theory of binding (involving the establishment of (non-)co-referential relationships), etc. In fact, there may be several competing theories for a specific phenomenon, in which case Minimalist criteria of economy, simplicity, symmetry, elegance, etc. may guide the selection of the "best" account. It is not clear at present precisely what such criteria entail, nor how they enter into the evaluation of competing theories. A brief sketch of some assumptions and devices of Minimalist syntax will contextualise the discussion of feature checking and movement undertaken below.

Chomsky (1995a:168) states that the language faculty consists of two components, namely a lexicon and a computational system for human language (C_{HL}). The lexicon specifies the lexical items with their idiosyncratic features. C_{HL} derives a linguistic expression on the basis of a selection of lexical items. Such a selection is called a "Numeration" (Chomsky 1995a:169). It is important to note that, in the course of a particular derivation, the devices of C_{HL} have access only to the features specified in the Numeration. This restriction, known as the Inclusiveness Condition, rules out the introduction of traces, indices, bar-levels, etc. (see, e.g., Chomsky 1995a:228). The derivation proceeds as the operation Merge strings the lexical items together in binary fashion, and the operation Move[77] carries out the necessary movement of syntactic objects in the expression. A general constraint on the operation performed by Merge is that the two elements involved are themselves left "unchanged", a constraint known as the No-Tampering Condition (Chomsky 2006:5).

The language is "embedded in performance systems" of two general types: articulatory-perceptual and conceptual-intentional (Chomsky 1995a:168). Accordingly, there are two interface levels: phonetic form (PF) at the articulatory-perceptual interface, and logical form (LF) at the conceptual-intentional interface (Chomsky 1995a:2). A linguistic expression of a language L is a pair (π, λ), where π is a PF representation

[77] In more recent work, Move is defined as "internal Merge", i.e., as a combination of Copy and Merge. See, e.g., Adger (2003:section 4.2); Chomsky (2006); Hornstein (2001:18-19); Lasnik and Uriagereka (2005:section 5.7). The term "Move" is used here and below for the sake of simplicity. However, as has been the case previously in this chapter, in tree diagrams, copies instead of traces are entered.

and λ an LF representation (Chomsky 1995b:390). Chomsky (1995b:394) states that PF representations and LF representations are "differently constituted"; importantly, elements interpretable at the PF interface with the sensorimotor component are not interpretable at the LF interface with the conceptual-intentional component, and vice versa. At some point, the computation must split into a part forming the PF representation and a part forming the LF representation; this point is known as "Spell-Out"[78] (Chomsky 1995b:394). At Spell-Out, the elements relevant to PF are stripped away for eventual mapping onto the PF representation, while the remainder continue in the computation for eventual mapping onto the LF representation. A distinction is accordingly made between "overt syntax", operating before Spell-Out, and "covert syntax", operating after Spell-Out. We return to this distinction in section 3.4.3.

On the basis of universal principles of grammar and associated parameters, a language L determines an infinite set of linguistic expressions, each a (π, λ) pair. A derivation is said to "converge" if it produces a legitimate linguistic expression, and to "crash" if it does not (Chomsky 1995a:171). A derivation can converge or crash at either PF or LF, but must converge at both PF and LF if it is to converge at all (Chomsky 1995a:171). The legitimacy of a linguistic expression is determined by the principle of Full Interpretation, which requires that uninterpretable features associated with certain categories must be "checked".[79] According to Full Interpretation, only features which can actually be interpreted at a certain level of representation are permitted at that level, where "level of representation" refers to either Narrow Syntax, the level of LF, or that of PF (Zwart 1993:13).[80] Movement is the

[78] It is assumed in recent accounts that transfer from the narrow syntactic part of the computational system to the conceptual-intentional system is not a single event but occurs at particular stages, following the completion of so-called phases, i.e., following the completion of possibly vP and at CP (see, for example, Hornstein et al. 2005:347-348; Lasnik and Uriagereka 2005:239). In short, "singular" Spell-Out has been replaced by multiple Spell-Out (cf. Chomsky 2006:16).

[79] The term "feature checking" will be used in a general, "theory-neutral" way, i.e., I leave open the possibility that what is called "checking" here could, in fact, be assignment, agreement, or valuation (cf. Adger 2003:167-169).

[80] Although the operation of feature checking (via Move) seems to be an operation found only in LF, the features which reach the PF interface should be interpretable at PF.

mechanism which allows such feature checking to take place.[81] What follows is a discussion of feature checking and Move, respectively.

3.4.2. Feature checking

Within Minimalist syntax, the grammar is assumed to be "feature-driven" in the sense that the movement of lexical items occurs so that feature checking can take place. Movement, in turn, must comply with the economy condition of Last Resort, according to which movement is only allowed if it leads to the elimination of uninterpretable features (Hornstein et al. 2005:293). Feature checking is "triggered by the need to eliminate uninterpretable features from the computation" (Hornstein et al. 2005:286,293).

Lexical items are defined as bundles of features, specifically phonological, semantic, and formal (or syntactic) features (Chomsky 1995a:230). Retrieving a lexical item from the lexicon to form a part of a Numeration thus implies retrieving a set of features. On the Lexicalist view, lexical items reach the Numeration as fully inflected bundles of features; all features (including phonological and semantic ones) are specified (cf. Chomsky 1995a:275). As regards formal features, they serve to describe the grammatical properties of words, and are accessible in the course of the computation (Chomsky 1995a:230). Examples of such features for the noun *airplane* are [nominal], [3rd person] and the gender feature [-human] (Chomsky 1995a:231).

Phonological features are interpretable at PF, but not at LF, whereas semantic features are interpretable at LF, but not at PF (cf. Chomsky 1995b:394). At the point of Spell-Out,[82] the phonological features are sent to PF and the semantic features to LF. It may be that certain formal features are required for the morpho-phonological component, but these formal features have to be deleted after fulfilling their function, i.e., after playing their role in allowing the derivation to converge at PF. An example is the formal feature [+plural] in *dogs*, which is associated with a phonological feature bundle, the phoneme /z/. Once the formal and

[81] If Move is taken to be an instance of Copy and Merge, it would be Merge which allows feature checking to take place.

[82] Or at every point of Spell-Out, if the proposal of multiple Spell-Out is accepted; cf. note 78.

phonological features have been computed by the morpho-phonological component, only the phonological features proceed to PF, in order that the derivation does not crash, as the formal feature [+plural] is not interpretable at PF (cf. Hornstein et al. 2005:291). Although the issue is more complex in the case of the legibility of formal features at LF (cf. Hornstein et al. 2005:291-292), it appears that such features are not interpretable at LF either.

The question arises as to why lexical items possess uninterpretable features at all, as this appears to be contrary to the requirements of optimality and economy that the Minimalist Programme posits as inherent properties of the language faculty. In the absence of a clear answer to this question, Chomsky (2002) suggests that movement[83] is the mechanism whereby these uninterpretable features may be eliminated. Thus, movement is the optimal solution to the problem of uninterpretable features, the existence of which remains an unsolved puzzle thus far. Note that, upon the matching of features, only uninterpretable features are eliminated. Interpretable features continue in the computation, and may even be used in subsequent feature checking operations (Chomsky 2001).

3.4.3. Movement

In Minimalist syntax, the construction-specific movement rules (e.g., passive, question formation, extraposition, etc.) and category-specific movement rules (e.g., V-to-I movement, NP-movement, *wh*-movement, etc.) of earlier theories of generative grammar are replaced by Move.[84] Move in Minimalist syntax essentially means "do not move anything anywhere, unless as a last resort to prevent the derivation from crashing", entailing that a lexical item may only move for the purposes of feature checking (i.e., for the purpose of eliminating uninterpretable features). In the remainder of this section, two types of movement, namely head movement and operator movement, will be discussed.

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[83] Or Copy and Merge; cf. note 77.

[84] As stated in note 77, Move has come to be seen not as a single operation, but as "a composite operation made up of two or more primitive processes, Copy and Merge" (Chomsky 1993, 1995b; Hornstein et al. 2005:337). In Minimalist terms then, Merge is preferred over Move, as the latter is a component of the former (Chomsky 1998; Hornstein et al. 2005:337).

Head movement, or head-to-head movement, entails movement from one head position to another. An example is auxiliary movement, i.e., the movement of the auxiliary verb to a position preceding the subject in structures such as *yes/no*-questions in English. Radford (1997a:106) compares a *yes/no*-question in English, like *Will he eat the food?*, to a CP such as … *if he can eat the food*, where the auxiliary *will* in the first sentence occupies the same position as the complementiser *if* in the second.[85] This position is that of C, the head of CP. As Radford (1997a:108) notes, the question arises as to why the auxiliary should undergo such head movement, i.e., what makes the head movement analysis plausible here. Bear in mind that movement must be motivated by a certain computational need. A proposal made by Chomsky (1995a:292-294) entails that the head C in an interrogative CP is a "strong" head and therefore must be filled. The strong C has the power to attract the auxiliary from the inflection (I) position.[86] A brief explanation of strength is required here. Within Minimalist syntax, it is assumed that some categories and features are strong, i.e., they have to be checked in the overt syntax,[87] whereas others are weak and can be checked after Spell-Out, in the covert syntax (Chomsky 1995a:233). As an illustration of strong and weak categories/features, consider auxiliary-less *yes/no*-questions in English, such as *Do they like summer?*. Here, the "dummy" (or expletive) auxiliary *do* is required, whereas no *do*-insertion occurs in the corresponding statement, *They like summer*. It is proposed that the interrogative C is strong, and so must be filled (with *do*, initially inserted in the T position). T, by contrast, is weak, and so need not be filled, as is clear from *They (do) like summer*, where the *do* is only possible when it carries emphasis. In terms of feature interpretability, C may be proposed to have a (phonetically) uninterpretable Q-feature which must be eliminated by moving an appropriate element into that position, e.g., a

[85] The Afrikaans equivalent of this *yes/no*-question is *Sal hy die kos eet?* 'Will he the food eat? = Will he eat the food' (with the infinitive in the sentence-final position). Similarly, in … *of hy die kos kan eet* '… if he the food can eat = … if he can eat the food', the infinitive is sentence-final.

[86] In view of more recent proposals regarding functional categories, the category labels T and TP are used in this study instead of I and IP.

[87] According to Chomsky (1995a: 233), there is a single exception here, namely "covert merger (at the root) of a lexical item that has a strong feature but no phonological features".

lexical item with an interpretable Q-feature, such as *will* (as in *Will they eat the food?*) or *do* (as in *Do they like summer?*).[88]

A distinction related to that of strong vs. weak features is one of overt vs. covert movement. Strong features require overt movement, i.e., movement before Spell-Out, whereas weak features do not. In the latter case, covert movement takes place, i.e., movement after Spell-Out, resulting in the movement not being "visible" in the surface word order. With regards to the overt-covert movement distinction, it has been proposed that operations which have previously been regarded as covert movement are, in fact, a type of overt movement, specifically overt movement of grammatical features. In other words, it has been proposed that features can be moved on their own, without the lexical item of which they form part moving with them (Chomsky 1995a:264-265; Hornstein et al. 2005:par. 9.4.2). If this proposal is accepted – in other words, if there is no overt-covert distinction but rather a distinction between the movement of features and the movement of categories – then there is no reason to assume that Move takes place before Spell-Out in certain languages and after Spell-Out in others. It is then rather the case that as many movement operations as necessary are performed, after which Spell-Out takes place (Hornstein et al. 2005:312).

The second type of movement to be discussed is operator movement, i.e., the movement of an operator or operator expression. An example of an operator is the interrogative element *who* in *Who will you invite?*, where *who* is an operator expression. Such an interrogative operator triggers auxiliary inversion in English[89] (Radford 1997b:267). In this case of operator movement, the complement of the verb in a VP moves to the specifier position of the CP. Consider the tree diagram of the question *Who will you invite?* in (74).

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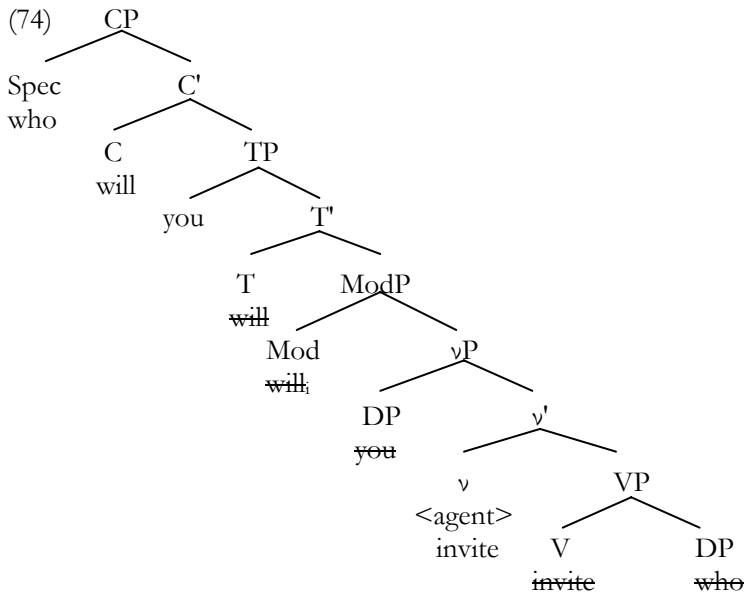
[88] Regarding Afrikaans, one proposal for the features of C and T in interrogative constructions is the following: In Afrikaans *wh*-question constructions, C has a strong V-feature as well as a strong *wh*-feature, whereas T has a strong V-feature and a strong D-feature (the latter causes the subject to move to the specifier position of TP). In Afrikaans *yes/no*-question constructions, C has a strong V-feature, but not a strong Q-feature; therefore, the specifier position of CP remains unfilled. The T in Afrikaans *yes/no*-question constructions has the same features as the T in *wh*-question constructions (T. Biberauer, personal communication).

[89] For the derivation of an Afrikaans *wh*-question constructions, see (60).

(74)



In this tree diagram, auxiliary movement (as discussed above) is instantiated in the movement of *will* from the head position of the modal phrase (ModP), first to T and then to the head C position of CP. The operator expression *who*, in turn, moves from its initial position as complement of the verb *invite* in the VP to the specifier position of CP. An explanation for why the interrogative operator expression *who* moves to the specifier position of the CP is offered by Radford (1997a:135, building on insights by Chomsky).[90] As in the case of auxiliary movement, it is proposed that the head C in question constructions carries a strong *wh*-feature (cf. Chomsky 1995a:232),[91] which must be checked so as to be eliminated. It is further proposed that an interrogative operator like *who* carries an interpretable interrogative feature. On this analysis, the interrogative operator moves to the

[90] I leave open here the question of how and where in the configuration the case of the DP complement of the verb (i.e., *who*) is checked. See, for example, Chomsky (1995a) and Hornstein et al. (2005:318,347) for the idea that accusative case is checked (or specified), at least in English, under agreement with a light verb. Also see Adger (2003:217-222).

[91] The distinction, if any, between a "*wh*-feature" and a "Q-feature" is left open here. For the sake of convenience, "Q-feature" is used in the case of *yes/no*-questions and "wh-feature" in that of *wh*-questions.

specifier position of the CP to check the strong *wh*-feature of C (cf. Chomsky 1995a:263).

As stated in section 3.4.1, the Inclusiveness Condition states that the devices of C_{HL} have access only to the features specified in the Numeration. The introduction of traces, amongst other things, into a derivation is thus ruled out (see, e.g., Chomsky 1995a:228). In Minimalist syntax, traces are seen to be copies, where the displaced constituent and its copy are seen to be strictly identical (Chomsky 1993, 1995a:253). This means that a copy is not seen to be a new element introduced into the derivation; rather, "a copy is whatever the moved element is, namely, a syntactic object built based on the features of the numeration" (Hornstein et al. 2005:213). In short then, in terms of a copy theory of movement, the moved element does not leave behind a trace of itself but the element in question is copied and then moved, resulting in a copy being left behind. Movement creates complex syntactic objects, mainly chains, consisting of the moved element and its copy, both with the same set of features (Chomsky 1995a:251). In general, only one of the copies of the chain can be spelled out, typically the head of the chain. According to Nunes (1995, 2004), this relates to Kayne's (1994) linear correspondence axiom (LCA) which states that a copy cannot both precede and follow an item Z. For example, in **Who did you see who?*, the second *who* is in the tail position of the chain. Given that the chain {*who*, *who*} is one syntactic object, *who* both linearly precedes and follows the verb *see*, resulting in ungrammaticality. In order for the syntactic structure to be linearised, one of the copies must be deleted. This process is called "chain reduction" (Nunes 2004), which entails the following: Delete the minimal number of constituents of a nontrivial chain CH that suffices for CH to be mapped into a linear order in accordance with the LCA. The principles on which chain reduction are based are (i) only one copy can be pronounced, and (ii) the copy with the fewest unchecked features is pronounced (Nunes 2004).

This brief discussion of feature checking and two types of movement within Minimalist syntax provides the framework within which the SLI data discussed in the previous chapter will be re-examined below.

3.4.4. Minimalist syntax and problem structures for children with SLI

As pointed out in section 2.3, it is well documented that children with SLI experience problems with grammatical morphemes, with constituent movement – the latter demonstrated by the difficulty associated with producing various question constructions and with comprehending and producing passive constructions – and with interpreting (non-)co-referential relationships. In this section, these problems will be discussed briefly against the background of the assumptions and devices of Minimalist syntax.

3.4.4.1. Grammatical morphemes

One assumption of Minimalist syntax is that lexical items enter the Numeration in their inflected form. This means, for example, that the past tense form of the verb *play* enters the Numeration as *played*, and is not the result of a syntactic merger of the retrieved items *play* and *–ed*. As was stated in section 2.3, most children with SLI experience problems with the phonological realisation of grammatical morphemes, with some morphemes appearing more difficult to master than others. These children demonstrate a lower percentage of correct use of grammatical morphemes than age-matched controls; they sometimes omit such morphemes from obligatory contexts (as in **two cat*; cf. Oetting and Rice 1993) or insert them in inappropriate contexts (as in **You got a tape recorders*, from Gopnik 1990a, where the plural form of *tape recorder* is used to refer to a single tape recorder). A possible explanation for the lower percentage of use of grammatical morphemes could be that children with SLI retrieve the uninflected form more often than typically developing children do. It is, however, not clear why this should be the case. In those cases where children with SLI insert grammatical morphemes inappropriately, it could similarly be argued that they selected the "incorrect" form of the word from the lexicon (i.e., the inflected form[92] instead of the uninflected form), as in *a tape recorders*.

[92] If one assumes that the lexical item is phonologically fully inflected when its enters the Numeration, then one could argue that children with SLI retrieve the "incorrect" form more often than do age-matched controls. However, if one assumes that the lexical item is retrieved as a feature bundle and that each phonetically relevant feature needs to be spelled out (or made "concrete") in PF, then the problem has a phonetic origin: Children with SLI could then be argued to experience more problems than age-

3.4.4.2. Word order related phenomena

Children with SLI do not appear to experience problems with the concept of syntactic movement. This is clear from typical SLI utterances like *What we make?* and *What we can make?*. From a Minimalist viewpoint, it could be argued that the child "knows" that a *wh*-question is derived by moving the *wh*-operator (*what* in the above example) to the specifier position of the CP to check the uninterpretable [+wh]-feature of the head C. However, what is striking about the *wh*-questions produced by children with SLI, is the incorrect linear order of the subject DP and the (auxiliary) verb, as illustrated above. In Minimalist terms, it could be argued that these children either fail to move the (auxiliary) verb at all, or do move it to the head T position but not from there to the head C position.[93] Possible reasons for such failures could be the following: (i) the child has not yet acquired the relevant features that necessitate the movement of the (auxiliary) verb; (ii) the feature make-up of the relevant heads – e.g., the (auxiliary) verb, or T, or C – differs from that of age-matched controls; or (iii) the child has problems establishing which copy needs to be spelled out, with children with SLI sometimes spelling out a "lower" one instead of the left-most one.

As was pointed out in section 2.3.1.2, children with SLI appear to have a preference for interpreting agentless passives as adjectival constructions (cf. Van der Lely 1996). For example, an utterance such as *The teddy is washed* is usually assigned an interpretation on which *is washed* describes a property of the teddy (i.e., *the washed teddy*), rather than one on which the teddy is the theme undergoing some action by an unspecified agent (i.e., *the teddy is washed by someone*). There are various possible explanations for this preference. One would be that the child does not differentiate between a copula and a passive auxiliary verb, a distinction that would be expressed by means of formal lexical features within Minimalist syntax. Another possibility would be that children with SLI do not differentiate between active and passive sentences; hence, *the teddy is washed* is simply

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matched controls with the phonological realisation of features which are present. This would be in contrast to the former view, where the absence or inappropriate presence of features is at issue. At present, it is still being debated which view on "fully inflected" is the more plausible one; for the purposes of this study, it will be assumed that the problem of children with SLI lies in spelling out the features that are present.

[93] To keep the discussion simple here, I do not refer to the various heads within the CP domain. Cf. note 65.

interpreted as an active sentence. Support for this possibility may come from the fact that such children also have difficulty with the interpretation of "full" passives, that is, passive constructions containing an agent phrase as in *The teddy is washed by the girl*. Children with SLI usually give such sentences an active interpretation: "the teddy is the one who is washing the girl" (Van der Lely 1996:260-261). Again, a possible feature-based account could be that the child does not differentiate between, say, the past participial form and the passive form of the main verb, a distinction that is presumably expressed by means of formal features.

A third possible explanation, which could hold for both agentless and full passives, concerns the assignment of the appropriate theta-roles to the nominal expressions functioning as arguments in a structure, as pointed out by Van der Lely (2003:125). It could be that a child with SLI overgeneralises the so-called Uniform Theta-Assignment Hypothesis (UTAH), which holds, briefly, that identical thematic relationships between items correspond to identical structural relationships between such items at an underlying level of representation (Baker 1988:46). For example, in active constructions, the Agent role is associated with the structural subject position, i.e., the specifier of little-*v* (Radford 1997a:204). Hence, the child simply takes any argument occurring in the canonical structural subject position as the one receiving the Agent theta-role, irrespective of whether the structure in question is an active or a passive one. It could well be that this overgeneralisation of the UTAH is related to the second possibility mentioned above: The child fails to distinguish between the active form of the verb (which has the property of assigning an Agent theta-role), and the passive form (which does not have this property). And again, this failure could be ascribed to some problem involving the features associated with the verb forms in question.

3.4.4.3. (Non-)co-referential relationships

Minimalist accounts of why children with SLI experience problems with the interpretation of (non-)co-referential relationships between nominal expressions cannot be viewed as "exclusive" to Minimalist syntax. Rather, these accounts are to a lesser or greater extent based on the assumptions and devices of binding theory, one of the modules of government and binding theory (see, e.g., Chomsky 1982a, 1982b). For

example, the "Minimalist" binding theory set out in Hornstein et al.'s (2005) introduction to Minimalist syntax, is in essence that presented in Chomsky (1982a) and modified in Chomsky (1995a:chapter 1).[94,95] A brief description of the concepts of binding theory, based on the proposals in Hornstein et al. (2005), is given below.

The theory assumes the typology of nominal expressions presented in Chomsky (1982a:78). According to this typology, a distinction is made between two main classes of nominal expressions. The first class comprises overt nominal expressions, which include anaphors (i.e., reflexives such as *himself* and reciprocals such as *each other*), pronouns such as *he* and *her*, and referential (R-) expressions such as *the boy*. The second class comprises covert nominal expressions, which include anaphors (specifically DP-traces), pronouns (specifically pro), and R-expressions (specifically *wh*-traces).[96] Covert nominal expressions also include PRO, for which there is no overt equivalent. Two features, namely [±anaphoric] and [±pronominal] are used to differentiate between these seven types of nominal expressions, as shown in (75) below (based on Chomsky 1982a:78).

(75)

Overt:	[anaphoric]	[pronominal]	*Covert:*
Anaphors	+	-	DP-traces
Pronouns	-	+	pro
R-expressions	-	-	*wh*-traces
---	+	+	PRO

[94] See, for example, Oosthuizen (2006) and Zwart (2002) for alternative, feature-based accounts within Minimalist syntax. See also Hornstein (2001:chapter 5) for a movement-based theory of binding, as well as Reuland (2001).

[95] This chapter first appeared as Chomsky, N. and H. Lasnik (1993). Principles and parameters theory. In J. Jacobs, A. von Stechow, W. Sternefeld, and T. Vennemann (eds.) *Syntax: An international handbook of contemporary research*. Berlin and New York: Walter de Gruyter. pp. 506-569.

[96] In Chomsky (1982b), DP-traces (or NP-traces in earlier versions of generative syntax) are referred to as A-traces (= argument traces), and *wh*-traces as A'-traces (= non-argument traces). Note that in Minimalist syntax, traces are copies. They are not semantically empty; their "emptiness" is a PF-property.

Binding Theory, as set out in Chomsky (1995a:92-110), comprises the following three interpretive procedures:[97]

Given a local domain D,

A. if α is an anaphor, interpret it as co-referential with some c-commanding phrase[98] in D;
B. if α is a pronoun, interpret it as disjoint from every c-commanding phrase in D;
C. if α is an R-expression, interpret it as disjoint from every c-commanding phrase.

One possible explanation for the problems that children with SLI experience with the interpretation of (non-)co-referential relationships, could be that they have not fully acquired (any one or all of) the three binding procedures. Another could be that aspects related to these procedures and/or to the typology underlying them have not been acquired. For example, it could be that children with SLI do not yet "know" what constitutes a (local) domain[99] or what the relationship of c-command entails; or it could be that they do not differentiate between the various types of nominal expressions in the typology in the same way that age-matched controls do. A third explanation could be that the agreement relation established by these children between, for example, an anaphor and its antecedent is incorrect, i.e., that there is a problem with the agreement between the grammatical features of an anaphor like *himself* and its antecedent *he* in, for example, *Peter said that he hurt himself*.[100]

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[97] These interpretive procedures incorporate the binding principles A, B, and C presented in Chomsky (1982b:188):

(A) An anaphor is bound in its governing category.
(B) A pronominal is free in its governing category.
(C) An R-expression is free.

[98] The notion c-command is defined as follows in Hornstein et al. (2005:78):

α c-commands β iff
i. α does not dominate β;
ii. β does not dominate α;
iii. the first branching node dominating α also dominates β; and
iv. α does not equal β.

[99] There are several definitions of the notion domain (see, e.g., Hornstein 2001:153; Hornstein et al. 2005:248); see Chomsky (1995a:101-103) for what constitutes a local domain.

[100] For Afrikaans-speaking children with SLI, the fact that the sound form of reflexives need not be distinct from their non-reflexive counterparts could add to interpretation

3.4.5. Summary: Why work within the framework of Minimalist syntax?

It would appear from the brief discussion in the preceding sections that Minimalist syntax has, at least, the potential to offer interesting explanations for the problems that children with SLI experience with grammatical morphology and constituent movement. More specifically, it could be argued that Minimalist syntax makes it possible to give a unified explanation of apparently unrelated phenomena in terms of the devices of feature checking and movement (i.e., merge and copy, and Spell-Out). In view of these considerations, the assumptions and devices of Minimalist syntax will be assumed as the framework for the grammatical analyses presented in this study.

3.5. CHAPTER CONCLUSION

In this chapter, some characteristics of non-impaired Afrikaans and the derivation of non-impaired Afrikaans utterances in terms of Minimalist syntax were given. The next chapter provides details on the methodology by which data were obtained from Afrikaans-speaking children in order establish what the characteristics of impaired Afrikaans are. The Afrikaans data are presented in chapters 5 to 8.

problems as far as (non-)co-referential relationships are concerned. Note that, as stated before, (non-)co-referential relationships were not examined in this study.

Chapter 4

Methodology

4.1. INTRODUCTION

In studies of children with SLI, it is customary to compare their language (or other) abilities to those of other children. Recently, comparisons are increasingly made to other non-typically developing children, such as those with Williams syndrome (cf. Reilly, Losh, Bellugi, and Wulfeck 2004), Down's syndrome (cf. Eadie, Fey, Douglas, and Parsons 2002; Laws and Bishop 2004; McGuckian 2004), hearing impairment (cf. Bol and Kuiken 1990), and focal brain injury (cf. Marchman, Saccuman, and Wulfeck 2004; Weckerly, Wulfeck, and Reilly 2004).

However, the most common study design still entails comparing children with SLI to typically developing ones.[101] In order to ascertain whether or not the language abilities of the children with SLI are age appropriate, comparisons are made to age-matched controls. In these comparisons, children with SLI usually fare worse than their same aged peers. Leonard (1998:27) mentions the following potential problem when (chronological) age-matching only is employed. Suppose one is interested in two aspects of the language. If one finds that the performance of children with SLI on these two aspects differs, one might conclude either that this difference is meaningful or that this difference reflects normal language development. In order to decide which it is, one can ascertain how well typically developing age-matched controls fare on these two aspects: If they do better with one than with the other, then one can conclude that the development of the children with SLI mirrors that of the typically developing ones. However, if one finds that the typically developing children fare well on both of these aspects, then one does not know whether (i) they mastered them at the same time, or (ii) one has been mastered for some time and the mastery of the other is a recent

[101] See sections 2.3.1 and 2.3.2 for examples of studies with this design.

occurrence. In order to ascertain this, the aspects need to be studied before both are mastered.

For this reason, another group of children often included in studies of SLI is one comprising younger typically developing ones – and some studies include both age-matched and younger controls. These younger controls are usually matched to the children with SLI on a particular language measure. Often this measure is MLU, but this matching technique is not without its problems, as discussed in section 4.2. Another often-employed measure is performance on a standardised language test, such as the Peabody Picture Vocabulary Test – Revised (Dunn and Dunn 1981). As stated by Leonard (1998:30), a general problem with using younger controls, regardless of matching criterion, is that these typically developing children might differ from the children with SLI in many ways, "some of which may have more to do with the general developmental differences between the groups than with differences pertaining to the details of language under investigation" (cf. Plante, Swisher, Kiernan, and Restrepo 1993).

Despite the criticism against various aspects of matching and comparison with typically developing children, the different designs (comparison with age-matched children; with younger age-controlled children; with language-matched children; or with both age-controlled and language-matched children) are frequently employed by researchers interested in the language abilities of children with SLI. The design of the present study included two groups of typically developing children, namely an age-matched and a younger age-controlled group. The design is given in section 4.2, where the reasons for not employing MLU-matching are discussed. Instead, the MLU is used as a control measure to prevent overlap in MLU between the groups of typically developing children. The two sections thereafter deal with the participants: Section 4.3 contains information on participant selection, whereas section 4.4 gives the details of the three participant groups which were included. The design of the present study comprises both spontaneous language data and data obtained by a series of specific experimental tasks. Section 4.5 gives information about the procedures used for collecting spontaneous language. In section 4.6, the experimental protocol is described. Lastly, the data transcription and scoring procedures for the spontaneous and elicited language data can be found in section 4.7.

4.2. DESIGN OF THE STUDY

In the present study, 15 Afrikaans-speaking 6-year-olds with SLI were compared to 15 typically developing age-matched ones and to 15 younger typically developing ones. There were two main criteria according to which the participants in the younger control group could be selected. The first of these was their age. The second was their MLU: Either their MLU could fall within a specific range or it could be matched to those of the participants with SLI. It was decided to use both age and MLU as selection criteria.

Regarding age, the children had to be 4-year-olds, for the following three reasons:

(i) It was assumed that this was the age at which the children would be cognitively mature enough to cope with the demands of the language assessment tasks.

(ii) It was also assumed that the grammatical morphemes examined in this study would have been acquired (to a great extent) by this age.[102] As stated by Balason and Dollaghan (2002:962), it is believed that variability regarding grammatical morphology declines at around age 4 in typically developing children.

(iii) The language-matched controls in some other studies (for example Johnston, Miller, Curtiss, and Tallal 1993:974; Oetting and Rice 1993:1239; Rice 2003:72) were on average 2 years younger than the experimental group consisting of children with SLI, even when MLU-matching was performed (De Jong 2003:154; see also Leonard 2000; Rice, Redmond, and Hoffman 2006:805).

The MLUs of the 4-year-olds were calculated, as well as those of the age-matched controls, in order to ensure that the MLUs of these two groups did not overlap, i.e., that no 4-year-old's MLU was higher than that of any 6-year-old, and that no 6-year-old's MLU was lower than that of any 4-year-old. The reasons why strict pairing of each 6-year-old in the SLI group with a (younger) MLU-matched control was not carried out are discussed below.

[102] There are no relevant developmental data available for Afrikaans; therefore, this assumption was based on the findings of researchers such as Lahey, Liebergott, Chesnick, Menyuk, and Adams (1992) and Paul and Alforde (1993) for English-speaking children.

There is no consensus on the validity and reliability of MLU as a spontaneous language measure. Regarding validity, MLU is regarded by some to be a general measure of syntactic and/or grammatical complexity (see, amongst others, Bornstein, Haynes, Painter, and Genevro 2000:413; Brown 1973:77; Leadholm and Miller 1992:37; Miller 1981:75), but by others to be a global measure of expressive language ability (cf. DeThorne, Johnson, and Loeb 2005; see also Leonard and Finneran 2003:886).[103] So, despite its frequent use, it remains unclear what MLU actually reflects. Dethorne et al. (2005: 646) conclude that MLU is best viewed as a global measure of expressive language ability, despite its original introduction as a measure of morphosyntactic ability. This view is supported by Eisenberg, Fersko, and Lundgren (2001).

Regarding reliability, it is generally accepted that MLU is a less accurate measure once it reaches a certain value: at least 3 according to Klee and Fitzgerald (1985) and Rondal, Ghiotto, Bredart, and Bachelet (1987); 3.5 to 4.0 according to Bol (1996); and 4.5 according to Blake, Quartaro, and Onoratti (1993). Also, it appears that MLU might plateau at around age 4 (Bernstein and Tieger-Farber 1997; Chabon, Kent-Udolf, and Egolf 1982; see also Bol 2003:261-262).[104] For this reason, care was taken in the present study to limit the prominence given to MLU when choosing younger controls for the 6-year-olds with SLI.

Brown (1973:77) claims that "almost every new kind of knowledge increases length". However, length and complexity (or sophistication) are not always correlated. Consider the following two utterances from one of the Afrikaans-speaking 6-year-olds with SLI in the present study:[105]

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[103] A review by Williams, Dethorne, and Galvanoni (reported in Dethorne et al. 2005:635) of articles on child language published in the *Journal of Speech, Language, and Hearing Research* from 1999 to 2004 revealed that, of those including MLU, approximately one in two referred to it as a global measure of language proficiency and one in three specifically as a measure of grammatical or morphosyntactic complexity.

[104] Note, however, that other researchers have found that MLU increases with an increase in age, sometimes even after 5 years of age (cf. Hunt 1970; Loban 1976; Miller and Chapman 1981). It appears then that there is no consensus regarding the reliability of MLU as a measure of general language proficiency or grammatical complexity in children older than 5.

[105] See Eisenberg et al. (2001:324) for a similar example in English.

(76)	*Target:*
die baba het so hom gekou het	die baba het hom so gekou
the baby did so him chew-PAST PART did	the baby did him so chew-PAST PART
'The baby chewed him like this'	

(77)	*Target:*
laat ek sal dit sommer doen	laat ek dit sommer doen
let I will it just do	let I it just do
	or
	ek sal dit sommer doen
	I will it just do
'It's no problem; I'll do it'	

Both of these utterances are one morpheme longer than the target utterance; however, both are also ungrammatical. The following two ungrammatical utterances, from the same child as those above, contain the same number of morphemes as do the target utterances.

(78)	*Target:*
daar is hom tas	daar is sy tas
there is him-OBLIQUE suitcase	there is his suitcase
'There is his suitcase'	

(79)	*Target:*
ons ma leer ons saam ons	ons ma leer saam met ons
our mom learn us with us	our mom learn together with us
'Our mom is learning with us' (i.e., she is in our class at school)	

There was a third reason for not making use of MLU-pairing in this study. This reason is related to MLU being a quantitative measure, one which does not reveal much about the quality of what is said – as illustrated by the above examples.[106] Using MLU-pairing can lead to an overestimation of a particular child's grammatical abilities.[107] According to Eisenberg et al. (2001), whereas a low MLU can be interpreted as

[106] See Bol (2003:260) for a brief discussion of quantitative vs. qualitative measures of linguistic phenomena.

[107] See also Johnston et al. (1993) who found that children with SLI seem to respond with higher degrees of ellipsis than do language-matched controls to high rates of questioning by their conversational partners.

support for a diagnosis of language impairment, a higher than expected MLU cannot be taken as evidence that no such impairment exists.

Because of these problems with MLU as a measure,[108] the prominence given to it was limited in this study. Seeing that the language-matched controls in other studies were on average 2 years younger than the children with SLI, sometimes regardless of whether MLU-matching was performed (as mentioned above), it was decided to choose 4-year-olds as younger typically developing controls. So, rather than searching for children younger that 6 years with MLUs exactly matching those of the 6-year-olds with SLI, MLU was used as a more general measure for inclusion in the study: Typically developing 6-year-olds could only be included in the study if, amongst other criteria, their MLU was better than that of the typically developing 4-year-olds. Stated differently, 4-year-olds could act as younger controls, provided that their parents and teachers deemed them to be typically developing in all respects, and provided that their MLU did not surpass that of any of the typically developing 6-year-olds.

4.3. PARTICIPANT SELECTION

Because the language investigated here is Afrikaans, the participants were selected mostly from schools and other institutions in the Western Cape Province, which is the South African province with the largest number of mother-tongue speakers of Afrikaans, and where 55% of the population speak Afrikaans as mother-tongue (Statistics South Africa 2003). Of the 45 participants, only three (all with SLI) resided outside of this province.[109] In selecting participants, care was taken to include only speakers of so-called standard dialects of Afrikaans (as judged by the participants' teachers or speech-language therapists). Contact with

[108] It has been suggested that productive vocabulary size replaces MLU as a matching variable (cf. Caselli, Casadio, and Bates 1999; De Jong 1999). However, as stated by Bol (2003:270), "not enough is known about the relation between vocabulary size and grammar … to justify using vocabulary size instead of MLU from now on as a matching criterion".

[109] All of the typically developing children resided in and/or attended schools in Stellenbosch. Of the participants with SLI, three resided in Bloemfontein (in the Free State Province), six in the northern suburbs of Cape Town, and one each in Somerset West, Oudtshoorn, the Laingsburg region, the Uniondale region, Hartenbos, and Witsand.

speakers of other, non-standard dialects could, however, not be ruled out.

4.3.1. Participants with SLI

In order to obtain participants with SLI, speech-language therapists at seven government-funded institutions and in 12 private practices were requested to identify from their case-loads all Afrikaans-speaking 6-year-olds from monolingual Afrikaans-speaking homes who demonstrated language problems in the absence of hearing, intellectual, socio-emotional and neurological problems. Over a period of 21 months, 17 children who met these criteria were identified by their therapists as possible participants.

As noted in section 3.2, there is no agreed-upon protocol for the identification of SLI in Afrikaans-speaking children. One of the obvious reasons for this is a lack of assessment instruments. To date, only three tests have been developed for use with Afrikaans-speaking children, namely the AST, the TMT, and the ARW (cf. section 3.2). All three of these instruments were developed for use with, amongst other age groups, 6-year-olds. Yet not all 6-year-olds in the SLI group had been tested with (one of) these three instruments, for the reasons mentioned in section 3.2.[110]

This lack of scores on standardised language tests for the children in the SLI group is a problem, as one of the criteria for SLI is abnormally low language test scores. Some researchers (e.g., Starke and Tallal 1981) employ age scores.[111] In such cases, one or more of the following need to be present in order for a language problem to qualify as SLI: (i) a receptive language age score of 6 months or more below mental or chronological age, whichever is lower; (ii) an expressive language age score of 12 months or more below the lower of the mental or chronological age; or (iii) a combined language age score of 12 months or more below the lower of the mental or chronological age. Other authors employ as criterion language test results that are at least 1.25

[110] Of the 15 children with SLI, the AST was performed with six and the ARW with two. The TMT was not performed at all. Cf. appendix A.
[111] See Plante (1998) for a critique of this practice.

standard deviations below the mean for the child's age (Leonard 2003:211).[112] The fact that scores of language tests are needed in order to diagnose SLI is a problem when working with Afrikaans-speaking children, for two reasons. The first reason is the aforementioned scarcity of Afrikaans-medium language tests. Starke and Tallal (1981:121) state that, to determine the presence of SLI, "a representative set of language tests is needed … , not one alone". However, for certain language skills, such as expressive morphosyntactic ability, there is not even one Afrikaans-medium test. The second reason is that the age scores and standard deviations obtained when administering translated English-medium tests are not necessarily meaningful or even valid, seeing that these scores reflect how the child would have fared had the child been English-speaking and had the raw scores been obtained with the original, standardised English-medium version.

Bearing in mind the absence of an agreed-upon protocol for the identification of SLI in Afrikaans-speaking children, the judgement of the speech-language therapists regarding slow and/or abnormal development was used to determine whether a potential participant had SLI. This judgement was based on a case-history and one or more of the following: (i) standardised testing, (ii) testing with non-standardised Afrikaans translations of tests developed for English-speaking children, (iii) informal testing, and (iv) language sample analysis.

The parents of each of 17 potential participants were contacted to obtain written consent for the inclusion of their child in the study; 16 consented.[113] One of the 16 was initially included in the study, but it was found that, in terms of morphosyntax, his language sample and responses to the experimental tasks were similar to those of the best-performing typically developing 6-year-olds. The standardised test used by the therapist to evaluate his language, was the AST. Although his scores on selected subtests of the AST indicated a language delay, this test assesses semantics rather than morphosyntax. Because it was not

[112] Also see, amongst others, Records and Tomblin (1994).

[113] Only one parent was not willing to have her child participate. This parent stated that her child had had several evaluations (amongst others, an IQ test) at that time, and that he had been warning her that he would accompany her to assessment sessions but that he will no longer co-operate during these sessions. For this reason, she decided to withhold consent.

clear that this boy's language problems were at all morphosyntactic in nature, he was subsequently excluded from the study.

Appendix B contains a copy of the letter which was sent to the parents to explain the study and to obtain written consent.[114] Included with this letter was a case-history form which the parents were requested to complete in order to provide background information on, amongst other things, the child's language development and current language abilities. A copy of this form can be found in appendix C. After obtaining the written consent, and checking that no information provided on the case-history form contra-indicated inclusion in the study, arrangements were made for a non-verbal IQ-score to be obtained,[115] where such a score had not yet been obtained. If this score was 85 or above, the child was visited at his/her school, home, or therapy centre. During these visits, (i) the auditory sensitivity of the participant was screened according to the American Speech, Language, and Hearing Association's guidelines (ASHA 1997-2006), if no previous hearing test had been done; (ii) a language sample was collected; and (iii) the experimental tasks (cf. section 4.6) were performed.

4.3.2. Typically developing participants

Hereafter, participants for inclusion in the age-matched control group were obtained by contacting four after-care centres of Afrikaans-medium institutions and asking the staff to identify typically developing Afrikaans-speaking 6-year-olds from monolingual Afrikaans-speaking homes. At the same time, day-care centres were contacted and requested

[114] Two participants were enrolled in a preschool for hearing-impaired children, even though they were not hearing impaired. When this school has the capacity to do so, it takes in normal hearing children with language problems. These children benefit from the small class sizes, personal tuition, and regular on-site speech-language and occupational therapy. The school is linked to a university training hospital. In order to gain access to these children, the format and content of this letter had to meet the requirements of the Ethics Committee of the Research Committee of the hospital. For the sake of consistency, it was decided to use this letter (albeit reader-unfriendly) for all 45 participants.

[115] I take note (i) of the problems mentioned by Krassowski and Plante (1997) involved in testing IQ in children with SLI, and (ii) of the finding by Dethorne and Watkins (2006) that no significant association can be observed between the non-verbal IQ of children with language impairment and criterion measures of language.

to identify all the typically developing Afrikaans-speaking 4-year-olds from monolingual Afrikaans-speaking homes. These children would then form the younger typically developing control group.

Only those 6-year-olds who were close to the same age as one of the children with SLI were taken to be potential participants. Initially, all 4-year-olds were seen as potential participants. Parental consent for participation of these 6- and 4-year-olds was obtained via the staff of these centres, and a case-history form was completed by the parents. Most of the children were then visited at their school or at the childcare centre; three 4-year-old boys and two 6-year-old boys were visited at their homes. During these visits, hearing screening took place as it did for the participants in the SLI group, a language sample was collected, and the experimental tasks (cf. section 4.6) were performed.

Regarding the typically 6-year-olds, data were initially gathered from 17 children, including one girl (6 years 6 months) and one boy (6 years 1 month) whose MLUs were later discovered to be uncharacteristically low in comparison with those of their peers, and therefore their data were discarded. Inspection of the transcript of their language samples revealed the following: The girl often role-played, talking on behalf of one of the figurines with which she played. When doing so, she made use of very short utterances. This had a negative impact on her MLU. The boy was very excited by the toys used during language sample collection; this caused him to frequently name a new toy as he discovered it. These one-word utterances contributed to an artificially low MLU.

After performing the experimental tasks and calculating the MLU, the data of three 4-year-olds were omitted; i.e., in total, data were gathered from 18. One of the three had to be omitted because he did not perform one of the 15 experimental tasks, namely the tense production one. He co-operated well during the other 14 tasks and during language sample collection, but on four occasions (on three different days) refused to perform this particular task. The reason for this refusal was not clear, but he became tearful during the last attempt, and therefore it was decided to discontinue any attempts at completing the full battery of experimental tasks and to replace this boy with another 4-year-old.

All experimental tasks and language sample collection were performed with two 4-year-old girls whose results were not included in the study. Their MLU was 5.14, which is 0.02 higher than the lowest MLU in the 6-year-old typically developing group. The reason why they were excluded was not purely because of their slightly higher MLU, but also because their parents indicated that they thought their daughters were very advanced for their age, in terms of language development. For instance, one of the girls started speaking at an early age (she said two words consistently at 8.5 months) and always spoke very well compared to her peers. Because one could not be certain that the language abilities of these girls were, in fact, typical, they were excluded as participants.

4.4. THE PARTICIPANT GROUPS

A summary of the characteristics of the participants whose data were included for analyses is given in table 4.1.

4.4.1. Children with SLI

Fifteen Afrikaans-speaking 6-year-olds with language problems – seven males and eight females – were included in the study. Their specific ages ranged from 6 years 0 months to 6 years 11 months (M = 6 years 5.3 months). These children had an MLU measured in words (MLUw) ranging from 3.54 to 5.79 (M = 4.35).[116] All 15 children had normal hearing sensitivity. Their parents and classroom teachers reported age-appropriate socio-emotional development and an absence of any visible neurological deficits. Their non-verbal IQ score was 85 (or the equivalent thereof) or above.

The speech-language therapists made the diagnosis of SLI on the basis of the results of the following:[117]

(i) A detailed case-history regarding language and other development, for all 15 participants with SLI.
(ii) Standardised testing, in the form of one of more of the above-mentioned three tests developed for Afrikaans-speaking children, for eight of the participants.

[116] See section 4.7.1 for a discussion on the calculation of MLU in this study.
[117] Information on the language test results appears in Appendix A.

Table 4.1. Information on participants

Partici-pant	Gender	Age	MLUw	Family history of SLI	School, and school grade	In therapy?
SLI 1	M	6:11	4.63	No	Mainstream Gr 1	Yes
SLI 2	F	6:8	4.06	No	Mainstream Gr 0	Yes
SLI 3	F	6:0	3.95	No	Mainstream Gr 0	Yes
SLI 4	F	6:7	4.00	No	For learning disabled Gr 0	Yes
SLI 5	F	6:9	4.22	No	Mainstream Gr 0	Yes
SLI 6	M	6:0	4.30	Possibly	Mainstream Gr 0	Yes
SLI 7	M	6:7	3.54	No	Mainstream Gr 1	Yes
SLI 8	M	6:0	4.51	No	Mainstream Gr 0	Yes
SLI 9	M	6:11	3.95	No	Mainstream Gr 1	Yes
SLI 10	F	6:11	4.50	No	Mainstream Gr 1	Yes
SLI 11	M	6:6	4.85	No	Mainstream Gr 0[a]	No
SLI 12	F	6:7	4.07	No	Mainstream Gr 0[a]	Yes
SLI 13	M	6:5	5.79	No	Mainstream Gr 0[a]	Yes
SLI 14	F	6:7	4.16	No	For hearing-impaired Gr 0	Yes
SLI 15	F	6:9	4.68	No	For hearing-impaired Gr 1	Yes
TD6 1	F	6:11	5.32	No	Mainstream Gr 1	N/A
TD6 2	F	6:8	5.83	No	Mainstream Gr 1	N/A
TD6 3	F	6:1	6.71	No	Mainstream Gr 1	N/A
TD6 4	F	6:8	6.37	No	Mainstream Gr 0	N/A
TD6 5	M	6:9	5.90	No	Mainstream Gr 1	N/A
TD6 6	M	6:2	5.12	No	Mainstream Gr 0	N/A
TD6 7	F	6:6	5.83	No	Mainstream Gr 1	N/A
TD6 8	F	6:4	6.67	No	Mainstream Gr 0	N/A
TD6 9	M	6:11	5.71	No	Mainstream Gr 1	N/A
TD6 10	F	6:10	6.25	No	Mainstream Gr 1	N/A
TD6 11	M	6:7	5.17	No	Mainstream Gr 0	N/A
TD6 12	M	6:8	5.23	No	Mainstream Gr 0	N/A
TD6 13	F	6:4	5.40	No	Mainstream Gr 0	N/A
TD6 14	F	6:5	6.15	No	Mainstream Gr 0	N/A
TD6 15	M	6:8	7.10	No	Mainstream Gr 0	N/A
TD4 1	M	4:3	4.40	No	Mainstream play school	N/A
TD4 2	M	4:2	3.91	No	At home	N/A
TD4 3	M	4:4	4.72	No	Mainstream play school	N/A
TD4 4	F	4:0	4.42	No	Mainstream play school	N/A
TD4 5	F	4:1	4.47	No	Mainstream play school	N/A
TD4 6	F	4:1	4.01	No	Mainstream play school	N/A

TD4 7	M	4:4	5.00	No	Mainstream play school	N/A
TD4 8	M	4:5	4.96	No	Mainstream play school	N/A
TD4 9	F	4:7	4.74	No	Mainstream play school	N/A
TD4 10	F	4:2	4.40	No	Mainstream play school	N/A
TD4 11	M	4:3	4.76	No	Mainstream play school	N/A
TD4 12	F	4:0	4.78	No	Mainstream play school	N/A
TD4 13	F	4:1	4.38	No	Mainstream play school	N/A
TD4 14	M	4:2	4.91	No	Mainstream play school	N/A
TD4 15	F	4:0	4.61	No	Mainstream play school	N/A

[a]These children lived far from the nearest school and therefore only attended Grade 0 part-time (once or twice a week).

(iii) Testing with non-standardised Afrikaans translations of tests developed for English-speaking children, for nine of the participants. The Afrikaans translation of the following tests were administered by the therapists: (i) TACL - Revised/III (Carrow-Woolfolk 1985, 1999) on five participants; (ii) Renfrew Language Scales (Renfrew 1995, 1997) on two participants; (iii) Preschool Language Scale-3 (PLS-3) (Zimmerman, Steiner, and Pond 1992) on one participant; and (iv) Test of Language Development - Primary - Third edition (TOLD-P) (Hammill and Newcomer 1997) on one participant.

(iv) Informal testing, for four of the participants.

(v) Language sample analysis, with the Language Assessment Remediation and Screening Procedure (LARSP) (Crystal, Fletcher, and Garman 1989), for one of the participants, and with informal procedures, for three of the participants.

Fourteen of the participants with SLI were receiving speech-language therapy at the time of the study:[118] two at a preschool for children with hearing impairment,[119] linked to a university training hospital; one at the Hearing and Speech Clinic of the same hospital; one at a school for children with learning disabilities; and 10 from private-practising therapists.

[118] The language of the child (participant SLI12) who did not receive therapy – and never has – was severely impaired. Her parents had been concerned about her language development and arranged for an evaluation by a speech-language therapist; they cited financial reasons for their decision not to commence with therapy after receiving the results of this evaluation.

[119] As stated before, these two participants were not hearing-impaired. Cf. note 114.

All 15 children with SLI were reported by their speech-language therapists to demonstrate problems with morphosyntax, but not with pragmatics. Only one of the children in the SLI group had a possible family history of SLI: His younger sister reportedly presented with a language delay, but her language had not been evaluated formally and a diagnosis of SLI had not been made.

4.4.2. Typically developing controls

Fifteen Afrikaans-speaking children (six males and nine females) aged 6 years 2 months to 6 years 11 months (M = 6 years 6.8 months) formed the age-matched control group. Their MLUw ranged from 5.12 to 7.10 (M = 5.92).

The younger control group consisted of 15 4-year-old Afrikaans-speaking children, of whom seven were males and eight were females. Their ages ranged from 4 years 0 months to 4 years 7 months (M = 4 years 2.3 months) and their MLUw from 3.91 to 5.00 (M = 4.56).

According to their parents and classroom teachers, the 30 participants in the control groups were typically developing in all respects: Their language, intellectual, and socio-emotional development were all deemed to be age-appropriate, and there was no evidence of any visible neurological deficits. All 30 children exhibited normal hearing sensitivity during hearing screening and had no previous referral to, or treatment by, a speech-language therapist.

4.5. COLLECTION OF SPONTANEOUS LANGUAGE

All data were collected by the researcher. During language sample elicitation, the researcher and participant played alone in a quiet room at his/her school, care centre or home or in a quiet part of a room in which other people were also present.[120] Language sample elicitation took the form of freeplay with toys that included (i) little figurines with accessories such as radios, hats, mugs, and brooms; (ii) wooden building

[120] Three of the samples were collected with other children taking part in the conversation: One girl with SLI did not want to participate in the study if her (typically developing) twin sister could not accompany her to all sessions, and two 4-year-old boys wanted a friend present.

blocks; and (iii) plastic kitchen furniture. The researcher initiated the language sampling interaction by inviting the participant to join her in kitting out the dolls, building a house, and/or assembling the kitchen. If the participant was quiet for extended periods, the researcher used a variety of techniques to encourage conversation, including parallel play, "engaged" play, self talk, making statements, and question asking (both *wh-* and *yes/no*-questions). These questions were asked about topics found to be suitable for discussion with preschool children, such as their families, pets, and birthday celebrations (cf. Southwood and Russell 2004).

In the literature, there is no consensus on the preferred number of utterances in a language sample, but Crystal, Fletcher, and Garman (1976:87) suggest that a 30-minute interaction, usually yielding 100 to 200 utterances, will generally suffice. (However, Southwood and Russell (2004:369) found that even 15 minutes of freeplay elicited an average of 144 utterances from typically developing Afrikaans-speaking 5-year-olds.) Following Crystal et al. (1976), the language samples collected in this study were each 30 minutes long.[121] An audio-cassette recording was made of each language sample collection session, using an observable recorder.

4.6. EXPERIMENTAL TASKS

During the performance of the experimental tasks, the researcher and participant sat next to each other in the room referred to above. Participants could rest at any stage during any session, and could also request any particular visit to end.

The full test battery is provided in appendix D. Each task had at least two practice items, in order to familiarise the participants with the tasks and with what was required from them. All tasks were first performed

[121] There are four exceptions: (i) a 4-year-old boy whose language sample is 15 minutes long; (ii) the girl with SLI who was recorded with her twin sister, whose sample is slightly longer than 30 minutes, because her hundredth utterance was only made after more than 30 minutes of recording; (iii) a typically developing 6-year-old girl, whose sample was 23 minutes long – her session had to be terminated slightly earlier than planned; and (iv) a typically developing 6-year-old boy. This boy was co-operative during the experimental tasks, but did not enjoy the language sampling activity and, 18 minutes into the activity, asked for it to be terminated.

with typically developing Afrikaans-speaking 3-, 4-, 5-, and 6-year-olds, during a pilot study, in order to ensure that test items were appropriate and that the demands placed on the participants were realistic (cf. Southwood 2005, 2006).

The procedures used to test the participants' comprehension and production of grammatical morphemes have been used with success with young children of different languages by researchers such as Gualmini and Crain (2002); Gualmini, Crain, and Meroni (2000); Håkansson (2001); Hansson and Leonard (2003); Jakubowicz (2003); Leonard et al. (2001); Loeb and Leonard (1991); Marchman et al. (2004); Ravid, Levie, and Ben-Zvi (2003); and Van der Lely and Ullman (2001).

The general format of the tasks assessing the comprehension of grammatical morphemes was the same, regardless of whether number, person, case, or tense was assessed. Two types of tasks were used, namely picture selection and acceptability judgements.[122] Regarding the general format of the production tasks, this was also the same regardless of which grammatical feature was assessed: It took the form of sentence completion. All tasks took the form of researcher-participant interaction with pictures or picture sheets. Table 4.2 contains a summary of the experimental tasks and the aspects which they assessed.

Table 4.2. Summary of experimental tasks and the aspects which they assessed

Aspect assessed	**Type of task**	
	Comprehension	**Production**
Reg[a] plural forms of real words	Picture selection and judgement	Sent[b] completion
Irreg plural forms of real words	Judgement	Sent completion
Plural forms of nonsense words	Judgement	Sent completion
Person and case (on pronouns)	Picture selection and judgement	Sent completion
Case (*se*-constructions)	Picture selection	Sent completion
Tense (various types of constructions including hendiadyses)	Picture selection	Sent completion
Hendiadyses only	Judgement	

[a]Reg=regular. [b]Sent=sentence.

[122] Rice, Wexler, and Redmond (1999) found that children as young as 3 are able to perform such judgements.

In general, the children were very willing participants. They were rewarded with stickers after each task and also, for the longer task, at random intervals during the tasks. At times, the 4-year-olds showed signs of boredom or fatigue. When this happened, the session was interrupted to allow the participant to rest. Often, the participant returned to his/her class and joined the researcher later the same day. However, the 6-year-olds often completed all the tasks in one or two sessions. They seemed to enjoy the procedures, and, when all tasks were performed, voiced their disappointment at not being able to continue with what many of them called *die werkies* 'the work-DIM-PL'.

4.6.1. Number

4.6.1.1. Number: Comprehension tasks

The items of the picture selection task consisted of 40 real words, 20 of them in the singular form and 20 in the plural form. Of the 20 plurals, 10 took the regular plural suffix *–e* and the other 10 took the other regular plural suffix, *–s*, as shown in table 4.3. (Also see section 1.1 of appendix D for the items used in this task.)

Table 4.3. Item types in the picture selection task for number comprehension

	Monosyllabic	Bisyllabic
Singular	10	10
Plural requiring *–e*	5	5
Plural requiring *–s*	5	5

When performing the task, the participant was asked, for example, *Wys vir my die honde* 'Show me the dogs'. The participant would then have to select the correct picture out of a possible four. As is customary during the performance of such tasks, four-picture sheets were used (in order to reduce chance level to 0.25). In the case of *Wys vir my die honde*, for example, the sheet contained (i) one picture corresponding to the requested word (*honde* 'dogs'); (ii) one corresponding to the requested word without the relevant morpheme (*hond* 'dog'); (iii) one semantically-related distracter, in its plural form (*katte* 'cats'); and (iv) one phonologically related distracter (*hande* 'hands'). The syllable structure of the distracters in (iii) and (iv) was similar to that of the word in (i).

In order to determine whether or not the participant could recognise the correct phonological realisation of the grammatical feature number, the participant was required to judge whether plural forms produced by the researcher were acceptable in Afrikaans. In other words, the participant was asked to tell the researcher when she made a mistake. The researcher and participant looked at two-picture sheets: The first picture was that of a singular object, whereas the second depicted more than one of that same object. The researcher named the objects, e.g., *Hier is een bessie, maar hier is baie bessies* 'Here is one berry, but here are many berries'.

Regular (*–s* and *–e*) and irregular plural forms of both real and nonsense words were used correctly (e.g., *dasse* 'ties', *gesigte* 'faces', or *worre*) and incorrectly (e.g., **sokkiese* 'socks', **krage* 'collars', or **siers*) by the researcher. For purposes of statistical analysis, items of each of the plural judgement tasks were grouped into two groups: those requiring participants to identify a grammatical plural form correctly, and those requiring correct identification of an ungrammatical plural form. This was done because it was expected that the participants would treat these two types of items differently: It is known that children have a preference for "positive responses", i.e., for judging items to be grammatical rather than ungrammatical (see, e.g., Rice et al. 1999).

The judgement task assessing comprehension of real words requiring one of the two regular plural suffixes consisted of 14 items. As shown in table 4.4, four items were correct plural forms: Two took the regular *–s* plural suffix and two the *–e* (e.g., *foto's* 'photographs' and *dasse* 'ties'). Then there were four items which should have had the *–s*, but had either the *–e* or both of the regular plural suffixes (e.g., **lepele* 'spoons' or **sokkiese* 'socks'). Likewise, four items should have been pluralised by *–e*, but were pluralised by either *–s* or both *–e* and *–s* (e.g., **roks* 'dresses' and **slakkes* 'snails'). The remaining two items were ones which take the regular *–e*, but in which the final consonant should have been voiced but was not. Section 1.2 of appendix D contains the items of this judgement task.

Table 4.4. Item types in the judgement task for number comprehension – real words requiring regular plural suffixes

	Noun requiring *–e*	Noun requiring *–s*
With correct plural morpheme	2	2
With other regular plural morpheme	2	2
With both regular plural morphemes	2	2
Regular *–e* but final consonant devoiced	2	--

The judgement task assessing real words which should have irregular plural forms had 33 items: 16 of these were ungrammatical irregular plural forms and 17 were grammatical (cf. table 4.5). The items of this task appear in section 1.3 of appendix D.

Table 4.5. Item types in the judgement task for number comprehension – real words requiring irregular plural suffixes

Correct irregular plural form	17
Regular *–e* instead of irregular form	14
Regular *–s* instead of irregular form	2
Singular form instead of irregular form	0

There were 49 items in the judgement task involving nonsense words (cf. table 4.6): 24 were words which would take the regular *–s* plural suffix; 24 the regular *–e*; and four the *–e*, but also requiring a change in the pronunciation of the last consonant. Of the 49 items, 24 were presented in their correct plural form and 25 were presented either with the incorrect plural suffix or as a singular form. Section 1.4 of appendix D contains these items.

Table 4.6. Item types in the judgement task for number comprehension – nonsense words

	Noun requiring *–e*	Noun requiring *–s*
With correct plural morpheme	12	12
With other regular plural morpheme	11	7
With both regular plural morphemes	0	0
Regular *–e* but final consonant devoiced	1	--
Singular form	1	5

4.6.1.2. Number: Production tasks

When assessing the production of grammatical morphemes related to number, the participant was shown two pictures on one sheet of paper, given the singular form of the noun, and requested to provide the plural form of the noun. For instance, the researcher said, *Hier is een blom, maar hier is baie* ... (pointing to the rest of the flowers) 'Here is one flower, but here are many ...'. Real words requiring regular and irregular plural suffixes were included, as were nonsense words (after Berko 1958).

As can be seen in section 1.5 of appendix D and table 4.7, the task assessing production of plural forms of real words requiring one of the two regular plural suffixes consisted of 20 items. Ten were nouns requiring the regular plural suffix *–e* (such as *bal* 'ball' and *koerant* 'newspaper') and the other 10 the regular *–s* (e.g., *oom* 'uncle' and *venster* 'window'). In each of these two groups, five items were monosyllabic and five bisyllabic.

Table 4.7. Item types in the production task entailing regular plural forms

	Requiring *–s*	Requiring *–e*
Monosyllabic	5	5
Bisyllabic	5	5

There were 30 items in the tasks assessing production of irregular plural forms of real words (cf. table 4.8): Five of these were nouns ending in *–te* in the plural form (e.g., *vrugte* 'fruit-PL', the plural form of *vrug*) and five in *–ens* (e.g., *ouens* 'guys', the plural of *ou*). For five items, the word-final [f] in the singular form is voiced in the plural form, which has the suffix *–e* (e.g., *diewe* 'thieves', the plural of *dief*); for two, the word-final [p] is voiced (e.g., *robbe* "seals', the plural of [rɔp]); and for another three, the word-final [t] is voiced (e.g., *honde* 'dogs', the plural of [hɔnt]). Five items were nouns which have the suffix *–e* but also require a vowel change in the stem in the plural form (e.g., *vate* [fɑtə] 'barrels' – and not *vatte* [fatə] – as the plural form of *vat*). Lastly, five items were nouns which take the *–e* plural suffix, but of which the last consonant of the stem is not pronounced in the plural form (e.g., *boë* [bʊ̯ə] 'bows' – and not *boge* [bʊ̯əxə] – as the plural of *boog*). These 30 items occur in section 1.6 of appendix D.

Table 4.8. Item types in the production task entailing irregular plural forms

Requiring *–te*	5
Requiring *–ens*	5
Requiring *–e* and voicing of final consonant	10
Noun requiring *–e* and vowel change in stem	5
Noun requiring *–e* and "dropping" of final consonant	5

Forty-eight items were included in the task involving judgement of nonsense words (cf. table 4.9): 24 were words which would take the regular *–s* plural suffix, and the other 24 the regular *–e*. Section 1.7 of appendix D contains these 48 items.

Table 4.9. Item types in the production task entailing plural forms of nonsense words

	Requiring *–s*	Requiring *–e*
Monosyllabic	2	24
Bisyllabic	18	0
Trisyllabic	4	0

4.6.2. Person and case

These tasks assessed the comprehension and production of pronoun forms. As explained in sections 3.3.1.2 and 3.3.1.4, person and case are not overtly indicated on Afrikaans nouns and verbs, but are phonologically overt on pronouns. Because both singular and plural forms of the pronouns were assessed, these tasks, in fact, assessed not only person and case, but also number.

4.6.2.1. Person and case: Comprehension tasks

When assessing the comprehension of the grammatical features number and case, the participant was first told which picture of a woman would represent the researcher throughout the task as well as which picture of a child would represent the participant. Thereafter, the participant was shown a four-picture sheet, and requested to point to the picture that matched the researcher's utterance. For instance, the participant was shown a sheet with pictures of people sitting at a table: one of a woman (not the researcher) and a child representing the participant; one of two women; one of a woman and a child (representing the researcher and the

participant); and one of the child representing the participant on his/her own. The researcher then said, *Wys vir my "Julle sit by die tafel"* 'Show me "You-PL are sitting at the table"'. The participant thus had a choice between a picture matching 'You-PL are sitting at the table' (the target); 'They are sitting at the table' or 'We are sitting at the table' (where the number of the pronoun is the same as that of the target, but the person differs); and 'You-SGL are sitting at the table' (where the person of the pronoun is the same as that of the target, but the number differs). Some items contained pronouns in their oblique case, for example *Die kat lek hom* 'The cat is licking him', where the choice was between *Die kat lek hom/haar/hulle/jou* 'The cat is licking him/her/them/you-SGL'. Section 2.1 of appendix D contains the 32 items used in this picture selection task: Each person-case-number combination occurred once.

In order to determine whether or not the participant could recognise the correct phonological realisation of the grammatical features person and case on pronouns, the participant was required to judge whether utterances produced by the researcher were acceptable in Afrikaans. The researcher and participant looked at pictures of people performing various actions (e.g., of a boy eating ice-cream), and the researcher uttered a sentence that either was grammatical and matched the picture (*Hy eet roomys* 'He is eating ice-cream'), was ungrammatical but matched the picture (**Hom eet roomys* 'Him is eating ice-cream'), or did not match the picture (*Hulle eet roomys* 'They are eating ice-cream'). Section 2.2 of appendix D contains the items used in this task. Again, each person-case-number combination occurred once, rendering 32 items. Of these, half were the correct form for the context in which they occurred and the other half not.

4.6.2.2. Person and case: Production task

To assess the production of person and case, the participant was shown a picture, given a sentence in which a particular pronoun occurred, and requested to complete a sentence in which another pronoun occurred. For instance, pointing to a picture of a boy drinking milk, the researcher said, *Hy drink melk, maar* … (pointing to the picture of a girl who is eating a banana) 'He is drinking milk, but ...', or *Dit is my skoene* (pointing to a picture of the shoes of the woman representing the researcher), *maar dit is* … (pointing to a picture of the shoes of the child representing the participant) 'These are my shoes, but these are ...'. The items used in this

task are listed in section 2.3 of appendix D; each person-case-number combination had to be produced twice.

4.6.3. Possessive case

These tasks assessed the comprehension and production of *se*-constructions.[123] Only possessive case was assessed, as other cases are not indicated by separate morphemes (nor by affixes) in Afrikaans.

4.6.3.1. Possessive case: Comprehension task

When assessing the comprehension of the (phonological) realisation of possessive case, the participant was shown a picture sheet, and requested to select one picture, out of a possible three, that matched the researcher's utterance. For instance, the participant was shown a sheet with pictures of a lion (with its tail visible), another lion depicted in such a manner that its tail is not visible, and the tail of another animal (such as a crocodile), and the researcher said, *Wys vir my die leeu se stert* 'Show me the lion's tail'. Section 3.1 of appendix D contains the 10 items used to assess comprehension of the possessive morpheme *se*.[124]

4.6.3.2. Possessive case: Production task

To assess the production of *se*-constructions, the participant was shown two pictures, given a *se*-construction matching the first picture and requested to provide another such construction matching the second picture. For instance, pointing to a picture of a man in a car, the researcher said, *Hier is die man se kar en hier is* ... (pointing to a picture of a girl on a bicycle) 'Here is the man's car and here is ...'. The 10 items used to assess the phonological realisation of possessive case in DPs are listed in section 3.2 of appendix D.

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[123] I label the *se*-construction as "possessive case" in Afrikaans, but it might well be a possessive marker instead of an indication of possessive case.

[124] It is debatable whether or not this task did, in fact, test comprehension of the *se*-construction. If the child did perceive both nouns in, for example, *die man se koerant* 'the man's newspaper', and wanted to select a picture in which both a man and a newspaper occur, the child would have had only one choice, regardless of whether or not the child comprehended that *se* indicates possession.

4.6.4. Tense

4.6.4.1. Tense: Comprehension tasks

When assessing comprehension of the (phonological) realisation of the grammatical feature tense, the participant was shown a sheet with three pictures: one in which an action is being performed, one in which the action will still be performed, and one in which the action has been performed. The participant was instructed to study these pictures while the researcher produced two sentences, each matching one of the pictures on the sheet. Hereafter, the researcher repeated one of the sentences and asked the participant to point to the picture matching that sentence. For instance, the participant was shown a picture sheet with one picture of a woman preparing to mow the lawn (where the grass is still long), one of the woman mowing the lawn (where half of the grass is still long), and one where the woman has mowed the lawn (where all the grass is now short). While the participant studied these three pictures, the researcher said *Kies eers net met jou oë 'Die vrou sny die gras'* 'First select with your eyes only "The woman mows the lawn"' and, after a pause, *En nou 'Die vrou het die gras gesny'* 'And now "The woman mowed the lawn"'. Then the participant was asked to point to one of the pictures, e.g., the one matching *Die vrou het die gras gesny*.[125]

In section 4.1 of appendix D, the items used to assess comprehension of the grammatical feature tense are listed. Certain past tense forms, such as

[125] During the pilot study, participants were merely asked to point to the picture matching the researcher's utterance, i.e., the *Kies eers net met jou oë* 'First select with your eyes only' instruction was not given. However, this proved problematic. When the researcher uttered a past tense construction, participants often chose the picture in which the action is being performed instead of the one in which action had been performed. For instance, when shown a picture of an apple hanging on a tree, one of the same apple in mid air, and one where the apple is already on the ground and told *Wys vir my 'Die appel het geval'* 'Show me "The apple fell"', participants often pointed to the picture in which the apple was still falling. Even though this was not the response targeted by the researcher, it could not necessarily be classified as being incorrect, because (i) the picture demonstrated the action (falling) mentioned by the researcher, whereas the picture of the apple on the ground did not, and (ii) children's books are often written in the past tense form but illustrated with pictures showing the actions told about in the text still being performed. So children are probably used to matching past tense constructions to present tense pictures. For these reasons, it was decided to give participants two sentences first, each matching a different picture, before requesting them to identify one picture matching the stimulus sentence.

Die seuntjie sou die bal moes kon geslaan het 'The boy would have had to be able to hit the ball' vs. *Die seuntjie sal die bal moet kan slaan* 'The boy would have to be able to hit the ball', were not assessed. The reason for this is that these forms are difficult to depict in such a manner that one can be certain that it is the contrast between [+past] and [-past] that is assessed. Table 4.10 indicates the types of past tense forms which were assessed.

Table 4.10. Item types in the picture selection task for tense comprehension

Present tense form of main verb (e.g., *sny* 'cut')	4
Historic present tense form (e.g., *gister val hy* 'yesterday he fell')	2
Temporal *het* and *ge-* past participle (e.g., *het opgestyg* 'took off')	4
Temporal *het* and *ge*-less past participle (e.g., *het ontvang* 'received')	2
Past tense of *be* (i.e., *was* or *was gewees*)	4
Present tense of *have* (*het*)	2
Past tense of *have* (*het gehad*)	2
Modal auxiliary – past and present (e.g., *sal skoon wees* 'will be clean' and *sou verbrand het* 'would have burnt')	4

Hendiadyses were assessed using a judgement task, where the participant had to judge whether or not sentences such as the following were correct: *Hy het geloop en eet* 'He ate while walking' or **Gister het die kat heeldag staan en gemiaau* 'Yesterday the cat mewed all day long'. The 10 items of this task are found in section 4.2 of appendix D.

4.6.4.2. Tense: Production task

To assess the production of the grammatical feature tense, the participant was shown a picture of a person or animal performing an action, was told that this action is performed everyday, and was requested to provide information on what the person or animal did the day before. For instance, the participant was shown a picture of a boy brushing his teeth and told *Hierdie kind borsel elke dag sy tande. Gister, net soos elke ander dag, ...* 'This child brushes his teeth every day. Yesterday, just like every other day, ...'. If the participant used the historic present tense, which would be appropriate due to the adverb *gister* which indicates past tense,[126] the researcher provided the temporal auxiliary *het*,

[126] See example (31) in section 3.3.1.5.

as in *Hierdie kind borsel elke dag sy tande. Gister, net soos elke ander dag,* ***het*** ... The following types of verbs were included:

(i) Four main verbs which take the *ge-* prefix in the past participial form – as in the *borsel*-example given above.

(ii) Two main verbs which do not take the *ge-* prefix in the past participial form – e.g., *betaal* 'pay' in *Hierdie vrou betaal elke dag die verwer. Gister, net soos elke ander dag,* ... 'This woman pays the painter every day. Yesterday, just like every other day, ...'.

(iii) Two *be* forms – e.g., *Hierdie katjie is elke dag hier. Gister, net soos elke ander dag,* ... 'This kitten is here every day. Yesterday, just like every other day, ...'.

(iv) Two *have* forms – e.g., *Hierdie seun het elke dag 'n nuwe maatjie. Gister, net soos elke ander dag,* ... 'This boy has a new friend every day. Yesterday, just like every other day, ...'.

(v) Six modal auxiliaries – e.g., *Hierdie eendjie wil elke dag swem. Gister, net soos elke ander dag,* ... 'This duckling wants to swim every day. Yesterday, just like every other day, ...'.

(vi) Two hendiadyses – e.g., *Hierdie man staan elke dag en wag vir die bus. Gister, net soos elke ander dag,* ... 'Every day, this man stands waiting for the bus. Yesterday, just like every other day, ...'.

4.7. DATA TRANSCRIPTION AND SCORING

4.7.1. Language sample

The utterances occurring in the first 30 minutes of each language sample were transcribed orthographically. Hereafter, the first 100 complete and fully intelligible utterances were identified. Following Hunt (1970:4), an utterance was considered to be a T-unit, i.e., "one main clause plus whatever subordinate clause and non-clausal expressions are attached to or embedded within it". Accordingly, *want* 'because', *en toe* 'and then', and *en dan* 'and then' were each taken to introduce a new T-unit, as were *en* 'and' and *maar* 'but' if these two were followed by a clause containing a verb, as shown in the examples below, where "/" indicates the start of a new T-unit.

(80)
hy wil nie staan nie / **want** sy bene kan nie reguit nie
'He cannot stand / because his legs cannot be straightened'

(81)
ek het groter geword / **en toe** verjaar ek in die gim / **en toe** is ek ses
'I grew bigger / and then I had my birthday in the gymnasium / and then I was six'

(82)
hy maak dit alles reg / **en dan** werk hy en almal
'He repairs it all / and then he and everybody else work'

(83)
want my ma werk lank / **en** sy het 'n nuwe werk
'Because my mom works long hours / and she has a new job'

(84)
ons het ons besems **en** ons grawe vergeet
'We forgot our brooms and our spades'

(85)
hulle het 'n werk hier naby / **maar** hulle wil dit nou in Bellville sit
'They have offices close by / but they now want to move them to Bellville'

(86)
want ons kragboksie is al baie oud **maar** baie goed
'Because our switch board is already very old but very good'

The following where not included in the 100 utterances:

(i) Fillers such as *mm* or *o* 'oh' (cf. Brown 1973:54).
(ii) Utterances containing unidentifiable material (cf. Unsworth 2005:200).
(iii) Formulaic utterances, such as *ek weet nie* 'I don't know', *kyk hier* 'look here', *wag* 'wait', or *wat's dit?* 'what's this?' (cf. Unsworth 2005:201).
(iv) Exact self-repetitions (cf. Johnston 2001:158), as in (87).

(87)
maar Jani het eintlik twee / ek het net een / ek het net een
'But Janie actually has two / I have only one/ I have only one'

(v) Exact repetitions of the conversational partner (cf. Johnston 2001:158), as in (88).

(88)
Adult: ek gaan hierdie hoed vat
'I am going to take this hat'
Child: ek gaan hierdie hoed vat
'I am going to take this hat'

(vi) Proper names in response to *wh*-questions where the response contained only the so-called queried constituent (cf. Unsworth 2005:200), as shown in (89).

(89)
Adult: in wie se klas is jy?
'In whose class are you?'
Child: Karen

(vii) Utterances which trailed off (cf. Unsworth 2005:201), as in (90).

(90)
ons kyk nou of die…
'We now look if the…'

(viii) *Ja* 'yes' and *nee* 'no' (and their equivalents, such as *jïp*, *uh*, *uh-huh*, *huh-uh*, *OK*), whether occurring (a) as an answer to a question, as in (91); (b) as an acknowledgement of the adult's previous utterance, as in (92); or (c) during self-talk, as in (93) (cf. Johnston 2001:158-159).

(91)
Adult: hou jy van kerrie?
'Do you like curry?'
Child: ja
'Yes'

(92)
Adult: jy het 'n baie mooi kombuis / alles is blou en wit
'You have a very pretty kitchen / everything is blue and white'
Child: ja
'Yes'

(93)
o die ding moet so staan / nee hy moet so om kom
'Oh, this thing must stand like this / No, it must be this way around'

The words in the first 100 complete and fully intelligible utterances were then counted and the mean determined,[127] in order to calculate the MLU. Verbs consisting of noun+verb compounds, such as *motorry* 'drive' (literally 'car+ride'); adjective+verb compounds, such as *mooimaak* 'beautify' (literally 'pretty+make'); and preposition+verb compounds, such as *optel* 'pick up' (literally 'up+pick'), were counted as one word (see examples (94a), (95a), and (96a), respectively), unless the verb part of the compound occurred before the noun, adjective, or preposition, as in (94b), (95b), and (96b-c).

(94a) dan kan ek fietsry
then can I bicycle+ride
'Then I can cycle'
(94b) want al die ander kinders ry fiets by die skool
because all the other children ride bicycle at the school
'Because all the other children ride their bicycles at school'

(95a) hulle wil nie skoonmaak nie
they want-to not clean+make not
'They do not want to clean'
(95b) die pa maak heeltyd skoon
the dad make all-the-time clean
'The dad cleans all the time'

(96a) moet hom weer teruggooi
must him again back+throw
'Must throw him back again'

[127] Several researchers have found a high correlation between MLU measured in words (MLUw) and in morphemes (MLUm) (see, e.g., Arlman-Rupp, Van Niekerk de Haan, and Van der Sandt-Koenderman 1976; Hickey 1991; Oetting and Rice 1993; Thordardottir and Weismer 1998). MLUw was chosen above MLUm, as it is a simpler process to decide what constitutes a word than it is to decide what counts as a morpheme (cf. Hickey 1991:268). Also, as stated by Miller and Deevy (2003:1157-1158), care had to be taken not to create a confound: Morphemes were being examined (in both the experimental tasks and the language samples); therefore, employing MLU measured in morphemes seemed inappropriate.

(96b) hy val af
he fall off
'He is falling off'
(96c) vang hy nou my op?
catch he now me up
'Is it recording me now?'

Merges of *dit*/*wat*/*hier* 'it/what/here' with a preposition (as in *dit*+*op*=*daarop* 'on it'), as they appear in examples (97a), (98), and (99),[128] were also counted as one word. However, if the preposition occurred before *dit*, as in example (97b),[129] the preposition and *dit* were counted as separate words.[130]

(97a) moet ouma daarin klim
must granny it+in climb
'Must granny get into it'
(97b) ek wil kyk of die seuntjie op dit kan ry
I want-to see whether the boy-DIM on it can ride
'I want to see whether the little boy can ride on it'

(98)
hier is die pad waarop ons gaan werk
here is the road what+on we will work
'Here is the road on which we are going to work'

(99)
so nou kan ons net goed hierin bêre
so now can we just stuff here+in away-put
'So now we can just put stuff away in here'

Also for these first 100 complete and fully intelligible utterances, the number of occurrences of the following was tallied:

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[128] *dit* and *wat* change their form when combined with a preposition: *dit* changes to *daar*- (e.g., *op dit* changes to *daarop*) and *wat* changes to *waar*- (e.g., *uit wat* changes to *waaruit*). In this regard, see Oosthuizen (2000).

[129] Note that *hier* cannot be separated from its preposition in the way that *dit* and *wat* can. For instance, one can say *daarop* or *op dit*, and *waarop* or *op wat*, but one can only say *hierop* (not **op hier*).

[130] Only *waar*- forms (*waarop*, *waarmee*, etc.) occurred; there were no occurrences of forms such as *op wat*, *met wat*, etc. in any of the 45 language samples.

(i) Correct use of single nouns (e.g., *my* ***mamma*** *gaan 'n* ***koek*** *bak* 'my mommy is going to bake a cake').
(ii) Incorrect use of single nouns (*twee* * ***juffrou*** 'two teacher').
(iii) Correct use of plural nouns (*ek hou van* ***honde*** 'I like dogs').
(iv) Incorrect use of plural nouns (*daar's twee* * ***byls*** instead of *byle* 'there are two axes').
(v) Person and case on pronouns correct (*kom* ***ons*** *sit* ***hom*** *in* 'let us put him in').
(vi) Person and/or case on pronouns incorrect (*waar's* * ***hom*** *hoed?* instead of *sy* 'where's his hat?').
(vii) *se*-construction correct (*die pa* ***se*** *stoel is daar* 'the dad's chair is there').
(viii) *se*-construction incorrect (*daar's hulle* * ***se*** *kos*[131] instead of *hulle kos* 'there's their food' or **my sussie skool* 'my sister school' instead of *my sussie se skool* 'my sister's school').
(ix) Each of the various kinds of present tense constructions correct (*ek* ***bak*** *koekies* 'I am baking cookies'; *ek* ***wil*** *nog speel* 'I want to play some more'; *ek* ***het*** *die zebra* 'I have the zebra'; *jou naels* ***is*** *sterk* 'your nails are strong').
(x) Each of the various kinds of present tense constructions incorrect (*nou moet daar nog 'n wit ding in* * ***is*** instead of *wees* 'now there must still be a white thing in there'; **het jy* ***het*** *net een byl?* instead of *het jy net een byl?* 'do you have only one axe?'; **nou* ***'s*** *hy daar sit* instead of *nou sit hy daar* 'now he sits there').
(xi) Use of historic present tense (*toe* ***sny*** *ek my hier* 'then I cut myself here').
(xii) Each of the various kinds of past tense constructions correct (*hulle* ***het*** *weer af****ge****val* 'they fell off again'; ***het*** *sy betaal?* 'did she pay?'; *hierso's hy wat see toe* ***was*** 'here is he who went to the sea'; *sy* ***het*** *voor die tyd daai* ***gehad*** 'she had that beforehand').
(xiii) Each of the various kinds of past tense constructions incorrect (**hulle seergekry* instead of *hulle het seergekry* 'they were hurt'; *eenkeer* * ***het*** *hulle baie stout gewees* instead of *eenkeer was hulle baie stout (gewees)* 'once they were very naughty'; *toe* ***het*** *Jessica 'n sakkie* ***gekan kry***

[131] Note that constructions such as *hulle se kos* are acceptable in certain dialects of Afrikaans. However, according to their speech therapists and teachers, none of the participants in this study spoke a dialect in which such a construction would be acceptable.

instead of *toe kon Jessica 'n sakkie* ***kry / gekry het*** 'then Jessica could get a bag').

(xiv) Passive constructions in the past tense form (*dit* ***was*** *deur 'n hond* ***gekrap*** 'it had been scratched by a dog).

Correct and erroneous occurrences of morphemes or grammatical features were not tallied from utterance 101 onwards. However, each utterance which (i) occurred after the hundredth one but before the end of the 30 minutes, and (ii) was in any way deviant (i.e., non-adult-like) was identified and placed in a separate data base.

4.7.2. Experimental tasks

All responses on the comprehension and production tasks were recorded on a score sheet. Self corrections were allowed, and the final response was the one scored. The codes given to the various responses are discussed in the chapters 5 to 7, where the results of each specific task are presented.

4.8. CHAPTER CONCLUSION

As yet, no research has been done to establish the characteristics of SLI as it presents itself in Afrikaans. In order to answer the specific research questions posed in chapter 1, the comprehension and production of the grammatical morphemes related to number, person, case, and tense were evaluated in the language of Afrikaans-speaking 6-year-olds with SLI and typically developing Afrikaans-speaking 4- and 6-year-olds. A language sample was obtained from each of the participants, and a series of experimental tasks was performed. Based on the available literature (cf. chapter 2), it was expected that the Afrikaans-speaking children with SLI would fare worse than their typically developing peers in terms of both comprehension and production of grammatical features, and that the responses of the children with SLI would also differ from those of the younger typically developing children. The findings of the language sample analyses and experimental tasks are presented in the next three chapters: Chapter 5 contains the results on number comprehension and production, chapter 6 on person and case, and chapter 7 on tense.

Chapter 5

Number comprehension and production

5.1. INTRODUCTION

This chapter contains the results on the comprehension and production of singular/plural distinctions made by the Afrikaans-speaking 6-year-olds with SLI, their typically developing peers, and typically developing 4-year-olds. Two experimental tasks were used to evaluate comprehension of singular/plural distinctions. The first was a picture selection task, the results of which will be presented in section 5.2. The second was a judgement task; the results of this task are found in section 5.3. Section 5.4 presents the results of the production tasks. Details on the items of the experimental tasks related to singular/plural distinctions are given in section 4.6.1. The way in which singular and plural forms of nouns were used by the three groups of participants in their language sample is presented in section 5.5. Finally, in section 5.6, the results of this study are discussed in light of those of others focusing on plural production by children with SLI.

5.2. RESULTS: PICTURE SELECTION TASK: SINGULAR/PLURAL FORMS OF REAL WORDS

This task was meant to provide information on the comprehension of the three groups of children of the distinction between the singular and plural forms of real words. The items of this task appear in section 1.1 of appendix D.

Responses were initially coded in such a way that it was possible to differentiate between different types of non-targeted responses, so that error patterns might be sought. Each response of the participants to the 40 items of this task was classified as one of the following:

(i) Correct (targeted) response.

(ii) Incorrect, semantically related noun, but singular when the target was singular (e.g., *hond* 'dog' instead of *kat* 'cat') and plural when

the target was plural (e.g., *reënjasse* 'raincoats' instead of *sambrele* 'umbrellas').

(iii) Correct noun but plurality the opposite of that of the target (e.g., *katte* 'cats' instead of *kat* 'cat', or *reënjas* 'raincoat' instead of *reënjasse* 'raincoats').

(iv) Incorrect, phonologically related noun (e.g., *hand* 'hand' instead of *hond* 'dog', or *kastele* 'castles' instead of *sambrele* 'umbrellas').

(v) Not usable (for instance, where the participant selected more than one picture).

(vi) Word not known to the participant, i.e., the participant said *Ek weet nie* 'I don't know', or asked *Wat is dit?* 'What is that?'.

(vii) No response given.

This coding scheme allowed one to see which responses did not give direct information on the singular/plural distinction of the noun in question. For most of the items, responses did give such information: To these items, participants responded with either (i) or (iii), i.e., they either gave the targeted response or selected the plural instead of the singular or vice versa. However, to 11 of the 40 items, more than two of the 45 participants did not give responses (i) or (iii). Closer inspection of these items could reveal whether the non-targeted responses were likely to be due to a lack of comprehension of the singular/plural form or to a problem with the item itself (such that the item constituted a word which was unfamiliar to the participant). The responses to these 11 items are summarised in Table 5.1 and discussed below.

For *tjops* 'chops' (item 4),[132] only 17 of the 45 participants chose the correct picture. Of the 28 participants who gave a non-targeted response, 12 were in the SLI group, 10 in the four-year-old (TD4) group, and six in the typically developing 6-year-old (TD6) group. One of these 28 participants gave an unusable response; two indicated that they did not know the word; and six chose the picture of one chop, nine the semantically related distracter, and 10 the phonologically related distracter. The reason for the varied responses to this item could be that the word *tjops* is not well-known to young Afrikaans-speaking children;

[132] For each task, the item numbers – i.e., the order in which items were presented – appear in the table containing the item statistics, in this case table 5.2.

they tend to use the more generic *vleisie* 'meat-DIM' to refer to both a chop and chops (as well as to other cuts of meat).

Table 5.1. Responses to the 11 items to which a response other than the target or the target with reversed plurality was given - Picture selection task: Singular/plural forms of real words

Item	Response						
	(i)	**(ii)**	**(iii)**	**(iv)**	**(v)**	**(vi)**	**(vii)**
Seël 'stamp'	14	6	6	8	1	9	1
Teël 'tile'	16	3	13	11	1	1	0
Tjops 'chops'	17	9	6	10	1	2	0
Enkel 'ankle'	18	9	11	1	1	1	0
Pa's 'dads'	26	1	11	7	0	0	0
Ketels 'kettles'	27	4	11	3	0	0	0
Handsakke 'handbags'	29	3	13	0	0	0	0
Vurke 'forks'	30	1	11	3	0	0	0
Flitse 'flashlights'	30	3	12	0	0	0	0
Voet 'foot'	32	6	7	0	0	0	0
Nes 'nest'	33	0	6	5	1	0	0

To item 6, *enkel* 'ankle', 18 of the 45 participants (five with SLI, two from the TD4 group, and 11 from the TD6 group) gave a correct response and 11 selected the plural. Nine participants chose the semantically related distracter (*arm* 'arm'), one chose the phonologically related *winkel* 'shop', and one gave no response. Only five participants explicitly indicated that they did not know the word; however, it is assumed that those who chose the semantically or phonologically related distracters were also not familiar with *enkel*.

Item 32, *teël* 'tile', was correctly identified by 16 participants. This item was difficult for all three groups, but fewer participants (five) in the TD6 group gave a non-targeted response than in the TD4 (13) and SLI (11) groups. All but response type (vii) (viz. no response) occurred: Thirteen participants chose *teëls* 'tiles', three the semantically related distracter (*plank* 'plank'), and 11 the phonologically related one (*tol* 'top'). One participant gave an unusable response and another (a 4-year-old boy) explicitly indicated that he did not know the word *teël*. However, as in the case of *enkel*, it is assumed that those who chose the semantically and phonologically related distracters were also not familiar with *teël*.

Responses (i) to (vii) were all given to item 18, which was *seël* 'stamp'. Only 14 of the participants chose the correct picture. Ten participants from the SLI group, 13 from the TD4 group, and eight from the TD6 group gave a non-targeted response. Six participants chose the picture of stamps, six the semantically related *brief* 'letter', and eight the phonologically related *teël* 'tile'. One participant gave an unusable response, one no response, and another nine indicated explicitly that they did not know the word *seël*. The range of response types and number of non-targeted responses could be an indication that most of the participants (and not only the nine who explicitly said as much) were not familiar with the word *seël*.

Item 22, *voet* 'foot', rendered responses (i), (ii), or (iii). All of the TD6 participants gave the correct response. Of the 13 participants who gave a non-targeted response, eight were in the SLI group and five in the TD4 group. Seven participants chose *voete* 'feet' and six chose the semantically related distracter (*been* 'leg'). The phonologically related distracter was *hoed* 'hat'; no-one chose this. A reason for the response pattern could be that the pictures were misleading: The picture of the leg also included a foot. Some children possibly chose the foot (and not the whole leg) in the picture of the leg instead of the picture of the foot on its own.

Item 17 was *nes* 'nest'. Twelve participants gave a non-targeted response. Of these, five were from the SLI group, six from the TD4 group, and one from the TD6 group. Only one of these participants gave an unusable response. The rest chose either the plural form (six participants) or the phonologically closely related *mes* 'knife' (five participants).

The thirtieth item was *handsakke* 'handbags'. Sixteen participants did not give the targeted response. Of these, eight were from the SLI group, seven from the TD4 group, and one from the TD6 group. In total, 13 of the non-targeted responses involved response type (iii), i.e., *handsak*. Only three of the participants chose the semantically related distracter, *rugsakke* 'backpacks'.

Item 37, *pa's* 'dads', was correctly identified by 26 participants. Of the 19 participants who gave a non-targeted response, nine each were in the SLI and TD4 groups and only one was in the TD6 group. Eleven

participants chose the picture of one dad, one the semantically related distracter (*seuns* 'boys/sons'), and seven the phonologically related *kaas* 'cheese'.

Ketels 'kettles' was item 36. Twenty-seven children gave the targeted response, and 11 chose the picture of one kettle. Four chose the semantically related *koppies* 'cups' and three the phonologically related *sleutels* 'keys'. Of the children who did not select the target, only one was in the TD6 group. Another nine and eight were in the SLI and TD4 groups, respectively.

To item 33, *vurke* 'forks', mainly responses (i) and (iii) were given (30 and 11 times, respectively), but one child (a 4-year-old girl) chose the semantically related *messe* 'knives', and three (two with SLI and one 4-year-old) chose *varke* 'pigs'.

Item 40, *flitse* 'flashlights', was the last item of this task and also the last item for which more than two of the 45 participants did not give responses (i) or (iii). Exactly two thirds of the participants did give the targeted response (i), and 12 gave the singular (iii). Three participants (one in each group) chose the semantically related *ligte* 'lights'.

No clear error pattern in or across groups could be detected. For this reason, responses to all items were recoded, making only a distinction between correct (targeted) response and incorrect (not targeted) response. In other words, response types (ii) to (vii) above were all coded as being incorrect. These values were used in the analyses that follow.

The reliability of the scale of 40 items was high; Cronbach's alpha was .889. The statistics of the individual items are presented in Table 5.2. The corrected item-total correlation shows how strong the item is correlated to the total scale. The items in Table 5.2 are ordered from the item which the participants found the most difficult to that which they found the easiest, and the order of presentation can be seen from the item numbers. The proportion of correct answers had a wide range: from .31 to .93. No pattern could be detected (from studying the order of items in table 5.2) in the type of items which participants found easy or difficult.

Table 5.2. Item statistics – Picture selection task: Singular/plural forms of real words

Item no.	Item	Proportion of participants giving the correct answer	Corrected item-total correlation
18	*Seël* 'stamp'	.31	.276
32	*Teël* 'tile'	.36	.390
4	*Tjops* 'chops'	.38	.402
6	*Enkel* 'ankle'	.40	.467
13	*Uitveër* ' eraser'	.58	.080
37	*Pa's* 'dads'	.58	.567
34	*Ma's* 'moms'	.60	.573
36	*Ketels* 'kettles'	.60	.704
20	*Badprop* 'bath plug'	.64	.218
25	*Blomme* 'flowers'	.64	.469
30	*Handsakke* 'handbags'	.64	.595
11	*Boeke* 'books'	.67	.320
26	*Dokter* 'doctor'	.67	.019
40	*Flitse* 'torches'	.67	.565
33	*Vurke* 'forks'	.67	.452
22	*Voet* 'foot'	.71	.670
31	*Seekoei* 'hippo'	.71	.385
38	*Pen* 'pen'	.71	.289
27	*Kat* 'cat'	.73	.327
17	*Nes* 'nest'	.73	.348
19	*Leeus* 'lions'	.73	.503
7	*Aarbei* ' strawberry'	.76	.340
9	*Oor* 'ear'	.76	.426
21	*Skape* ' sheep-PL'	.76	.571
39	*Glyplanke* 'slides'	.76	.325
16	*Borsels* 'brushes'	.78	.503
29	*Naels* '(finger) nails'	.78	.391
5	*Spykers* ' nails'	.78	.519
12	*Baadjie* 'jacket'	.78	.458
10	*Wasbakke* 'basins'	.80	.512
8	*Sambrele* 'umbrellas'	.80	.273
24	*Mielies* 'corn cobs'	.80	.319

1	*Seun* 'boy'	.80	.250
3	*Rusbank* ' couch'	.80	.092
15	*Visbak* 'fish bowl'	.82	.187
23	*Man* 'man'	.82	.434
35	*Emmers* 'buckets'	.82	.322
28	*Seesterre* 'starfish-PL'	.87	.472
14	*Lepel* 'spoon'	.93	.267
2	*Voël* 'bird'	.93	-.019

Five of the 40 items proved to be problematic, in the sense that there was a low correlation between them and the scale as a whole (<.20). These items were *voël* 'bird', *uitveër* 'eraser', *rusbank* 'couch', *dokter* 'doctor', and *visbak* 'fish bowl'. To the first of these, 42 of the 45 participants gave the targeted response, and the other three chose the picture of birds. This item had a corrected item-total correlation of -0.019, indicating that *voël* was very easy in relation to the other 39 items. By contrast, *uitveër*, *rusbank*, *dokter*, and *visbak* proved to be difficult items. Possible reasons for the poor performance on *uitveër*, *rusbank*, and *dokter* could be (i) that these preschool children were not yet very familiar with erasers, as they had not yet made use of erasers in their childcare centres and therefore did not know the word *uitveër*; (ii) that these children called a couch "bank" or "sofa" instead of "rusbank"; and (iii) that *dokter* [dɔktər]) was phonologically too similar to the phonological distracter (*dogter* [dɔxtər]) to be distinguishable from it. It is not clear why the children would find *visbak* difficult.

The performance of the three groups of participants on the 40 items is portrayed in figure 5.1. As can be seen from this figure, it appears that the TD6 group fared better than the other two. The performance of the SLI and TD4 groups appeared comparable; however, the median of the SLI group was lower than that of the TD4 group, and more variability occurred in the SLI than in the TD4 group. The latter was confirmed by Levene's statistic of homogeneity of variance: $F_{2,42}$=6.340; p=.004. The difference appeared to be between the SLI and TD4 groups on the one hand (both showing high variability) and the TD6 group on the other (showing low variability).

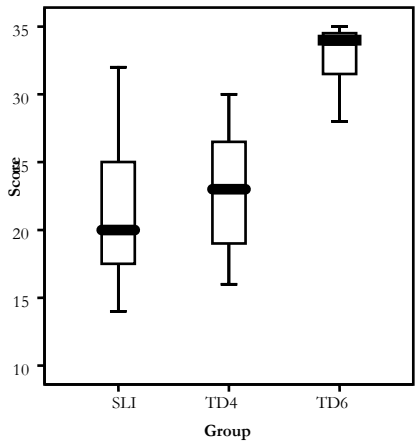

Figure 5.1. Box plot of performance per group - Picture selection task: Singular/plural forms of real words

The descriptive statistics of the three groups of participants on the 40 items are summarised in Table 5.3. A one-way analysis of variance (ANOVA) returned a significant outcome, which means that a difference between the groups could be assumed ($F_{2,42}$=32.259; p=.000). Subsequent post hoc comparisons (Tukey's HSD test; alpha=.05) showed that the SLI and TD4 groups did not differ from each other and that the TD6 group differed significantly from both the SLI and the TD4 groups.

Table 5.3. Summary of performance per group – Picture selection task: Singular/plural forms of real words

Group	N	Mean	Standard deviation	Minimum score obtained	Maximum score obtained
SLI	15	21.33	6.11400	14	32
TD4	15	22.87	4.48596	16	30
TD6	15	32.87	2.19957	28	35
Total	45	25.69	6.82516	14	35

In order to ascertain whether or not there were differences between the SLI and TD4 groups in terms of their responses to individual items, their responses to each of the 40 items were re-examined. The items for which there were notable differences are given in Table 5.4. The number of correct and incorrect responses in each group is also given. From this

table, it appears that, where responses to certain items differed between the two groups, more members of the TD4 group than of the SLI group had the item correct. Exceptions here were *badprop* 'bath plug' and *blomme* 'flowers', to which more members of the TD4 group gave an incorrect response.

Table 5.4. Items on which SLI and TD4 groups performed notably differently - Picture selection task: Singular/plural forms of real words

Item	No. in SLI group whose response was		No. in TD4 group whose response was	
	Correct	Incorrect	Correct	Incorrect
Voet 'foot'	7	8	10	5
Spykers 'nails'	8	7	12	3
Sambrele 'umbrellas'	8	7	12	3
Oor 'ear'	8	7	14	1
Wasbakke 'basins'	8	7	12	3
Uitveër 'eraser'	9	6	12	3
Man 'man'	9	6	13	2
Badprop 'bath plug'	11	4	5	10
Blomme 'flowers'	10	5	6	9

From visual inspection of scatter plots, one of these two groups did not fare better or worse than the other on either mono- or bisyllabic words. It also appeared that the two groups did not fare differently on plurals formed by *–e* and those formed by *–s*. However, it did appear that the SLI group fared worse on correctly identifying the plural forms than did the TD4 group; in terms of correctly identifying the singular forms, the responses of the two groups again did not appear to differ.

5.3. RESULTS: JUDGEMENT TASKS: CORRECT/ INCORRECT PLURAL FORMS OF REAL AND NONSENSE WORDS

Three judgement tasks were performed to assess the comprehension of number: one with real words which are supposed to take one of the two regular plural suffixes (cf. section 5.3.1); one with real words supposed to have irregular plural forms (cf. section 5.3.2); and one with nonsense words (cf. section 5.3.3).

5.3.1. Real words requiring regular plural suffixes

The aim of this task was to establish whether or not the children with SLI differed from typically developing ones in their ability to identify the correct and incorrect forms of real words which require regular plural suffixes. The 14 items of this task appear in section 1.2 of appendix D. Participants' responses to these items were coded in one of the following two ways:

(i) A response was taken to be correct if a grammatical plural form was judged as such or an ungrammatical one judged as such.

(ii) A response was regarded as incorrect if a grammatical plural form was judged to be ungrammatical or an ungrammatical one to be grammatical.

Participants were not requested to provide reasons for their judgements. However, some spontaneously did so for certain items, and this was not discouraged. The coding in (i) and (ii) were used for all of these responses as well, regardless of what was revealed by the voluntarily provided reason. For example, one boy with SLI said that **slakkes* is ungrammatical, and correctly so, but then provided *slakkie* 'snail-DIM' as the alternative. This response was taken to be correct – i.e., to belong to (i) above – even though an incorrect alternative form (at least as regards plurality) was provided by the participant.

The four items comprising grammatical plural forms were excluded from the analysis, because they were too easy in comparison with the other 10 items (which were all ungrammatical). The proportion of the correct answers to the four grammatical items was between .90 and .91; including them in the scale would have returned negative item-total correlations. These items were *foto's* 'photographs', *bessies* 'berries', *dasse* 'ties', and *plante* 'plants'. For the remaining 10 items, Cronbach's alpha was .934, which indicated a high reliability for these items as a group. Individual item statistics are presented in table 5.5, ordered from the item which the participants found the most difficult to that which they found the easiest. As was the case for the picture selection task, no pattern could be detected regarding which items participants found easy and which they found difficult.

Table 5.5. Item statistics – Judgement task: Real words requiring regular plural suffixes

Item no.	Item	Correct plural form of word used as item	Proportion of participants giving the correct answer	Corrected item-total correlation
11	**Honte*	*Honde* 'dogs'	.36	.614
3	**Sokkiese*	*Sokkies* 'socks'	.38	.709
9	**Brote*	*Brode* 'loaves of bread'	.38	.542
1	**Kars*	*Karre* 'cars'	.44	.820
13	**Roks*	*Rokke* 'dresses'	.44	.907
4	**Tandes*	*Tande* 'teeth'	.47	.809
6	**Hoenderse*	*Hoenders* 'chickens'	.47	.781
12	**Lepele*	*Lepels* 'spoons'	.47	.753
2	**Appele*	*Appels* 'apples'	.51	.852
8	**Slakkes*	*Slakke* 'snails'	.53	.584

The performance of the three groups is presented in figure 5.2, from which it appears that the TD6 group fared better than the other two. In all groups, there was substantial variance, with the greatest found in the SLI group: Some of the participants with SLI performed on a par with the worse-performing 4-year-olds, and others performed as well as the best-performing typically developing 6-year-olds. Levene's statistic of homogeneity of variance produced an F-value of 1.711 (df=2,42; p=.193), which means that the variances were not statistically different. Of note is the "artificially" good score obtained by one of the 4-year-olds: This boy (participant 14) judged all items, whether grammatical or ungrammatical, to be ungrammatical. Also noteworthy is the relatively poor performance of two of the typically developing 6-year-olds (a girl and a boy). The girl (participant 37) judged all items to be grammatical, which is a response mode more often observed in the SLI and TD4 groups. The boy's (participant 41) responses to the items of this task had no pattern, frequently alternating between judging items as grammatical and judging them as ungrammatical.

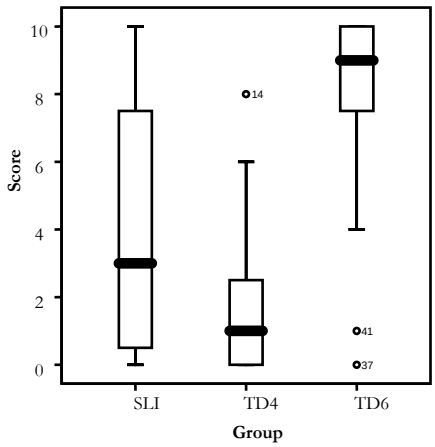

Figure 5.2. Box plot of performance per group – Judgement task: Real words requiring regular plural suffixes

Table 5.6 presents the details of the performance of the three groups on this judgement task involving plural forms of real words which should take one of the two regular plural suffixes. A one-way ANOVA returned a significant outcome, indicating that a difference between the groups could be assumed ($F_{2,42}$=12.64; p=.000). Post hoc analyses (Tukey's HSD test; alpha=.05) revealed that the statistically significant differences were between the SLI and TD6 groups, and between the TD4 and TD6 groups. There was no statistically significant difference between the mean scores of the SLI and TD4 groups.

Table 5.6. Summary of performance per group – Judgement task: Real words requiring regular plural suffixes

Group	N	Mean	Standard deviation	Minimum score obtained	Maximum score obtained
SLI	15	3.93	3.69298	0	10
TD4	15	1.80	2.48424	0	8
TD6	15	7.60	3.29068	0	10
Total	44	4.44	3.95173	0	10

For only one item was there a notable difference between the responses of the SLI and TD4 groups. This was item 8, **slakkes*. As mentioned above, one of the children with SLI correctly judged this item to be ungrammatical and then spontaneously gave *slakkie* 'snail-DIM' as

alternative. Of the other 14 participants with SLI, seven incorrectly said **slakkes* is grammatical. The pattern in the TD4 group was different: Only two of these participants judged **slakkes* to be ungrammatical and the rest incorrectly judged it to be a grammatical plural form. It could be that the 4-year-olds perceived the researcher as saying *slakkies* 'snail-DIM-PL', which is a grammatical plural form. However, the reason why the 4-year-olds may have heard *slakkies* more often than had the SLI participants then still begs explanation.

5.3.2. Real words which should have irregular plural forms

This task was administered to ascertain whether the three groups of children differed in terms of their ability to identify the correct irregular plural forms of real words. The task consisted of 33 items, which are given in section 1.3 of appendix E. Responses to these items were coded as for the judgement task involving regular plural forms of real words. That is,

(i) a response was taken to be correct if a grammatical plural form was judged as such or an ungrammatical one judged as such;
(ii) a response was regarded as incorrect if a grammatical plural form was judged to be ungrammatical or an ungrammatical one to be grammatical.

As was the case for the judgement task involving regular plural forms of real words, participants were not requested to provide reasons for their judgements, but some did so occasionally. For example, one 4-year-old boy and one boy with SLI indicated that *wolwe* 'wolves' is ungrammatical and then said *Dis jakkalse* 'These are jackal-PL'; this response was coded as incorrect.

As explained in section 4.6.1.1 of chapter 4, items comprising grammatical plural forms and those comprising ungrammatical ones were analysed separately. Cronbach's alpha was .902 for the ungrammatical forms and .846 for the grammatical ones, which indicated a high reliability for these two sets of items as groups. Individual item statistics for the ungrammatical items are presented in Table 5.7, ordered from the items for which the participants obtained the lowest mean score to that for which they obtained the highest. As can be seen from this table, all ungrammatical items were difficult for the participants: The proportion of correct responses ranged from .13 to .42.

Table 5.7. Item statistics – Judgement task: Items constituting ungrammatical plural forms of real words which should have irregular plural forms

Item no.	Item	Correct plural form of word used as item	Proportion of participants giving the correct answer	Corrected item-total correlation
5	**Sa[x]e*	*Sae* 'saws'	.13	.471
21	**Kruiwas*	*Kruiwaens* 'wheel barrows'	.16	.536
16	**Stofe*	*Stowe* 'stoves'	.18	.646
24	**Kalwe*	*Kalwers* 'calves'	.18	.536
28	**Stadde*	*Stede* 'cities'	.18	.630
18	**Hawes*	*Hawens* 'harbours'	.20	.646
23	**Hempe*	*Hemde* 'shirts'	.20	.646
26	**Tafel-ber[x]e*	*Tafelber[g]e* 'Table Mountains'	.20	.570
32	**Grafe*	*Grawe* 'spades'	.20	.738
33	**Kra[x]e*	*Krae* 'collars'	.20	.601
25	**Vuise*	*Vuiste* 'fists'	.22	.434
27	**Padde*	*Paaie* 'roads'	.22	.606
8	**Glasse*	*Glase* 'glasses'	.24	.700
29	**Bese*	*Beeste* 'oxen'	.27	.667
11	**O[x]e*	*Oë* 'eyes'	.31	.573
2	**Golfe*	*Golwe* 'waves'	.42	.251

The performance of the three groups on the 16 ungrammatical plural forms is presented in Figure 5.3. The TD6 group appeared to have a higher median than the other two groups (who both performed very poorly), but there was a very large amount of variability in the performance of these typically developing 6-year-olds: Their scores ranged from 0 to 15 out of a possible 16. This is confirmed by Levene's statistic of homogeneity of variance, which was significant ($F_{2,42}$=5.246; p=.009). In the SLI group, one girl (participant 25) and one boy (participant 28) performed better than the rest, obtaining scores comparable to those of the typically developing 6-year-olds. No clear reason could be found for the boy's good performance; the girl had a preference for judging items as ungrammatical.

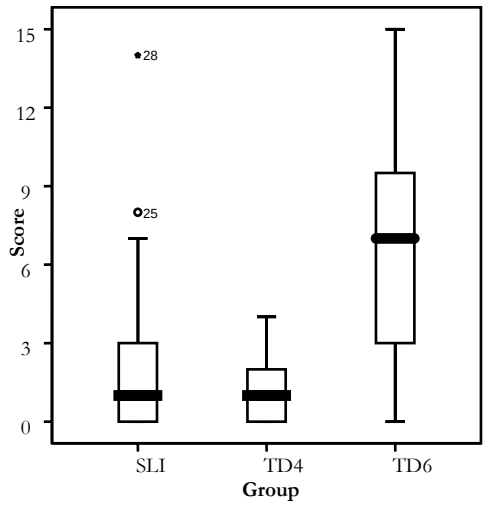

Figure 5.3. Box plot of performance per group – Judgement task: Items consisting of ungrammatical plural forms of real words which should have irregular plural forms

Table 5.8 contains the details of the performance of the three groups on the judgement of ungrammatical items consisting of real words which should take irregular plural suffixes. Not one of the mean scores was higher than 40%, indicating that this was a challenging task for all groups.

Table 5.8. Summary of performance per group – Judgement task: Items constituting ungrammatical plural forms of real words which should have irregular plural forms

Group	N	Mean	Standard deviation	Minimum score obtained	Maximum score obtained
SLI	15	2.73	4.00832	0	14
TD4	15	1.33	1.58865	0	4
TD6	15	6.47	4.67312	0	15
Total	45	3.51	4.20293	0	10

A one-way ANOVA returned a significant outcome, which means that a difference between the groups could be assumed ($F_{2,42}$=7.838; p=.001). Post hoc analyses (Tukey's HSD; alpha=.05) revealed that the statistically significant differences were between the SLI and TD4 groups, on the one hand, and the TD6 group, on the other. There was no statistically

significant difference between the mean scores of the SLI and TD4 groups. Also, there was no noteworthy difference between the responses of the SLI and TD4 groups to any one particular ungrammatical item.

Turning to the responses of the participants to the grammatical items: These items are ordered in table 5.9, from the items which the participants found the most difficult to those which they found the easiest. Individual item statistics are presented in this table; considering the proportions of participants who gave the correct responses to the ungrammatical forms (cf. table 5.7), the grammatical items were far easier for the participants than were the ungrammatical ones. Also, no item was particularly difficult: The lowest proportion of participants who gave the correct answer to any one item was .69.

Table 5.9. Item statistics – Judgement task: Items constituting grammatical plural forms of real words which should have irregular plural forms

Item no.	Item	Proportion of participants giving the correct answer	Corrected item-total correlation
7	*Mae* 'tummies'	.69	.635
9	*Vlae* 'flags'	.69	.495
31	*Lammers* 'lambs'	.73	.331
4	*Brûe* 'bridges'	.76	.505
12	*Nagte* 'nights'	.78	.565
10	*Blaaie* 'pages'	.82	.648
17	*Rûe* 'backs'	.82	.505
20	*Skepe* 'ships'	.82	.628
3	*Wolwe* 'wolves'	.87	.110
14	*Baddens* 'baths'	.87	.473
1	*Gesigte* 'faces'	.89	.152
6	*Sleepwaens* 'trailers'	.91	.107
13	*Gate* 'gates'	.91	.538
30	*Ligte* 'lights'	.91	.565
15	*Briewe* 'letters'	.93	.424
19	*Berge* 'mountains'	.93	.453
22	*Duiwe* 'doves'	.93	.692

Figure 5.4 presents the performance of the three groups on the 17 grammatical items consisting of the irregular plural forms of real words. The groups appear to have performed very similarly, all obtaining high mean scores. In all groups, some participants obtained the maximum score. There was more variance in the TD6 group than in the other two, but the difference in variance between the three groups was not statistically significant (Levene's test, $F_{2,42}$=1.887; p=.164).

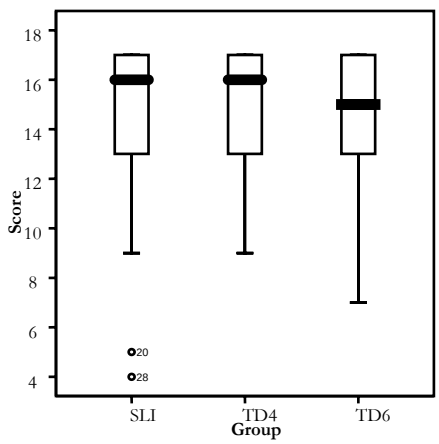

Figure 5.4. Box plot of performance per group – Judgement task: Items consisting of grammatical plural forms of real words which should have irregular plural forms

Table 5.10 contains the details of the performance of the three groups on the judgement of grammatical items consisting of irregular plural forms. A one-way ANOVA returned a non-significant outcome, which means that a difference between the groups could not be assumed ($F_{2,42}$=0.289; p=.750).

Table 5.10. Summary of performance per group – Judgement task: Items constituting grammatical plural forms of real words which should have irregular plural forms

Group	N	Mean	Standard deviation	Minimum score obtained	Maximum score obtained
SLI	15	13.80	3.56802	5	17
TD4	15	14.73	2.46306	9	17
TD6	15	14.27	2.93906	7	17
Total	45	14.50	2.94524	5	17

The third last item (item 31), *lammers* 'lambs', was the only one to which the responses between the three groups differed notably. Only one of the 4-year-olds judged this grammatical form to be ungrammatical; she did not provide a reason for her judgement. In the TD6 group, eight participants said that *lammers* is ungrammatical: Four gave no reason for their judgement, but the other four all said that it should be *lamme(r)tjies* 'lamb-DIM-PL'. One of the participants in the SLI group did not specify why she judged *lammers* to be ungrammatical, but two did: One spontaneously provided *lammetjies* as grammatical form and the other provided *skape* 'sheep-PL'. On this item then, the TD4 group outperformed the other two, with the SLI group faring better than the TD6 group. Possible reasons for this pattern could be (i) that *lammers* is not known to all participants – some of those in the TD6 and SLI groups simply did not know that word; *lamme(r)tjies* is the form that they were (more) familiar with; and (ii) whether the participants in the TD4 group knew *lammers* or not, they had a preference for judging items as grammatical, so their high score on this item merely reflected this tendency.

5.3.3. Nonsense words

The aim of this task was to establish whether the children with SLI differed from typically developing ones in their ability to identify the correct plural forms of nonsense nouns. Its items are listed in section 1.4 of appendix D. Initially, participants' responses to the 49 items of this task were coded as they were for the judgement tasks involving real words, but one more response category was added, viz. "word not known to the participant". This last response type was only given once, by a boy with SLI, to the second last item (item 48), which was **sietele*. Because it occurred so infrequently, this response type was later recoded to "incorrect". As was the case for the judgement tasks involving plural forms of real words, participants were not requested to provide reasons for their judgements but some spontaneously did so occasionally. For example, one girl with SLI indicated that *donne* is ungrammatical and offered **donnetjie* 'don-DIM' as the grammatical form; this was coded as incorrect. One 6-year-old girl correctly judged **siemettieë* to be ungrammatical, but then provided the singular form, *siemettie*, instead of *siemetties*. She also correctly judged **sles* to be an ungrammatical plural form of *sles*, but then spontaneously said that the grammatical plural

form should be **sles* (which is what was originally said by the researcher) – *slesse* would, in fact, be the grammatical plural form. The latter two responses were still taken to be correct, even though an incorrect alternative was provided by the participant.

As in the case of items of the judgement tasks consisting of real words, items comprising grammatical plural forms of nonsense words and those comprising ungrammatical ones were analysed separately. For the 25 ungrammatical items, Cronbach's alpha was .960, indicating a very high reliability for these items as a group. Statistics of the individual items of the ungrammatical subgroup are presented in table 5.11, ordered from the item for which the participants obtained the lowest mean score to that for which they obtained the highest. This table indicates that all items were difficult for the participants: Even the one on which they fared the best was responded to correctly by only 38% of the participants.

Figure 5.5 depicts the three groups' performance on the ungrammatical items consisting of nonsense words. The SLI and TD6 groups performed very similarly. Also, there seemed to be a far greater degree of variance in the SLI and TD6 groups (in both groups, some participants obtained the minimum score and others the maximum); however, when the responses of participant 14 (the outlier) were included in the analyses, a non-significant Levene's statistic was obtained ($F_{2,42}$=2.414; p=.102). Of note is the uncharacteristically good score of this participant 14, a 4-year-old boy: For this task, he judged all items, whether grammatical or not, as being ungrammatical. This caused him to give a correct response to every item in this subgroup, as all items were ungrammatical.

Table 5.11. Item statistics – Judgement task: Ungrammatical plural forms of nonsense words

Item no.	Item	Correct plural form of word used as item	Proportion of participants giving the correct answer	Corrected item-total correlation
24	**Metoekiere*	*Metoekiers*	.16	.742
29	**Snuurs*	*Snure*	.18	.699
22	**Sils*	*Sille*	.20	.786
28	**Treens*	*Trene*	.20	.582
44	**Laaps*	*Lape*	.20	.403
15	**Siemettieë*	*Siemetties*	.22	.571
26	**Koeps*	*Koepe*	.22	.746
39	**Safs*	*Sawwe*	.22	.694
21	**Suuptere*	*Suupters*	.24	.733
47	**Siefaard*	*Siefaards*	.24	.769
14	*[dærxə]	[dærgə]	.27	.655
49	**Rieks*	*Rieke*	.27	.703
16	**Sles*	*Slesse*	.29	.772
17	**Nollerde*	*Nollerds*	.31	.741
25	**Foutemme*	*Foutems*	.31	.668
35	**Meks*	*Mekke*	.31	.721
43	**Sapenne*	*Sapens*	.31	.767
45	**Gants*	*Gante*	.31	.608
48	**Sietele*	*Sietels*	.31	.641
3	**Fooms*	*Fome*	.33	.693
5	**Tonke*	*Tonkes*	.33	.648
46	**Oeselaar*	*Oeselaars*	.33	.726
4	**Sotta*	*Sottas*	.36	.662
42	**Fleeu*	*Fleeus*	.36	.779
1	**Oks*	*Okke*	.38	.628

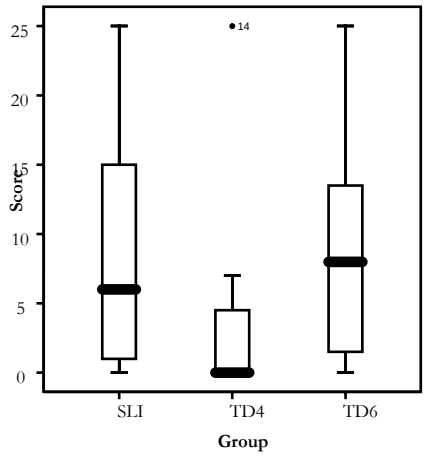

Figure 5.5. Box plot of performance per group – Judgement task: Ungrammatical plural forms of nonsense words

Table 5.12 contains the details of the performance of the 45 participants (per group) on the judgement of ungrammatical plural forms of nonsense words. A one-way ANOVA returned a non-significant outcome, which means that a difference between the groups could not be assumed ($F_{2,42}$=2.371; p=.106).

Table 5.12. Summary of performance per group – Judgement task: Ungrammatical plural forms of nonsense words

Group	N	Mean	Standard deviation	Minimum score obtained	Maximum score obtained
SLI	15	8.93	8.68057	0	25
TD4	15	3.33	6.55381	0	24
TD6	15	8.33	7.81634	0	25
Total	44	6.45	7.56201	0	25

The items for which there were noteworthy differences between the responses of the SLI and TD6 groups are given in table 5.13. The number of correct and incorrect responses in each group is also given. As can be seen from this table, for two of the items to which responses differed between the two groups, more members of the SLI group than of the TD6 group had the item incorrect. However, for three items more participants in the SLI group gave the correct response. No pattern in

terms of kind of suffixation (i.e., no suffix; *–e* instead of *–s*, or *–s* instead of *–e)* could be detected.

Table 5.13. Items on which the three groups performed noticeably differently – Judgement task: Ungrammatical plural forms of nonsense words

Item	No. of SLI participants whose response was		No. of TD6 participants whose response was	
	Correct	**Incorrect**	**Correct**	**Incorrect**
**Sotta*	5	10	10	5
**Oks*	5	10	9	6
**Rieks*	8	7	3	12
**Sietele*	8	6	3	12
**Oeselaar*	9	6	5	10

Turning to the grammatical items, Cronbach's alpha was .951, indicating a very high reliability for these 24 items as a group. Individual items' statistics are presented in table 5.14, ordered from the most difficult to the easiest item.

In figure 5.6, the three groups' performance on the grammatical items consisting of nonsense words are depicted. This performance appears to overlap to a great extent, with a higher median and less variability in the TD4 group than in the other two. Levene's statistic of homogeneity of variance was not significant ($F_{2,42}$=1.404; p=.257). In all three groups, some participants fared very well, obtaining the maximum score. The performance of three participants warrants further comment. The first is the 4-year-old boy who judged all items to be ungrammatical. Whereas this rendered a perfect score on the previous subgroups of items (the ungrammatical ones), it rendered a score of zero for the items of this subgroup, as all of these items were, in fact, grammatical. The second 4-year-old who performed markedly worse than the rest was a girl in whose responses no clear pattern could be detected. The 6-year-old girl who performed worse than her peers had a preference for judging items as being ungrammatical, providing interesting alternatives to the items given by the researcher.

Table 5.14. Item statistics – Judgement task: Grammatical plural forms of nonsense words

Item no.	Item	Proportion of participants giving the correct answer	Corrected item-total correlation
7	*Iptas*	.68	.662
8	*Dese*	.70	.746
40	[slærgə]	.73	.421
34	*Tieme*	.75	.729
12	*Kloke*	.77	.794
23	*Tisse*	.77	.498
27	*Spiperds*	.77	.667
6	*Fekke*	.80	.725
9	*Seeus*	.80	.753
18	*Foukes*	.80	.660
19	*Slake*	.80	.725
20	*Nalle*	.80	.595
31	*Donne*	.80	.613
37	*Piwwe*	.80	.586
38	*Tanders*	.80	.660
2	*Pure*	.82	.734
13	*Koenaards*	.82	.569
30	*Spalaars*	.82	.763
32	*Kuens*	.82	.675
10	*Kwamies*	.84	.748
41	*Kêlonniers*	.84	.435
11	*Bokels*	.86	.684
33	*Korrems*	.86	.651
36	*Loese*	.89	.619

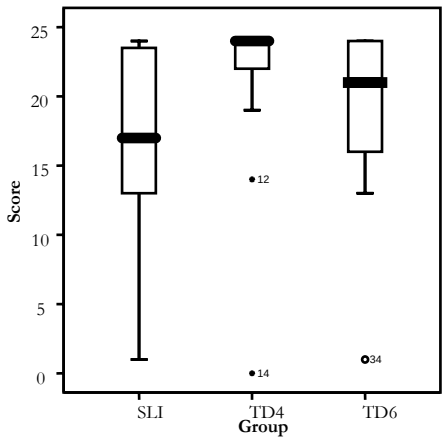

Figure 5.6. Box plot of performance per group – Judgement task: Grammatical plural forms of nonsense words

Table 5.15 contains the details of the performance per group on the judgement of grammatical plural forms of nonsense words. A one-way ANOVA returned a non-significant outcome, which means that a difference between the groups could not be assumed ($F_{2,42}$=1.803; p=.177). There was not one item for which there was a marked difference between the responses of the three groups.

Table 5.15. Summary of performance per group – Judgement task: Grammatical plural forms of nonsense words

Group	N	Mean	Standard deviation	Minimum score obtained	Maximum score obtained
SLI	15	16.13	8.17546	1	24
TD4	15	21.00	6.42540	14	24
TD6	15	18.93	6.38600	1	24
Total	44	19.11	6.65850	1	24

5.4. RESULTS: SENTENSE COMPLETION TASKS: PLURAL FORMS

Three production tasks were performed. In the first one, the results of which are discussed in section 5.4.1, the participants were required to produce the plural forms of real words which require one of the two regular plural suffixes. The second task involved the production of

irregular plural forms of real words (cf. section 5.4.2), and the third one the production of plural forms of nonsense words (cf. section 5.4.3).

5.4.1. Real words requiring regular plural suffixes

The aim of this task was to ascertain whether Afrikaans-speaking children with SLI experience more difficulty than typically developing children in the production of regular plural forms. The task comprised 20 items, presented in section 1.5 of appendix D. Initially, a separate code was given to each of the following provided by the participants:

(i) A plural form with the *–e* suffix, correctly so.
(ii) A plural form with the *–e* suffix, correctly so, but also with a deleted syllable, rendering a word that was still a real word, e.g., *broeke* 'trousers and shorts' instead of *langbroeke* 'trousers'.
(iii) A plural form with the *–e* suffix, correctly so, but also with syllable deletion, rendering a nonsense word, e.g., **boue* instead of *geboue* 'buildings'.
(iv) A plural form with *–s* as suffix instead of the targeted *–e*, e.g., **pops* instead of *poppe* 'dolls'.
(v) A plural form with an irregular suffix instead of the targeted *–e*, for example, **huiste* instead of *huise* 'houses'.
(vi) A singular form instead of a plural with the *–e* suffix, e.g., **langbroek* instead of *langbroeke*.
(vii) A singular form in the diminutive instead of the plural with the *–e* suffix, e.g., **poppie* instead of *poppe*.
(viii) A singular form instead of a plural with *–e* suffix, but also with syllable deletion, e.g., **bel* instead of *oorbelle* 'earrings'.
(ix) A plural form with the *–s* suffix, correctly so.
(x) A plural form with the *–s* suffix, correctly so, but also a diminutive form, e.g., *omies* instead of *ooms* 'uncles/men'.
(xi) A plural form with *–e* as suffix instead of the targeted *–s*, e.g., **ome* instead of *ooms*.
(xii) A plural form with an irregular suffix instead of the targeted *–s*, for example, **tenktes* instead of *tenks* 'tanks'.
(xiii) A singular form instead of the plural with the *–s* suffix, e.g., **venster* instead of *vensters* 'windows'.
(xiv) *Ek weet nie* 'I don't know', *Wat is dit?* 'What is that?', or similar.
(xv) No response given.

This was done in order to differentiate between the types of errors that children made (for instance, omission of plural suffix) and the type of plural forms for which errors were made (for instance, on a bisyllabic word requiring a *–e* as plural suffix). However, some of the codes were not used frequently. Regarding incorrect plural forms of nouns pluralised by *–e*, code (ii) was used seven times, code (iii) three times, code (vii) twice, and code (viii) only once. For incorrect forms of nouns pluralised by *–s*, code (x) was used 11 times. Only on one occasion did a participant (a 4-year-old) say that she did not know the answer (for *ghoen*), and one boy with SLI gave no response on three occasions. In total, 12 of the responses were unusable. The following four irregular plural forms were provided instead of regular *–e* forms: **oorbelles* (by one girl with SLI), **geboues* (a 4-year-old boy), **huiste* (a 4-year-old girl), and **meste* (a 6-year-old boy). The following irregular plural forms were provided instead of regular *–s* forms (six times in total): **tenkes* (by two 4-year-old boys and one 4-year-old girl), **tenktes* (a 4-year-old girl), **lêert* (a 4-year-old boy), and **fliekse* (a 4-year-old girl).

For further analysis, the responses were recoded: Codes (i) to (iii) and code (ix) were taken to be correct responses and all others were taken to be incorrect, i.e., indications that the participant was not able to produce the correct plural form.

The reliability of the 20 items was acceptable, but not high: Cronbach's alpha was .731. The statistics of the individual items are presented in table 5.16, ordered from the item which the participants found the most difficult to that which they found the easiest. No pattern could be detected (from studying the order of items in table 5.16) in the type of items which participants found easy or difficult, apart from the five most difficult items all being monosyllabic words requiring the plural suffix *–s*.

Two items were subsequently removed; Cronbach's alpha then improved slightly to .755. The first of these items was *skoen* 'shoe' (plural: *skoene*). This item proved to be too easy – 44 of the 45 participants gave the targeted response (the other one said **skoen*) – and its corrected correlation to the rest of the items was low (.058). The second item to be removed was *lêer* 'folder'. Only 11 participants gave the targeted response to this item. Although not one of the other 34 participants (explicitly) indicated that they did not know the word – 26 said **lêere*, seven said

**lêer*, and one gave an irregular plural form – it could indeed be that these participants (especially the 4-year-olds) were not familiar with this item. If this was the case, then *lêer*, in fact, tested pluralisation of a nonsense word rather than a real word.

Table 5.16. Item statistics – Production task: Plural forms of real words requiring regular plural suffixes

Item no.	Item	Proportion of participants giving the correct answer	Corrected item-total correlation
11	*Oom* 'uncle'	.22	.318
2	*Fliek* 'movie'	.24	.314
6	*Tenk* 'tank'	.24	.238
20	*Lêer* 'folder'	.24	-.048
1	*Ghoen* 'marble'	.38	.364
9	*Gebou* 'building'	.69	.364
7	*Koerant* 'newspaper'	.76	.469
14	*Oorbel* 'earring'	.80	.457
16	*Kersboom* 'Christmas tree'	.80	.133
5	*Bottel* 'bottle'	.82	.210
8	*Beker* 'mug'	.82	.466
13	*Pop* 'doll'	.82	.129
15	*Venster* 'window'	.87	.626
17	*Lekker* 'sweet'	.87	.404
18	*Mes* 'knife'	.89	.101
4	*Langbroek* 'trousers'	.89	.505
12	*Mandjie* 'basket'	.91	.461
3	*Bal* 'ball'	.93	.169
19	*Huis* 'house'	.96	.233
10	*Skoen* 'shoe'	.98	.058

With the scoring altered and the two problem items removed, the performance of the three groups was compared. This comparison is depicted in figure 5.7. As can be seen in this figure, the median of the TD6 group was the highest of the three. Although the SLI and TD4 groups appeared to have the same median, the variability was higher in

the SLI group than in the TD4 one, as confirmed by Levene's statistic of homogeneity of variance ($F_{2,42}$=4.391; p=.020).

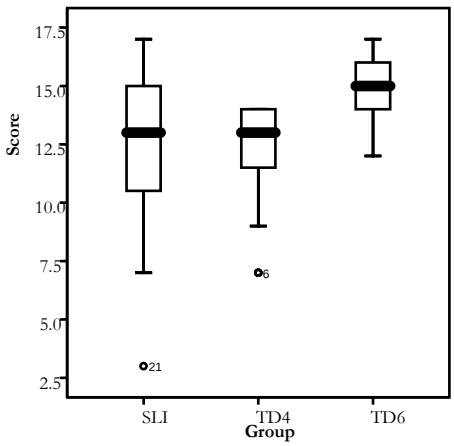

Figure 5.7. Box plot of performance per group – Production task: Plural forms of real words requiring regular plural suffixes

Table 5.17 shows the mean scores per group. These scores of the SLI and TD4 groups were comparable (12.07 and 11.93 out of 18, respectively). However, the minimum score of the SLI group was lower and the maximum one higher than that of the TD4 group.

Table 5.17. Summary of performance per group – Production task: Plural forms of real words requiring regular plural suffixes

Group	N	Mean	Standard deviation	Minimum score obtained	Maximum score obtained
SLI	15	12.07	3.88158	3	17
TD4	15	11.93	2.43389	7	14
TD6	15	14.73	1.48645	12	17
Total	45	12.91	3.01377	3	17

A one-way ANOVA was carried out on the responses of the 45 participants; it returned a significant outcome, which means that a difference between the groups could be assumed ($F_{2,42}$= 4.839; p=.013). Post hoc analyses (Tukey's HSD; alpha=.05) revealed that the difference was not between the SLI and TD4 groups. It was the scores of the SLI and TD6 groups, and those of the TD4 and TD6 groups, which differed.

This means that the TD6 group outperformed the other two groups. In order to ascertain whether there were differences between the responses of the SLI and TD4 groups to certain items, their responses to each of the 18 items were examined. Such differences could be noticed for two items, both of them monosyllabic nouns requiring the *–s* suffix. These differences are discussed below.

Six of the participants with SLI and two 4-year-olds produced the correct plural form of item 2 (*fliek*). Nine of the TD4 participants provided the singular form instead of *flieks*. By contrast, only one of the participants with SLI did so.

Item 6 was *tenk*. None of the 4-year-olds provided the correct plural form, but six of the participants with SLI did. Four 4-year-olds produced an irregular form as plural form (either **tenkes* or **tenktes*), whereas only one girl with SLI did so (**tenktwee*, literally 'tanktwo').

Another monosyllabic noun requiring *–s* which rendered different responses from the two groups was the last one (item 20), *lêer*. As stated above, this item was removed before the data were analysed statistically. However, as was the case for *tenk*, none of the 4-year-olds provided the correct plural form, but six of the participants in the SLI group did. As a group, the 4-year-olds preferred **lêere* (10 of the 15 gave this response), whereas six of the participants with SLI produced a plural with *–e* instead of *–s*.

In short then, regarding the production of regular plural forms of real words, the participants with SLI performed on a par with the 4-year-olds, and significantly worse than the typically developing 6-year-olds. We now turn to the results of the task requiring participants to produce irregular plural forms.

5.4.2. Real words which have irregular plural forms

The aim of this task was to assess whether children with and without SLI differed in their ability to produce irregular plural forms, i.e., plural forms which are "exceptions to the rule". Responses to the 30 items (given, with their English translations, in section 1.6 of appendix D) were coded in such a way that it was minimally possible to see whether participants

(i) gave a correct response, (ii) produced a singular form, (iii) indicated that they did not know the item or the answer to the item, (iv) gave no response, (v) produced a plural form with the suffix *–e*, or (vi) produced a plural form with the suffix *–s*.

There were four items to which no participant gave the correct response. These were items 4 (*weg*, plural: *weë*), 5 (*gebed*, plural: *gebede*), 7 (*hof*, plural: *howe*), and 8 (*lid*, plural: *lede*). Items 4, 7, and 8 were probably "nonsense words" to the participants; a high score on these items was not expected, as these are words rarely used or heard by young Afrikaans-speaking children. However, the fact that not one participant could provide the correct plural form of *gebed* 'prayer' was surprising, as most of the children attended childcare centres of the type in which morning prayer is an institution. One would therefore assume that at least some of them would be familiar with the word *gebede* – or would at least produce *gebedjies* 'prayer-DIM-PL'. Nevertheless, all four of these items were removed before further analyses were done. Cronbach's alpha for the remaining 26 items was .851. The statistics of the individual items are presented in table 5.18, ordered from the items which the participants found the most difficult to those which they found the easiest. As can be seen from this table, there was an extremely wide range in the difficulty of items, from .02 to .80.

Those items which were negatively correlated to the group as a whole were then removed. These were items 2 (*bevel*), 17 (*glimlag*), and 21 (*vat*). Two further items (9, *boog*, and 14, *kroeg*) were also removed, as very few participants gave the correct response to them. This somewhat improved the reliability for the remaining 21 items as a group: Cronbach's alpha was then .860.

With the nine problem items removed, the performance of the three groups was compared. Figure 5.8 depicts this comparison: The TD6 group seemed to outperform the other two but also showed more variability. This was confirmed by Levene's statistic ($F_{2,42}$=6.107; p=.005). The median of the SLI and TD4 groups were similar.

Table 5.18. Item statistics – Production task: Plural forms of real words that should have irregular plural forms

Item no.	Item	Correct plural form of word used as item	Proportion of participants giving the correct answer	Corrected item-total correlation
9	*Boog*	*Boë*	.02	.328
17	*Glimlag*	*Glimlagte*	.02	-.084
21	*Vat*	*Vate*	.02	-.053
2	*Bevel*	*Bevele*	.04	-.030
14	*Kroeg*	*Kroeë*	.04	.197
6	*Sif*	*Siwwe*	.13	.401
18	*Kas*	*Kaste*	.13	.518
24	*Vraag*	*Vrae*	.18	.450
29	*Web* [vEp]	*Webbe*	.18	.308
3	*Gas*	*Gaste*	.20	.604
19	*Skyf*	*Skywe*	.20	.643
16	*Vlieg*	*Vlieë*	.22	.407
13	*Wa*	*Waens*	.27	.644
22	*Dief*	*Diewe*	.27	.266
28	*Brood* [brʊ̯ət]	*Brode*	.31	.273
25	*Insek*	*Insekte*	.33	.513
1	*Skroef*	*Skroewe*	.36	.472
11	*Golf*	*Golwe*	.36	.581
10	*Ou*	*Ouens*	.38	.595
12	*Vrou*	*Vroue(ns)*	.38	.446
15	*Bed*	*Beddens*	.42	.640
27	*Rob* [rɔp]	*Robbe*	.42	.337
20	*Vrug*	*Vrugte*	.49	.289
23	*Kind*	*Kinders*	.73	.245
26	*Hond* [hɔnt]	*Honde*	.80	.424
30	*Hand* [hant]	*Hande*	.80	.264

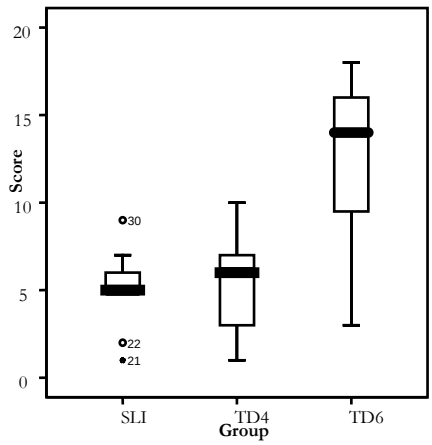

Figure 5.8. Box plot of performance per group – Production task: Plural forms of real words that should have irregular plural forms

The score of three of the participants with SLI differed notably from that of the other participants in their group: Participant 21 was a boy with SLI. To 13 of the 21 items he gave either no or an unusable response, or said that he did not know the answer. Participant 22 was also a boy. He responded to all 21 items, all of his responses were usable, and he did not say *Ek weet nie* 'I don't know' to any item, but he produced only two correct irregular plural forms. Participant 30, a girl with SLI, outperformed the rest of the participants in the SLI group and most of those in the TD4 group. The interesting aspect of this girl's responses is that, were she did not give the correct irregular plural form, she on more than one occasion provided "her own" irregular form, such as **wawe* (instead of *waens*, the plural of *wa*) and **wewwe* (instead of *webbe*, the plural of [vɛp]).

In table 5.19, the mean scores are presented per group. The mean, minimum, and maximum scores of the SLI and TD4 groups were very similar (means of 5.00 and 5.20 out of 21, respectively). The mean score of the TD6 group was more than double that: 12.47. However, this group also showed the most variability, with some participants obtaining a score of 3 and others 18.

Table 5.19. Summary of performance per group – Production task: plural forms of real words that should have irregular plural forms

Group	N	Mean	Standard deviation	Minimum score obtained	Maximum score obtained
SLI	15	5.00	2.17124	1	9
TD4	15	5.20	2.73078	1	10
TD6	15	12.47	4.54920	3	18
Total	45	7.56	4.77472	1	18

A one-way ANOVA returned a significant outcome, indicating that a difference between the groups could be assumed ($F_{2,42}$= 24.781; p=.000). As was the case for the production of plural forms of real words requiring regular plural suffixes, post hoc analyses (Tukey's HSD; alpha=.05) revealed that the difference for the production of irregular plural forms was not between the SLI and TD4 groups. Rather, the differences were between the scores of the SLI and TD6 groups, and between those of the TD4 and TD6 groups.

This means that the TD6 group yet again outperformed the other two groups and that there was no statistically significant difference between the SLI and TD4 groups. In order to ascertain whether there were differences between the responses of the latter two groups to certain items, their responses to each of the 21 items were examined. Such differences could be noticed for six items; some of these differences are discussed below.

None of the participants in the SLI group and only two in the TD4 group gave the correct response (*gaste*) to item 3, *gas*. The participants with SLI gave a comparable number of responses entailing regular *–e* (i.e., **gasse*) and the singular form (five and seven, respectively). However, the participants in the TD4 group showed a preference for the regular *–e* plural form (seven responses) over the singular form (two responses).

Item 15 was *bed* (pronounced [bɛt]). In the SLI and TD4 groups, four participants each gave the correct plural form, *beddens*. More participants in the SLI than in the TD4 group said **bedde* (five vs. two), with the TD4 group showing a preference for **bette* (nine, vs. two in the SLI group).

For the next item, item 16 (which was *vlieg*), only two participants with SLI and one in the TD4 group gave the correct plural form, *vlieë*. The TD4 group had a strong preference for the regular *–e* (**vliege*): 13 of the 15 gave this response, compared to 5 participants in the SLI group. Of the participants in the latter group, three gave **vliegs* as plural form, whereas no TD4 participant produced this form.

Both groups fared very poorly on item 19, *skyf*. Of the 30 participants, only one (a girl with SLI) gave the correct plural form, *skywe*. The response given by most participants with SLI was the singular form (eight participants), whereas the response favoured by the TD4 participants was the regular *–e* plural without voicing of the last consonant, **skyfe* (11 participants).

The next item was *vrug*. Here again, more participants with SLI (nine of them) than TD4 participants (three) gave the correct *vrugte*. None of the participants with SLI gave the singular form, whereas four TD4 participants did. However, the response given by most of the TD4 participants was **vrugge* (seven, compared to the five in the SLI group).

We now turn to item 12, *vrou*, which can be pluralised as either *vroue* or *vrouens*. In total, 11 participants in the SLI group and 14 in the TD4 group gave a correct plural form, but the TD4 group preferred the regular form *vroue* (11, compared to six in the SLI group). Also, none of the participants in the TD4 group gave the regular *–s* form **vrous*, whereas three participants with SLI did.

For the production of both regular and irregular plural forms, the TD6 group outperformed the other two. Although there were no statistically significant differences between the performance of the SLI and TD4 groups, some differences in the types of response were noticed: In terms of regular plural forms, monosyllabic nouns requiring *–s* as suffix appeared to be more difficult for the TD4 group than for the SLI one. In terms of nouns with an irregular plural form, the 4-year-olds showed a clear preference for replacing these forms with regular *–e* plural forms. This preference was not noted for the SLI group; rather, in total, this group used the regular *–s* plural form 32 times, compared to the nine times by the TD4 group.

5.4.3. Nonsense words

This tasked was aimed at ascertaining whether the Afrikaans-speaking children with SLI differed from typically developing ones in terms of their ability to form the plural of words which are novel to them. The task comprised 48 items, given in section 1.7 of appendix D. Participants' responses were coded similarly to the ones for the real words requiring regular plural suffixes (cf. section 5.4.1), but extra codes were added to indicate whether (i) the nonsense word was replaced by a real word (as in **kere* 'times' instead of *knure*, the plural of *knuur*); or (ii) the nonsense word was replaced by another nonsense word (as in **knude* as the plural form of *knuur*).

Cronbach's alpha for the 48 items of this task was .945, indicating a high reliability for the items as a group. The statistics of the individual items are presented in table 5.20, ordered from the most difficult to the easiest item. There was a wide range in the difficulty of the items, but not one of them was particularly easy: The proportion of participants giving the correct response ranged from .02 to .62.

Table 5.20. Item statistics – Production task: Plural forms of nonsense words

Item no.	Item	Correct plural form of word used as item	Proportion of participants giving the correct answer	Corrected item-total correlation
38	[stærx]	[stærgə]	.02	.112
35	[lærx]	[lærgə]	.04	.198
16	*Lif*	*Liwwe*	.07	.301
5	*Tef*	*Tewwe*	.09	.262
21	*Lerke*	*Lerkes*	.11	.254
24	*Saan*	*Sane*	.16	.133
43	*Tiese*	*Tieses*	.16	.278
7	*Knuur*	*Knure*	.22	.200
11	*Latoewier*	*Latoewiers*	.24	.458
14	*Gol*	*Golle*	.27	.162
36	*Keen*	*Kene*	.27	.549
13	*Beeu*	*Beeus*	.29	.462

22	*Diemounier*	*Diemouniers*	.29	.475
34	*Wor*	*Worre*	.29	.567
20	*Luur*	*Lure*	.33	.560
33	*Ges*	*Gesse*	.33	.479
46	*Wis*	*Wisse*	.33	.534
15	*Kreeu*	*Kreeus*	.36	.365
26	*Fant*	*Fante*	.36	.519
28	*Stiel*	*Stiele*	.36	.419
29	*Hal*	*Halle*	.36	.709
30	*Goom*	*Gome*	.36	.465
18	*Sook*	*Soke*	.38	.534
25	*Woek*	*Woeke*	.38	.584
40	*Dies*	*Diese*	.38	.485
47	*Pygter*	*Pygters*	.38	.667
19	*Klaat*	*Klate*	.40	.510
32	*Fiender*	*Fienders*	.40	.646
39	*Fasel*	*Fasels*	.40	.592
41	*Mek*	*Mekke*	.40	.596
17	*Dissem*	*Dissems*	.42	.471
42	*Loet*	*Loete*	.42	.613
48	*Assa*	*Assas*	.42	.564
44	*Beel*	*Bele*	.44	.474
8	*Toelem*	*Toelems*	.47	.510
1	*Apoenaar*	*Apoenaars*	.47	.470
2	*Foten*	*Fotens*	.49	.563
3	*Biesaard*	*Biesaards*	.49	.467
27	*Kolla*	*Kollas*	.49	.746
37	*Kiemaard*	*Kiemaards*	.49	.555
45	*Kottel*	*Kottels*	.49	.572
9	*Swelaar*	*Swelaars*	.51	.675
6	*Lienkert*	*Lienkerts*	.53	.655
23	*Waken*	*Wakens*	.53	.602
31	*Banalie*	*Banalies*	.53	.720
4	*Lil*	*Lille*	.60	.511
10	*Pekkerd*	*Pekkerds*	.60	.617
12	*Slofie*	*Slofies*	.62	.495

Figure 5.9 portrays the comparison of the performance of the three groups, indicating again that the TD6 group appeared to fare better than the other two, and that the SLI and TD4 groups fared similarly. More variability may seem to occur in the SLI and TD4 groups than in the TD6 group, but Levene's statistic was not significant ($F_{2,42}$= 2.928; p=.065). Of note is the performance of one typically developing 6-year-old: She fared markedly worse than the other participants in her group. In fact, her performance was worse than that of many of the participants in the SLI and TD4 groups. She gave only six correct responses; her other 42 responses all consisted of singular forms. In two cases, she replaced the nonsense word with a real word: **klier* 'gland' instead of *knure* as the plural of *knuur*, and **stoel* 'chair' instead of *stiele* as the plural form of *stiel*.

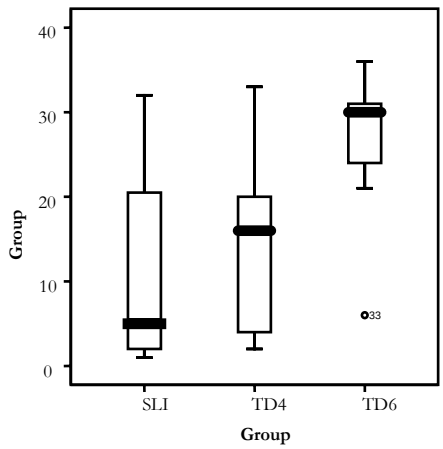

Figure 5.9. Box plot of performance per group – Production task: Plural forms of nonsense words

Table 5.21 contains more detail on the scores, presented per group. As was the case for the production of irregular plural forms of real words, the mean, minimum, and maximum scores of the SLI and TD4 groups were very similar. Again, the mean score of the TD6 group was more than double that of either of the other two groups.

Table 5.21. Summary of performance per group – Production task: Plural forms of nonsense words

Group	N	Mean	Standard deviation	Minimum score obtained	Maximum score obtained
SLI	15	11.07	10.48446	1	32
TD4	15	13.93	10.41610	2	33
TD6	15	27.27	7.38209	6	36
Total	45	17.42	11.73861	1	36

A one-way ANOVA returned a significant outcome, indicating that a difference between the groups could be assumed ($F_{2,42}$=12.324; p=.000). As was the case for the production of plural forms of real words, post hoc analyses (Tukey's HSD; alpha=.05) revealed that the differences were between the scores of the SLI and TD6 groups, and between those of the TD4 and TD6 groups. There was no statistically significant difference between the mean scores of the SLI and TD4 groups.

However, on some of the items, there were differences between the responses of these two groups, which warrant discussion. The first of these items was item 2, *foten*. A similar number of participants in the SLI and TD4 groups (four and five, respectively) gave the correct answer. However, as a group, the participants with SLI favoured the singular form (nine of them said **foten*), whereas five of the TD4 participants gave this response. None of the SLI participants gave the singular form of a real word, but two 4-year-olds did: Both said **foto* 'photograph'. A similar (but not identical) pattern was observed for the groups' responses to *waken* (which is phonologically similar to *foten*): Six participants in the SLI and eight in the TD6 group gave the correct response, *wakens*. Again, nine participants with SLI produced the singular form, compared to six in the TD4 group.

None of the participants with SLI gave the correct response (*fante*) to item 26, *fant*; four 4-year-olds did. Five participants in each group gave the singular form. Three participants with SLI said *fants*, whereas only one 4-year-old gave this response. The participants' poor response to this item is somewhat surprising: Because *olifant* 'elephant' is a word commonly known to young Afrikaans-speaking children, it was expected that at least the 4-year-olds would say *fante*, on analogy to *olifante*.

An item to which no correct response was given by any participant in the two groups was *lerg* [lærx], item 35. The correct response would have been [lærgə]. The response given most often by both groups was the singular form. Four participants with SLI gave unusual irregular forms (one girl said [lærxtə] and one [lærə], and one boy said [lærkə] and one [lærts]), whereas no 4-year-old did so. A similar pattern was observed for the responses to item 38, [stærx], of which the correct plural form would be [stærgə]. No participant gave this correct response; the groups' preference was again for the singular form (eight participants with SLI and seven 4-year-olds), and again some children in the SLI group (three girls) but none in the TD4 group gave an unusual irregular form: [stærdə], [stærə] which is a real word meaning "stars", and [stærtə], which is a real word meaning "tails".

5.5. NUMBER PRODUCTION IN THE LANGUAGE SAMPLES

The use of singular and plural nouns in the first 100 complete and fully intelligible utterances of each language sample (i.e., those utterances used to calculate the MLU) was examined. In total, the 45 participants used 3743 nouns in these 100 utterances – 18.8% of all words used were nouns: The SLI group used 1116 (17.1% of their 6521 words were nouns), the TD4 group 1150 (which amounted to 16.8%), and the TD6 group 1477 (16.6%). The difference in variance between the three groups was statistically significant (Levene's test, $F_{2,42}$=5.164; p=.010). Of the 3743 nouns, 3043 (81.3%) were supposed to be in their singular form and 700 (18.7%) in their plural form. Table 5.22 contains a per-group summary of the use of nouns in the language samples.

The proportion of plural forms was calculated per participant in order to analyse the differences between the three groups. Of the three groups, the SLI group used the highest proportion of plural forms (.21), followed by the TD4 (.19) and TD6 groups (.15). A one-way ANOVA returned a significant outcome, which means that a difference between the groups could be assumed ($F_{2,42}$=4.525; p=.017). Subsequent post hoc comparisons (Tukey's HSD; alpha=.05) showed that the TD6 and SLI

groups differed from each other, and that the TD4 group differed from neither of the other two groups.

Table 5.22. Number of singular and plural nouns used (correctly and incorrectly) in the language samples

	SLI	**TD4**	**TD6**
Singular form correct	880/881 99.9%	972/974 99.8%	1188/1188 100%
Singular form incorrect	1/881 0.1%	2/974 0. 2%	0/1188 0%
Plural form correct			
-e	62/69 89.9%	60/61 98.4%	109/109 100%
–s	71/78 91.0%	77/79 97.5%	119/119 100%
Irregular	74/88 84.1%	33/36 91.7%	59/61 96.7%
Total	207/235 88.1%	170/176 96.6%	287/289 99.3%
Plural form incorrect			
-e	7/69 10.1%	1/61 1.6%	0/109 0%
–s	7/78 9.0%	2/79 2.5%	0/119 0%
Irregular	14/88 15.9%	3/36 8.3%	2/61 3.3%
Total	28/235 11.9%	6/176 3.4%	2/289 0.7%

None of the groups showed a strong preference for *–s* forms over *–e* forms or vice versa. There was a slight tendency for some children in the SLI group to replace *–e* forms with *–s* ones (as in *byls* instead of *byle*) but not vice versa. Surprisingly, irregular forms had a higher frequency of occurrence in the language samples of the SLI group than in those of the two typically developing groups. Also, a higher proportion of the SLI group's plural forms consisted of irregular ones (.37). The frequency of occurrence of irregular forms was the lowest in the TD6 group's language samples; however, the proportion of irregular forms was similar for the two typically developing groups: .19 for the TD4 group and .21 for the TD6 one. As expected, the group with SLI made more errors on

these irregular forms than did either of the other two groups. This was also the case for errors on *–e* and *–s* forms.

Some types of errors were made by both children with SLI and typically developing ones. These include devoicing the final consonant of the stem in the plural form (which is how the stem is pronounced in its singular form). This occurred in the case of **hoete* (singular: *hoed* 'hat'). It also occurred on **goete* 'things/stuff' (singular: *ding* 'thing'), but voicing the final consonant of the stem (as in **goede*) would still not have rendered a grammatical plural form. Either *goed*, *goeters*, or *dinge* would be the grammatical form. Another error made by typically developing children and those with SLI was using the regular plural suffix *–e* instead of *–te* when producing the plural form of *kas* 'cupboard'. In two cases, a plural instead of a singular form was used: A 4-year-old boy said *hier 'n *grafies* instead of *hier is 'n grafie* 'Here is a spade-DIM' and a boy with SLI said *dan hy dan wil dit hom *koppe sit hy* instead of *dan wil hy dit op sy kop sit hy* 'Then he wants to put it on his head he'.

However, some error types were only made by the children with SLI. These include:

(i) using the regular *–s* instead of the *–e*, as in **byls* instead of *byle* 'axes' and **honds* instead of *honde* 'dogs';

(ii) using both regular suffixes when only the *–e* should have occurred, as in **handes* instead of *hande* 'hands' and **koppes* instead of *koppe* 'heads';[133,134]

(iii) idiosyncratic devices for forming plurals. When asked whether he has any siblings, one boy with SLI replied *net 'n sussie en twee sussies* 'just a sister-DIM and two sister-DIM-PL'. He had, in fact, (only) two sisters, so it is assumed that *net 'n sussie en twee sussies* was his

[133] For most nouns, the singular form is the most frequently used and thus the most frequently heard one. There are some exceptions though: *Oë* 'eyes', *hare* 'hair-PL' or *hande* 'hands', for instance, are likely to be heard more often than their singular counterparts. In the case of **handes* then, it could well be that the most frequently heard form of the noun is pluralised, which would render a correct plural form for most other nouns.

[134] Here it is interesting to note that, in Dutch, language change has resulted in plural forms such as *eier* and *kinder* being "repluralised", resulting in a "double" plural (*eieren* and *kinderen*) which is now regarded as the grammatical plural form. The "double plurals" produced by the Afrikaans-speaking children with SLI thus have correlates in other, "non-impaired" languages.

formulation for *net twee sussies* 'only two sister-DIM-PL'. This same boy said *groot hond en twee honde* 'big dog and two dogs' when asked whether he had any dogs; from the context, it emerged that he had two dogs of which one was big and one small. It appears then that this boy makes use of a type of parataxis to indicate plurality.

Only the singular and plural forms occurring in the first 100 utterances were tallied. However, the rest of the 30 minutes of each language sample was also examined for errors involving plurality. The errors made by both the typically developing children and those with SLI – those discussed above – all occurred in the rest of the 30 minutes as well. In addition, the following ones were made:

(i) Three children with SLI used the regular *–e* instead of the *–s*: **arme* instead of *arms* 'arms' and **leeue* instead of *leeus* 'lions'.

(ii) One boy with SLI said *lammetjies se *sterde* which should have been *lammetjies se sterte* 'lamb-DIM-PL *possessive marker* tails'. This boy also said **lammetjiesterts* instead of *lammetjiesterte* 'lamb-DIM tails'.

(iii) Three typically developing children used the incorrect form of what should have been an irregular plural form: A 4-year-old boy said **glasse* instead of *glase* 'glasses' (singular: *glas*); one typically developing 6-year-old boy said **Saterdags* instead of *Saterdae* 'Saturdays' (singular: *Saterdag*); another said **diewens* instead of *diewe* 'thieves' (singular: *dief*).

5.6. DISCUSSION: NUMBER COMPREHENSION AND PRODUCTION

Where performance between groups differed on the experimental tasks – and only for the judgement tasks assessing irregular forms of nonsense words and grammatical irregular forms of real words, there was no statistically significant difference between groups – the pattern which emerged was that the typically developing Afrikaans-speaking 6-year-olds fared better than both the 6-year-olds with SLI and the typically developing 4-year-olds; the latter two groups performed similarly.[135] This pattern was partly observed for the language sample results: The typically

[135] Overall, all three groups of children performed worse on the task involving the production of the plural form of nonsense words than they did on those involving real words. This was also found by Dalalakis (1999).

developing 6-year-olds outperformed their peers with SLI, but the performance of the 4-year-olds did not differ from either of the groups of 6-year-olds.

As was the case in the present study, Dromi et al. (1993:766) found that Hebrew-speaking children with SLI used significantly fewer plural forms than did age-matched controls in elicited production. The performance in this regard of the children with SLI did not differ significantly from that of (younger) MLU-matched controls. Similarly, Leonard et al. (2001:629) found that Swedish-speaking children with SLI (aged 4 years 3 months to 5 years 7 months) fared significantly worse than age-matched controls in terms of elicited production of plural forms, with no significant differences between the production of plural forms by the children with SLI and MLU-matched controls.

Similar results were obtained by Conti-Ramsden and Hesketh (2003), who found no significant difference between the performance of two groups of children on a plural elicitation task, namely English-speaking children with SLI (aged 4 years 4 months to 5 years 10 months) and 2- to 3-year-old controls (matched for language age with the children with SLI). Furthermore, Conti-Ramsden (2003:1032) found that these children with SLI fared significantly worse than age-matched controls on this task.

The results of the present study also offer support for those of Dalalakis (1999), who found that Greek-speaking children with SLI (ages 5 years 8 months to 17 years 7 months) performed significantly worse than age-matched controls, and that there was no significant difference between the performance of these controls and language-matched ones; in other words, in contrast to the findings of the present study, the participants with SLI also performed significantly worse than their language-matched controls in elicited production of plural forms. The reason for this discrepancy in findings could be related to plural forms in Greek being morphologically more complex than they are in Afrikaans, as nouns are also marked for gender and class in Greek, but not in Afrikaans.

Several other studies also found that children with SLI performed similarly to younger (mostly MLU-matched) controls. One example is the 1990 study by Rom and Leonard. They compared the language

samples of 4- to 5-year-old Hebrew-speaking children with SLI to those of younger typically developing children matched on a morpheme-per-utterance measure. They also found no difference in the correct use of plural nouns between the two groups of children.

The accuracy of plural production by the children with SLI in their spontaneous language samples was 88% in the present study; that of the younger controls was 97%. This compares well with the 5-year-old children with SLI in a study by Oetting and Rice (1993): These children produced plurals at 90% accuracy (as did MLU-matched controls). However, this was not the case in their elicited production data. Here the children with SLI experienced more difficulty than the controls with the plural form of infrequently pluralised nouns. Similarly, Rice and Oetting (1993) found that 4- to 6-year-olds with SLI demonstrated relatively high levels of accuracy in the pluralisation of nouns. Similar to what was found in the present study, there was no significant difference between the performance of children with SLI and younger children matched for language age, in terms of their elicited production of regular and irregular plural forms. The children with SLI had a mean chronological age of 5 years 0 months and a mean language age of 3 years 0 months, whereas the control group's mean age was 2 years 10 months.

In contrast to the present study, others found no difference between the three groups: children with SLI, age-matched controls, and younger typically developing children. One example is Blake, Myszczyszyn, and Jokel (2004), who found no significant difference between the correct spontaneous use of plural forms of nouns by children with SLI (aged 5 years 1 month to 9 years 8 months) and that of age-matched controls and controls matched in terms of expressive language score. Roberts and Rescorla (1995) compared the spontaneous production of noun morphology of 4-year-olds with an expressive language delay to that of age-matched and MLU-matched controls. They found that the three groups of children did not differ in terms of their production of plurals. Lastly, Rom and Leonard (1990) compared the language samples of 4- to 5-year-old Hebrew-speaking children with SLI to those of younger typically developing children matched on a morpheme-per-utterance measure. They found no difference in the correct use of plural nouns between the two groups of children.

5.7. CHAPTER CONCLUSION

There is consensus in the literature that children with SLI perform on a par with younger typically developing controls; this was also found in the present study, but only for the elicited data. However, the findings on comparisons with typically developing age-matched controls are mixed: Some studies concluded that children with SLI fare worse (as was the case in the present study) and others not.

Turning to the research questions posed in chapter 1 (specifically questions 1 to 4), it appears that Afrikaans-speaking children with SLI present with a delay in their comprehension and production of grammatical morphemes related to the singular/plural distinction. Although the responses of the SLI and 4-year-old groups to certain items of the experimental tasks differed, no pattern could be detected in these differences. Therefore, based on the results of the experimental tasks alone, one would conclude that the language of Afrikaans-speaking children with SLI is merely delayed. However, analyses of the spontaneous language samples of these two groups revealed that the SLI group made even more errors than did the 4-year-olds, but also that the SLI groups made errors not found in the language of the typically developing children. Therefore, the Afrikaans-speaking children with SLI do not present with merely a language delay; their language is also to some extent deviant.

Chapter 6

Comprehension and production of person and case

6.1. INTRODUCTION

The comprehension of person and case on personal and possessive pronouns was tested with two different experimental tasks, namely picture selection – the results of which are given in section 6.2.1. – and a judgement task – the results of which are presented in section 6.2.2. In section 6.2.3, the results of the production task eliciting person and case on pronouns are presented. Section 6.3 contains the results of the comprehension (section 6.3.1) and elicited production tasks (section 6.3.2) involving *se*-constructions. Thereafter, the way in which pronouns (section 6.4.1) and *se*-constructions (section 6.4.2) were used by the participants in their language samples will be discussed. Section 6.5 compares the results of this study to those of others on pronouns and possessive constructions.

6.2. PERSON AND CASE ON PRONOUNS

6.2.1. Results: Picture selection task: Person and case on pronouns

This task aimed to establish how Afrikaans-speaking children with SLI fare in comparison with typically developing ones in terms of the correct identification of pronouns. The 32 items of this task are given in section 2.1 of appendix D. Each response given to these items was classified as either correct or incorrect. Initially, a more complex classification system was used – one which made it possible to detect error patterns, i.e., to establish which grammatical (number or person) and/or semantic (gender) feature the children found difficult – but most errors were made very infrequently, and no error patterns could be detected. For this reason, the coding system was simplified.

The reliability of the 32 items was high; Cronbach's alpha was .830. The statistics of the individual items are presented in table 6.1, ordered from the item which the participants found the most difficult to that which they found the easiest.

Table 6.1. Item statistics – Picture selection task: Pronouns

Item no.	**Item**	**English translation**	**Proportion of participants giving correct answer**	**Corrected item-total correlation**
10	*Sy oor is af*	It's ear is off	.11	.203
9	*Die seuntjie sien hulle*	The boy sees them	.38	.108
22	*Ouma vryf dit*	Grandma is stroking it	.42	.369
6	*Dit is ons speelgoed*	These are our toys	.49	.117
12	*Hulle wys 'n prentjie*	They are showing a picture	.53	.200
29	*Die seuntjie sien julle*	The boy sees you-PL	.60	.161
16	*Dit is julle speelgoed*	These are your-PL toys	.62	.347
4	*Dit is hulle speelgoed*	These are their toys	.64	.322
2	*Julle wys 'n prentjie*	You-PL are showing a picture	.67	-.103
17	*Hy sit by die tafel*	He is sitting at the table	.71	.319
28	*Die koerant lê daarop*	The newspaper is lying on it	.71	.503
14	*Die kat lek haar*	The cat is licking her	.73	.297
18	*Ons wys 'n prentjie*	We are showing a picture	.76	.338
21	*Dit lê op die grond*	It is lying on the ground	.76	.478
1	*Die reën val op julle*	The rain is falling on you-PL	.78	.384
17	*Die kat lek my*	The cat is licking me	.78	.666
31	*Die reën val op hulle*	The rain is falling on them	.78	.563
30	*Ek staan langs die tafel*	I am standing next to the table	.80	.254
7	*Die seuntjie sien ons*	The boy sees us	.82	.471
19	*Die voël sit op haar*	The bird is sitting on her	.82	.459
25	*Die kat lek hom*	The cat is licking him	.82	.495

23	*Sy sit by die tafel*	She is sitting at the table	.82	.435
26	*Die reën val op ons*	The rain is falling on us	.84	.177
32	*Die voël sit op my*	The bird is sitting on me	.84	.513
5	*Dit is sy roomys*	It is his ice-cream	.84	.399
11	*Die voël sit op jou*	The bird is sitting on you-SGL	.84	.450
3	*Dit is haar roomys*	It is her ice-cream	.87	.430
20	*Die kat krap jou*	The cat is scratching you-SGL	.89	.485
8	*Dit is my roomys*	It is my ice-cream	.91	.336
15	*Dit is jou roomys*	It is your-SGL ice-cream	.91	.135
13	*Die voël sit op hom*	The bird is sitting on him	.93	.267
24	*Jy staan op die stoel*	You-SGL are standing on the chair	.93	.445

The response to item 2 (*Julle nys 'n prentjie* 'You-PL show a picture') had a negative correlation to the 32 items as a whole. This indicated that this item somehow did not test what it was supposed to. Whereas the item-total correlation of the other three items involving *julle* – viz. items 1 (*Die reën val op julle* 'The rain is falling on you-PL'), 16 (*Dit is julle speelgoed* 'These are your-PL toys'), and 29 (*Die seuntjie sien julle* 'The boy sees you-PL') – was low, it was not negative. Furthermore, the four items involving *julle* were not particularly difficult for the participants: 60 to 78% of them gave the correct response. Therefore, all items involving *julle* were included in the statistical analyses, also the one with a negative item-total correlation.

The performance of the three groups of participants on the 32 items is portrayed in figure 6.1. From this figure, it appears that the TD6 group fared better than the other two. The maximum scores of the SLI and TD4 groups seemed similar; however, their minimum scores differed greatly (the lowest appeared in the SLI group, as expected) and there was more variability in the SLI group than in the other two groups. Levene's statistic of homogeneity of variance confirmed this: $F_{2,42}=8.036$; $p=.001$.

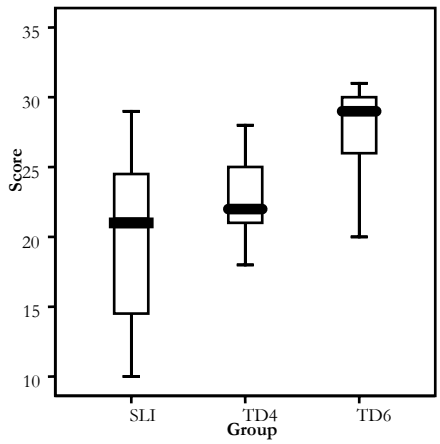

Figure 6.1. Box plot of performance per group – Picture selection task: Pronouns

The performance of the three groups of participants are summarised in Table 6.2. The mean scores of the SLI and TD4 groups were similar (20.07 and 22.73 out of 28, respectively), whereas the mean of the TD6 group (27.33) was higher than that of the other two. A one-way ANOVA returned a significant outcome, which means that a difference between the groups could be assumed ($F_{2,42}$=10.599; p=.000). Post hoc analyses (Tukey's HSD; alpha=.05) revealed that this difference was between the SLI and TD6 groups, and between the TD4 and TD6 groups.

Table 6.2. Summary of performance per group – Picture selection task: Pronouns

Group	N	Mean	Standard deviation	Minimum score obtained	Maximum score obtained
SLI	15	20.07	6.19293	10	29
TD4	15	22.73	3.01109	18	28
TD6	15	27.33	3.15474	20	31
Total	45	23.38	5.24096	10	31

No statistically significant difference was found between the SLI and TD4 groups. In order to ascertain whether there were differences in the types of responses given by these two groups, their responses to each of the 32 items were examined. There were two items for which there were

notable differences between the responses of these two groups. The first was item 12 (*Hulle wys 'n prentjie* 'They are showing a picture'): The SLI group obtained a higher score (eight participants selected the correct picture as opposed to only four in the TD4 group). The error made most frequently by both groups (eight participants in the TD4 and four in the SLI group gave this response) was selecting the phonologically similar *Julle wys 'n prentjie* 'You-PL are showing a picture'. No noticeable difference was seen in the other items entailing *hulle*: *Dit is hulle speelgoed* 'These are their toys' (item 4), *Die seuntjie sien hulle* 'The boy sees them' (item 9), and *Die reën val op hulle* 'The rain is falling on them' (item 31).

The second item for which the responses of the two groups differed noticeably was item 28 (*Die koerant lê daarop* 'The newspaper is lying on it'). Here, the SLI group again outperformed the TD4 group: 11 vs. six correct responses. Again, the groups had the same most-given incorrect response: Three participants in the SLI group and six in the TD4 one chose *Die koerant lê op jou* 'The newspaper is lying on you-SGL'. As was the case for *hulle*, no clear difference could be found in the responses of the two groups on the other items containing the third person singular neuter pronoun. To *Sy oor is af* 'His ear is off' (item 10, where *sy* refers to a mug), only one participant in each group gave the correct response; the types of incorrect responses were similarly distributed between the groups. To *Dit lê op die grond* 'It is lying on the ground' (item 21) and *Ouma vryf dit* 'Grandma is stroking it' (item 22), the groups also responded in similar ways.

6.2.2. Results: Judgement task: Person and case on pronouns

Sentences with correct and others with incorrect pronominal forms were presented to participants in order to assess whether they could identify correct vs. incorrect use of such forms. Participants' responses to the 32 items of this judgement task received one of the following two codes (items themselves and their English translations are given in section 2.2 of appendix D):

(i) A response was taken to be correct if a grammatical form was judged as such or an ungrammatical one judged as such.
(ii) A response was regarded as incorrect if a grammatical form was judged to be ungrammatical or an ungrammatical one to be grammatical.

Initially, four extra codes were included. However, each of these four codes were used only once; therefore, the relevant four responses were subsequently recoded as either correct or incorrect, simplifying the coding system. Participants were not asked to give any reason for their judgements. However, when they spontaneously did provide such reasons, this was not discouraged.

The reliability for the 32 items as a group was not very high: Cronbach's alpha was .771. Individual item statistics are given in Table 6.3; items are ordered from the most difficult to the easiest. As can be seen from this table, two items – item 7 (*Die koppies staan bo dit* 'The cups are standing above it')[136] and 26 (*Sy hare is af* 'Its hair is gone') – had a negative correlation to the items as a whole. Of these, one (item 7, the one with the lower mean score) was removed. Cronbach's alpha for the remaining 31 items was then .794.

Figure 6.2 depicts the performance of the three groups: The TD6 group again seemed to perform better than the other two. However, there was also more variability is this group than in the other two: Some of the participants obtained a perfect score whereas others performed worse than some of the 4-year-olds. The difference in the variability in the three groups was, however, not significant (Levene's statistic of homogeneity of variance, $F_{2,42}$=637; p=.534).

[136] Interestingly, most errors on this item were made by the typically developing 6-year-olds. The picture was one of a broom cupboard. In the cupboard, a broom stood on the bottom shelf and two cups on the top shelf. The researcher said *Die koppies staan bo dit* 'The cups are standing above this/it' with emphasis on *dit*, while pointing to the broom. However, *Die koppie staan bo* 'The cups are on top' would also have been a grammatical description of the picture. It could be that the typically developing 6-year-olds thought that the *dit* was a type of trick word here (seeing that the absence of *dit* also renders a grammatical sentence) and therefore incorrectly judged *Die koppies staan bo dit* as being ungrammatical.

Table 6.3. Item statistics – Judgement task: Pronouns

Item no.	Item	Proportion of participants giving the correct answer	Corrected item-total correlation
20	*Dit is *hulle tuin (julle)*	.18	.133
13	*Die skaap jaag *ons (hulle)*	.27	.193
18	*Dit is *hulle kar (ons)*	.27	.537
29	**Jou slaap (jy)*	.29	.612
30	*Die vark kyk na *sy (haar)*	.29	.549
24	*Die hond krap *ek (my)*	.31	.575
31	**Hy lees boeke (julle)*	.31	.453
10	*Dit is *haar roomyse (julle)*	.36	.406
3	**Sy is wakker (hy)*	.40	.563
12	*Die skoenlapper sit op *haar (jou)*	.42	.172
17	*Ouma hou *haar vas (dit)*	.42	.504
15	*Die hond spring oor *julle (ons)*	.49	.487
5	*Dit is *sy hoed (my)*	.51	.380
2	*Dit is *hom hoed (sy)*	.51	.250
22	*Die perd dra *jou (haar)*	.53	.420
4	**Sy staan in die hoek (dit)*	.60	.235
7	*Die koppies staan bo dit*	.71	-.271
9	*Die hond spring oor hulle*	.80	.216
6	*Die koei jaag julle*	.84	.241
28	*Die hond spring oor julle*	.84	.042
26	*Sy hare is af*	.87	-.057
32	*Die roomys val op my*	.89	.070
11	*Sy staan*	.91	.226
8	*Die krap knyp hom*	.91	.208
1	*Hulle lees boeke*	.93	.243
16	*Die eend swem langs hom*	.93	.038
14	*Ons lees boeke*	.96	.177
19	*Dit is haar roomys*	.96	.078
21	*Die hond krap jou*	.96	.202
23	*Ek is wakker*	.96	.128
27	*Die koei jaag ons*	.96	.078
25	*Dit is jou roomys*	.98	.123

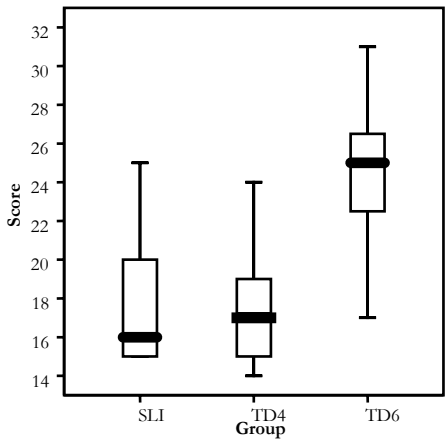

Figure 6.2. Box plot of performance per group – Judgement task: Pronouns

Table 6.4 summarises the details of the performance of the three groups. The mean score of the SLI and TD4 groups was almost identical, as were their maximum and minimum scores. A one-way ANOVA returned a significant outcome, indicating that a difference between the groups could be assumed ($F_{2,42}$=20.455; p=.000). Post hoc analyses (Tukey's HSD; alpha=.05) revealed that the significant differences were between the SLI and TD6 groups, and between the TD4 and the TD6 groups.

Table 6.4. Mean number of correct responses to each item – Judgement task: Pronouns

Group	N	Mean	Standard deviation	Minimum score obtained	Maximum score obtained
SLI	15	17.73	3.28344	15	25
TD4	15	17.47	2.79966	14	24
TD6	15	24.33	3.82971	17	31
Total	44	19.84	4.57243	14	31

There was no statistically significant difference in the mean scores of the SLI and TD4 groups. Differences in their responses could be found for only two items, both of them ungrammatical ones. The first was **Dit is sy hoed* 'This is his hat' (item 5, which should have been *Dit is my hoed* 'This is my hat'). Here, eight children in the TD4 group gave the correct

response compared to four in the SLI group. All other participants in both groups said that **Dit is sy hoed* was correct, without providing reasons for their judgements.

A similar response pattern occurred for **Die perd dra jou* 'The horse is carrying you' (item 22, which should have been *Die perd dra haar* 'The horse is carrying her'). Nine participants in the TD4 group but only five in the SLI group gave the correct response. Again, all participants who said that **Die perd dra jou* is correct refrained from providing a reason for their judgement.

6.2.3. Results: Sentence completion task: Person and case on pronouns

This task was performed in order to ascertain whether the elicited production of pronouns by Afrikaans-speaking children with and without SLI differed. The 64 items of this task (with their English translations) are listed in section 2.3 of appendix D. Initially, when coding responses, 24 different codes were used in such a way that it was possible to detect any patterns in the errors made by the children. However, most of the error categories occurred very infrequently, and no pattern could be detected in the errors made by the three groups. For these reasons, the coding system was simplified, making a distinction only between correct and incorrect responses.

The reliability of the items was high: Cronbach's alpha was .941. Individual item statistics are provided in table 6.5, where items are ordered from the most difficult to the easiest. The items had a wide range of difficulty: The proportion of participants giving the correct answer ranged from .00 to .98. In general, the items requiring the production of *julle* and *dit/sy/daar-* were the most difficult ones and those requiring the production of *ek/my* the easiest.

Table 6.5. Item statistics – Production task: Pronouns

Item no.	Item	Proportion of participants giving correct answer	Corrected item-total correlation
11	*Die hond lek my en die seuntjie lek (dit)*	.00	.000
52	*Dié apie spring oor my en dié apie spring (daarin / in dit)*	.00	.000
13	*Die baba kyk vir my en die hond kyk (daarvoor / daarna / vir dit)*	.02	.256
30	*Ek is skoon, maar (dit is vuil)*	.02	.111
40	*Dié kat krap my en dié kat krap (dit)*	.02	-.086
45	*Jy is groot, maar (dit is klein)*	.02	.032
8	*Dit is haar bene en dit is (julle bene)*	.07	.410
57	*Dit is haar tande maar dit is (sy tande)*	.13	.213
46	*Dit is sy hond en dit is (julle honde)*	.16	.537
61	*Dié seun spuit hom nat en dié seun spuit (julle) nat*	.16	.603
28	*Die vark lek hom en die honde lek (julle)*	.18	.586
62	*Hy sien 'n skaap, maar (julle sien 'n koei)*	.20	.665
9	*Die skoenlapper sit op jou en die skoenlappers sit (op julle)*	.20	.410
22	*Dit is haar nek en dit is (sy nek)*	.22	.293
53	*Dié bal hop op jou en dié bal hop (op julle)*	.24	.496
18	*Sy eet appels, maar (julle eet piesangs)*	.31	.547
1	*Die hond lek haar en die katte krap (hulle)*	.42	.317
17	*Die hond sit langs my en die kat sit (langs haar)*	.51	.617
49	*Sy spring tou, maar (ons praat op die foon)*	.51	.447
26	*Sy drink water, maar (ons eet vrugte)*	.53	.478
55	*Dié seun stamp haar en dié seun stamp (hulle)*	.53	.442
20	*Die voël sit op my en die voëls sit (op hulle)*	.56	.519
23	*Die hond lek my en die kat krap (haar)*	.56	.426
38	*Dit is my glas en dit is (sy glas)*	.56	.257
5	*Dit is haar swembroek en dit is (sy trui)*	.58	.390
14	*Die hond lek my en die baba lek (hom)*	.58	.321
31	*Die kat krap hom en die honde lek (ons)*	.60	.506
15	*Die baba kyk vir my en die hond kyk (vir hom)*	.62	.415
42	*Dié perd sien my en dié perd sien (haar)*	.62	.527
58	*Dié vark sien hom en dié vark sien (ons)*	.64	.587

29	*Dié hond krap hom, maar dié hond lek (jou)*	.71	.510
54	*Hy voer die eekhoring, maar (sy voer die voëls)*	.71	.435
56	*Dit is sy boek en dit is (hulle boeke)*	.71	.492
47	*Die hond kyk vir jou en die perd kyk (vir hom)*	.71	.572
50	*Dié slang seil oor my en dié slang seil (oor haar)*	.71	.546
27	*Dit is hulle musse en dit is (ons skoene)*	.73	.581
34	*Dit is haar tasse en dit is (ons tasse)*	.73	.659
6	*Dié hond sit langs hom, maar dié hond sit (langs jou)*	.76	.612
10	*Dit is sy lepel en dit is (jou mes)*	.76	.346
12	*Dit is ons hare en dit is (hulle hare)*	.76	.485
36	*Dié bul skop haar en dié bul skop (hom)*	.76	.481
44	*Jy staan op die tafel, maar (hy staan op die stoel)*	.76	.499
2	*Die voël vlieg oor hulle en die vlieër vlieg (oor ons)*	.78	.662
7	*Hy eet pizza, maar (sy eet 'n stokkielekker)*	.78	.569
32	*Dit is my hand en dit is (haar hand)*	.78	.511
33	*Dié hoender pik hom, maar dié hoender pik (jou)*	.78	.531
37	*Dit is sy kar en dit is (haar bal)*	.80	.602
51	*Die voël sit op my en die haas sit (op my)*	.80	.441
39	*Dié emmer val op my en dié emmer val (op hulle)*	.82	.525
60	*Die vliegtuig vlieg oor hom en die helikopter vlieg (oor ons)*	.82	.567
16	*Hy staan, maar (jy sit)*	.84	.444
59	*Dit is sy oë en dit is (jou hare)*	.84	.384
19	*Die eekhoring sit langs my en die hond sit (langs my)*	.87	.474
21	*Sy hang in die lug, maar (hy sit op die grond)*	.87	.271
35	*Ons staan, maar (hulle sit)*	.87	.410
48	*Hy lê, maar (jy staan)*	.89	.363
63	*Die koei jaag my en die perd jaag (my)*	.89	.463
24	*Dié kat krap my en dié kat krap (my)*	.93	.311
3	*Hy eet 'n roomys, maar (ek eet 'n appel)*	.93	.477
4	*Ons eet koek, maar (hulle eet roomys)*	.93	.178
41	*Hy eet waatlemoen, maar (ek eet koek)*	.93	.139
43	*Dit is my voet en dit is (my voet)*	.93	.414
64	*Dié perd spring oor hom, maar dié perd spring (oor jou)*	.93	.139
25	*Dit is my romp en dit is (my broek/romp)*	.98	.060

Six problematic items were identified; all six entailed the production of *dit* or the phonetically altered form thereof (*daar-*). The first was *Die hond lek my en die seuntjie lek (dit)* 'The dog is licking me and the boy is licking (it)' (item 11). Not one participant gave the targeted response. The same was noted for *Dié apie spring oor my en dié apie spring (daarin /in dit)* 'This monkey is jumping over me and this monkey is jumping over (it)' (item 52): Not one correct response was given, with the consequence that the correlation to the rest of the items was .000.

To the following three items, only one of the 45 participants gave the correct response, and the correlation of each of these items to the rest was very low: *Ek is skoon, maar (dit is vuil)* 'I am clean, but (it is dirty) (item 30); *Dié kat krap my en dié kat krap (dit)* 'This dog is scratching me and this dog is scratching (it)' (item 40); and *Jy is groot, maar (dit is klein)* 'You are big, but (it is small) (item 45). *Die baba kyk vir my en die hond kyk (daarvoor /daarna /vir dit)* 'The baby is looking at me and the dog is looking at (it)' (item 13) also rendered only one correct response, but its correlation to the scale was slightly better (although still poor).

These six items were removed before further analyses were done. However, because they all entailed the production of *dit* or *daar-*, it was decided to remove the other two items of the *dit/daar-* set as well. The poor response of the participants to these six items, compared to their responses to the other items of the task, was taken to be an indication that the production of *dit/daar-* cannot be elicited successfully by using the procedure in question – rather than that the children could not produce *dit/daar-* forms. Also, although their responses to the remaining two *dit/daar-* items were better, these responses were still poor. These two items were *Dit is haar nek en dit is (sy nek)* 'This is her neck and this is (its neck)' (item 22, 10 correct responses) and *Dit is haar tande maar dit is (sy tande)* 'These are her teeth and these are (its teeth)' (item 57, six correct responses). The removal of these eight items made hardly any difference to Cronbach's alpha, which was then .942.

The performance of the three groups on the remaining 56 items is depicted in figure 6.3; that of the TD6 group appeared to be the highest of the three. The other two groups seemed to fare similarly and to have the same median. Variability appeared higher in the SLI group than in the TD4 group; however, Levene's statistic of homogeneity of variance

indicated that the difference in variability between the groups was not significant ($F_{2,42}$=1.414; p=.255).

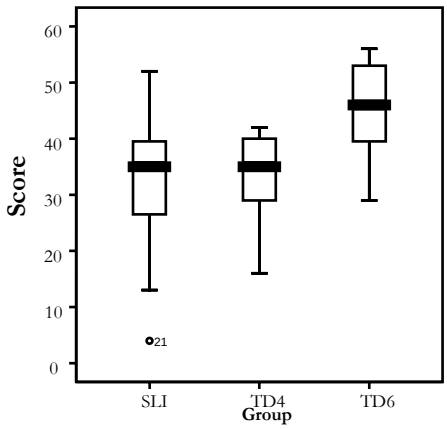

Figure 6.3. Box plot of performance per group – Production task: Pronouns

Table 6.6 summarises the performance of the three groups. This table also shows that the mean scores of the SLI and TD4 groups were comparable (32.53 and 33.27 out of 56, respectively), but that more variability occurred in the SLI group: The minimum score of the SLI group was lower and the maximum score higher than that of the TD4 group. Comparing the minimum and maximum scores of the SLI and TD6 groups, one sees that the highest scoring participant in the SLI group fared almost as well as that of the TD6 group, but that the score of the worst performing participant in the SLI group was far lower than that of the TD6 group.

Table 6.6. Summary of performance per group – Production task: Pronouns

Group	N	Mean	Standard deviation	Minimum score obtained	Maximum score obtained
SLI	15	32.53	12.60310	4	52
TD4	15	33.27	7.60138	16	42
TD6	15	45.60	8.66685	29	56
Total	45	37.13	11.38300	4	56

A one-way ANOVA was carried out; it returned a significant outcome, which means that a difference between the groups could be assumed ($F_{2,42}$=8.314; p=.001). Post hoc analyses (Tukey's HSD; alpha=.05) revealed that this difference was not between the SLI and TD4 groups. It was the scores of the SLI and TD6 groups, and those of the TD4 and TD6 groups, which differed.

Despite there being no statistically significant difference between the SLI and TD4 groups, the types of responses they gave differed for nine items. These differences are discussed below.

To item 5, *Dit is haar swembroek en dit is (sy trui)* 'This is her swimming costume and this is (his jersey)', the majority (eight) of the participants in the TD4 group gave the correct answer, whereas only five participants with SLI did. The incorrect response given most by both groups was **hom trui*, where the pronoun has the incorrect case but is otherwise correct. On item 38, *Dit is my glas en dit is (sy glas)* 'This is my glass and this is (his glass)', the 4-year-olds also outperformed the participants with SLI: Six participants with SLI gave the correct response, whereas eight 4-year-olds did. The incorrect response most frequently given by both groups was **hom glas*, where the case of the pronoun in incorrect.

Item 10, *Dit is sy lepel en dit is (jou mes)* 'This is his spoon and this is (your-SGL knife)', also proved to be significantly more difficult for the SLI group than for the TD4 group. Only one participant in the TD4 group did not give the correct response (she said *sy mes* 'his knife'), whereas eight participants with SLI gave the incorrect answer. Their answers included *sy mes* 'his knife' (two participants), *haar mes* 'her knife' (four), *hom mes* 'him knife' (one) and one unusable response. Item 29, *Dié hond krap hom, maar dié hond lek (jou)* 'This dog is scratching him, but this dog is licking (you)', was also more difficult for the SLI group than for the TD4 one: The majority (eight) of the participants with SLI gave the incorrect response whereas the majority of the 4-year-olds (12) gave the correct response.

To item 23, *Die hond lek my en die kat krap (haar)* 'The dog is licking me and the cat is scratching (her)', nine of the participants in the TD4 group and only six in the SLI group gave the correct response. The incorrect response given most frequently (three times) by the SLI group was *jou*

'you-SGL', whereas that given most frequently by the TD4 group (also three times) was to replace the pronoun with a DP.

A reversed pattern was observed for item 17, *Die hond sit langs my en die kat sit (langs haar)* 'The dog is sitting next to me and the cat is sitting (next to her)': The SLI group outperformed the TD4 one, with the majority (eight) of the participants in the SLI group giving the correct response. No single incorrect response was favoured by the SLI group, but the TD4 had a preference for replacing *haar* with a DP – six of the TD4 group members gave this response.

This pattern was also observed for item 31, *Die kat krap hom en die honde lek (ons)* 'The cat is scratching him and the dogs are licking (us)': The majority (10) of the participants with SLI gave the correct response whereas the majority of the 4-year-olds (also 10) gave an incorrect one. Most of the 4-year-olds (nine) said *my en jou* 'me and you-SGL'; only one said *my* 'me'. The same occurred on item 49, *Sy spring tou, maar (ons praat op die foon)* 'She is skipping, but (we are talking on the phone)': Nine participants with SLI but only three 4-year-olds gave the correct response. Most of the 4-year-olds (10) replaced *ons* 'we' with *ek en jy* 'I and you-SGL'. The majority of the participants in both groups gave an incorrect response to item 26, *Sy drink water, maar (ons eet vrugte)* 'She is drinking water by (we are eating fruit)'. The incorrect response most commonly given by both groups was to replace the *ons* with *ek en jy* 'I and you-SGL'; however, this response was given twice as frequently by the 4-year-olds than by the participants with SLI (10 vs. five times).

On item 55, *Dié seun stamp haar en dié seun stamp (hulle)* 'This boy is pushing her and this boy is pushing (them)', the SLI group fared better than the TD4 group: Eight participants with SLI and five 4-year-olds gave the correct response. The most common incorrect response by both groups was replacing the pronoun with a phrase such as *die oom en die tannie* 'the uncle and the auntie=the man and the woman'.

Item 9 was *Dié skoenlapper sit op jou en dié skoenlappers sit (op julle)* 'This butterfly is sitting on you and these butterflies are sitting (on you-PL)'. Both groups fared poorly on this item: No participant in the TD4 group gave the correct response; only three in the SLI group did. The most common incorrect response differed between the two groups. Most

(seven) of the participants in the SLI group said *op haar* 'on her', whereas the response favoured by the TD4 group was to replace the pronoun with a phrase such as *die dogtertjies* 'the girls' or *haar en haar* 'her and her' (eight participants gave this response).

Both groups also fared poorly on item 18, *Sy eet appels, maar (julle eet piesangs)* 'She is eating apples, but (you-PL are eating bananas)'. Only three participants with SLI and one in the TD4 group gave the correct answer. Of note is the difference between the types of incorrect answers provided. These are given in table 6.7. Whereas the incorrect responses of the SLI group were varied, the response given most by the TD4 group was an unusable one.

Table 6.7. Responses of SLI and TD4 groups to item 18 – *Sy eet appels, maar (julle eet piesangs)* – of pronoun production task

Response type	**SLI group**	**TD4 group**
Correct response	3	1
Hulle 'they' or *ons* 'we'	5	3
Jy 'you-SGL'	2	1
Unusable response, such as *jy en hy* 'you-SGL and him'	2	10
Hy 'he' or *sy* 'she'	2	0
No response	1	0

6.3. *se*-constructions

6.3.1. Results: Picture selection task: *se*-constructions

This picture selection task was performed in order to assess whether Afrikaans-speaking children with and without SLI differ in their ability to correctly comprehend *se*-constructions. The task had 10 items, which are given in section 3.1 of appendix D. Each response given to the 10 items of this picture selection task was classified as one of the following:

(i) Correct picture selected.

(ii) Picture selected matches the first noun of the item (e.g., selected the picture of a snake without its tongue visible in response to *die slang se tong* 'the snake's tongue').

(iii) Picture selected matches the second noun of the item (e.g., selected the picture of a newspaper without its "owner" in response to *die man se koerant* 'the man's newspaper').
(iv) Response not usable.

The response given most was (i) – a total of 83% responses were correct. Response types (iii) and (iv) were only given four times and twice, respectively (out of a total of 450 responses).

The reliability of the items was low; Cronbach's alpha was .327. Also, two of the items correlated negatively with the items as a group and another four correlated very weakly with the items as a group, as can be seen in table 6.8. This means that six of the ten items were highly problematic. The highest correlation of the other four was .507. Furthermore, to seven of the 10 items, a correct response was given by almost all participants. This all indicates that this was not a well-designed task; it did not test what it was supposed to. The rest of the discussion of the items, as well as that of the participants' responses, is therefore given only for the sake of interest; no conclusions regarding SLI as it presents itself in Afrikaans should be drawn based on this task.

Table 6.8. Item statistics – Picture selection task: *se*-constructions

Item no.	Item	English translation	Proportion of participants giving correct answer	Corrected item-total correla-tion
10	*Die man se koerant*	The man's newspaper	.47	.282
7	*Die vrou se hoed*	The woman's hat	.53	.058
8	*Die seuntjie se kar*	The boy's car	.60	.507
2	*Die slang se tong*	The snake's tongue	.91	.239
1	*Die man se hand*	The man's hand	.93	-.214
4	*Die motor se wiel*	The car's wheel	.93	-.145
9	*Die hond se been*	The dog's bone	.93	.235
5	*Die hond se mandjie*	The dog's basket	.96	.056
3	*Die baba se bottel*	The baby's bottle	1.00	.000
6	*Die vrou se tande*	The woman's teeth	1.00	.000

The performance of the three groups of participants on nine of the 10 items was very similar. The only exception was item 10 (*die man se koerant* 'the man's newspaper'). Here, the majority (10) of the typically developing 6-year-olds selected the correct picture compared to five and six participants in the SLI and TD4 groups, respectively. The incorrect picture selected most often by all three groups (nine participants each in the SLI and TD4 groups and five in the TD6 group) was that of a newspaper on its own.

6.3.2. Results: Sentence completion task: *se*-constructions

This task aimed to assess the production of *se*-constructions by the three groups of Afrikaans-speaking children. Like the task assessing the comprehension of *se*-constructions, this task had 10 items; they are listed in section 3.2 of appendix D, together with their English translations. To each response, one of the following five codes was given:

(i) Correct *se*-construction produced.
(ii) Only one noun was produced, even after prompting by the researcher (e.g., *die boom* 'the tree' or *blare* 'leaves' instead of *die boom se blare* 'the tree's leaves').
(iii) *ge* ([xə]) was produced instead of [sə].
(iv) Participant indicated that (s)he did not know the answer.
(v) No response given.

Eighty five per cent of all responses were correct. Response type (iii) was only given by one girl with SLI, but she gave this response to all 10 items. Response types (iv) and (v) were also used infrequently (three times and once, respectively), all by two children. One of these was a 4-year-old girl who once said that she did not know the answer – to item 4, *Hier is die blom se blare en hier is (die boom se blare)* 'Here are the flower's petals and here are the (tree's leaves)'. The other child was a boy with SLI. He also said that he did not know the answer to item 4, and also not to item 7, *Hier is die teddie se maag en hier is (die pop se hare)* 'Here is the teddy's tummy and here is the (doll's hair)'. He gave no response to item 2, *Hier is die seuntjie se bed en hier is (die meisie se bed)* 'Here is the boy's bed and here is (the girl's bed)'.

The reliability of the 10 items was high, with Cronbach's alpha being .874. However, as can be seen from table 6.9, nine of the 10 items were very easy for the participants.

Table 6.9. Mean number of correct responses to each item – Production task: *se*-constructions

Item no.	Item	Proportion of participants giving correct answer	Corrected item-total correlation
10	*Hier is die seun se tandepasta en hier is (die vrou se tandeborsel)*	.36	.198
9	*Hier is die baba se hoed en hier is (die ma se handsak)*	.84	.636
7	*Hier is die teddie se maag en hier is (die pop se hare)*	.87	.645
2	*Hier is die seuntjie se bed en hier is (die meisie se bed)*	.89	.507
1	*Hier is die man se kar en hier is (die meisie se fiets)*	.91	.657
4	*Hier is die blom se blare en hier is (die boom se blare)*	.91	.702
5	*Hier is die hond se poot en hier is (die kat se stert)*	.91	.746
6	*Hier is die meisie se appel en hier is (die seun se piesang)*	.91	.792
3	*Hier is die eendjie se dam en hier is (die voëltjie se hok)*	.96	.826
8	*Hier is die ma se trui en hier is (die vrou se broek)*	.96	.826

Item 10 was disproportionately difficult compared to the other nine items. Also, its item-total correlation was markedly lower than that of the others. Furthermore, not one of the typically developing 6-year-olds gave the correct response to this item. By contrast, 12 typically developing 4-year-olds and four children with SLI did. Because item 10 proved to be a problem item in more than one respect, it was omitted from statistical analyses. This raised Cronbach's alpha to .913.

More than or close to 90% of participants gave the correct answer to the remaining nine items. The performance of the three groups is depicted in

figure 6.4. The ceiling effect is an indication that the task as a whole was too easy to differentiate between the three groups. Note, however, that there were some participants (15, 18, and 28) who fared markedly worse than the rest of their group. Levene's statistic showed a significant difference in variance between the groups ($F_{2,42}$=9.109; p=.001), but this result was rendered because no variability occurred in the TD6 group (all of its members obtained a score of 9).

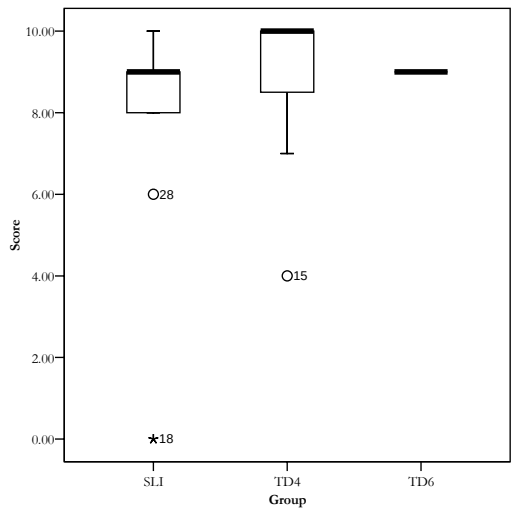

Figure 6.4. Box plot of performance per group – Production task: *se*-constructions

As expected, a one-way ANOVA returned a non-significant outcome, which means that a difference between the performance of the three groups could not be assumed ($F_{2,42}$=3.014; p=.06).

6.4. PERSON AND CASE PRODUCTION IN THE LANGUAGE SAMPLES

6.4.1. Pronouns

The first 100 complete and fully intelligible utterances of each language sample were examined for correct and incorrect use of personal and possessive pronouns. In total, 3523 (98.4%) were used correctly. Table 6.10 summarises the use of such pronouns by the three groups of

participants. As can be seen from this table, possessive case posed the biggest challenge for the 4-year-olds and the children with SLI; both groups fared better in terms of nominative and oblique case. In table 6.11, a breakdown of these is given for each specific pronoun. From this table, it can be seen that specifically the possessive case of the third-person singular masculine pronoun was problematic for the SLI and TD4 groups, but not so for the TD6 one.

Table 6.10. Accuracy of pronoun use by the three groups of participants

Group	**Person**			
	Nominative	**Oblique**	**Possessive**	**Total**
SLI	694/700	117/125	140/162	951/987
TD4	784/786	124/125	169/181	1077/1092
TD6	1083/1085	192/194	220/221	1495/1500
Total	2561/2571	433/444	529/564	3523/3579

Table 6.11. Frequency of correct appearance of pronouns, appearing where they should have

Group		**Person**							
		1st sgl	**1st pl**	**2nd sgl**	**2nd pl**	**3rd sgl**	**3rd sgl**	**3rd sgl**	**3rd pl**
		Ek	*Ons*	*Jy*	*Julle*	*Hy*	*Sy*	*Dit*	*Hulle*
Nom	SLI	237[a]	60/61	61/62	9	132/134	20	82/83	93/94
	TD4	259/260[b]	78	35	2	201	50/51	115	44
	TD6	344	209	42	4	171/172	123/124	120	70
		My	*Ons*	*Jou*	*Julle*	*Hom*	*Haar*	*Dit/ daar*	*Hulle*
Oblique	SLI	7	6	3	0/1	40/44	6	46/47	9/11
	TD4	14	5	5	0	29	4	57/58	10
	TD6	21	14	8	0	39	14	81/83	15
		My	*Ons*	*Jou*	*Julle*	*Sy*	*Haar*	*Sy*	*Hulle*
Possessive	SLI	66	14/15	9/11	2	8/27	6	16	19
	TD4	88	14	10	1	20/30	10/11	16	10/11
	TD6	125	28	8	2	31	14/15	2	10
	To-tal	1161 /1161	428 /428	181 /184	20 /22	671 /702	247 /248	535 /538	280 /282

[a]A single figure indicates that the correct form appeared in all obligatory contexts and that the pronoun in question was never inserted or replaced in inappropriate contexts.
[b]The first figure is the number of correct occurrences; the second in the number of obligatory contexts plus the number of inappropriate insertions and replacements.

Table 6.12 shows the mean scores per group in terms of incorrect pronoun forms as a proportion of all pronouns used in the language sample. The mean score of the TD6 groups was the highest of the three and that of the SLI one the lowest. More variation appeared in the SLI group than in the other two. Levene's statistic confirmed that the difference in variation between groups was significant ($F_{2,42}$=15.820; p=.000).

Table 6.12. Summary of performance per group – Language sample: Spontaneous production of errors on pronouns as a proportion of all pronoun forms

Group	N	Mean	Standard deviation	Minimum score obtained	Maximum score obtained
SLI	15	3.33	4.65304	0	13.56
TD4	15	1.71	2.40198	0	6.67
TD6	15	.38	.61716	0	2.04
Total	45	1.81	3.21433	0	13.56

A one-way ANOVA was carried out; it returned a significant outcome, indicating that a difference between the groups could be assumed ($F_{2,42}$=3.528; p=.038). Post hoc analyses (Tukey's HSD; alpha=.05) revealed that the difference was only between the SLI and TD6 groups.

Overall, a very small percentage (1.6%) of errors regarding personal and possessive pronouns was made in the first 100 utterances of the language samples. These errors are discussed below.

The first error type was the omission of a pronoun in an obligatory context. All three groups made this error, but the typically developing 6-year-olds only omitted oblique *dit*, as in example (100), whereas there was no specific pattern to pronoun omission by the other two groups. An example of an omission by a boy with SLI is given in (101).

(100)
juffrou het gesê ons kan vir
iemand by die huis gee
teacher did say-PAST PART we can for
someone by the house give
'Teacher said we can give it to someone at home'

Target:
juffrou het gesê ons kan **dit** vir
iemand by die huis gee
teacher did say-PAST PART we can
it for someone by the house give

(101)	*Target:*
een ander kat by Nicole nou né naam is Pienkie	een ander kat by Nicole né **sy** naam is Pienkie
one other cat at Nicole now hey name is Pienkie	one other cat at Nicole hey his name is Pienkie

'One cat at Nicole hey his name is Pienkie'

The second main error type was the substitution of a pronoun, either by a definite article or by another pronoun. Only the 4-year-olds used an article instead of a pronoun, as shown in (102). Both the TD4 and SLI groups at times used an incorrect pronoun. The most common substitution in both groups was that of the possessive *sy* with *hom*, as in **hom hoed* 'him hat' instead of *sy hoed* 'his hat'. Only one substitution in the TD4 group, that given in (103) below, was not of the *hom-sy* type. The SLI group, however, made a wider range of substitutions; one of them is given in (104).

(102)	*Target:*
hulle bly in **die** eie huis	hulle bly in **hulle** eie huis
they live in the own house	they live in their own house

'They live in their own house'

(103)	*Target:*
is dit **hy** maatjie?	is dit **sy** maatjie?
is this he friend-DIM	is this his friend

'Is this his friend?'

(104)	*Target:*
'n hand vashou met **hy**	hande vashou met **hom**
a hand fast-hold with he	hands fast-hold with him

'hold hands with him'

All of the substitution errors made by the TD4 group involved case (as opposed to person, number, and/or gender), and, as mentioned above, all of these errors occurred on what should have been *sy* 'his'. The feature that the SLI group most frequently had incorrect was also case. Like the TD4 group, this group made no errors related to number and/or gender. However, a total of four errors related to person were made. In the TD6 group, one girl made one error related to case, substituting nominative *sy* 'she' with *haar* 'her' in a comparative

construction. One boy made one error related to person, substituting *hy* 'he' with *jy* 'you-SGL'.

The third main error type regarding pronouns was their inappropriate insertion. The TD6 group did not make this error, but the SLI and TD4 groups did. An example of the inappropriate insertion of a pronoun by a girl with SLI is given in (105).

(105)	*Target:*
hierso is jou klere **jou**	hierso is jou klere
here are your-SGL clothes your-SGL /you-OBLIQUE-SGL	here are your-SGL clothes
'Here are your clothes'	

As mentioned above, only the pronouns occurring in the first 100 complete and fully intelligible utterances were tallied. The occurrence of pronouns in the rest of the 30 minutes of each language sample was, however, also examined for pronoun errors. The TD6 group made no errors, and the only ones made by the TD4 group were those of substitution. Again, most substitutions were of the *hom-sy* kind, except for two. One involved the substitution of possessive *hom* with *hy*, and the other the substitution of nominative *hy* with nominative *sy*, as in (106).

(106)	*Target:*
hy het dit gevang [re. a baby girl]	**sy** het dit gevang
he did it catch-PAST PART	she did it catch-PAST PART
'She caught it'	

The SLI group also made errors of substitution, of *hom-sy* and of other types. This group furthermore made errors of omission – one of them given in (107) – as well as errors of insertion – one given in (108).

(107)	*Target:*
ek kon gedoen het	ek kon **dit** gedoen het
I can-PAST do-PAST PART did	I can-PAST it do-PAST PART did
'I could have done it'	

(108)	*Target:*
ons ma leer **ons** saam ons	ons ma leer saam met ons
our mom learn we/us with us	our mom learn with us

'Our mom is also learning with us' (i.e., our mom is also in our class)

6.4.2. *se*-constructions

The occurrence of *se*-constructions in the first 100 complete and fully intelligible utterances of the language samples was examined. In total, in these 45000 utterances, *se*-constructions (whether correct or incorrect) were produced 99 times: 41 times by the SLI group, 21 times by the TD4 group, and 37 times by the TD6 group. Of these 99 *se*-constructions, 96 (97%) were grammatical. Table 6.13 contains a per-group summary of the use of *se*-constructions in the 45 language samples.

Table 6.13. Number of *se*-constructions used correctly and incorrectly in the language samples

Group	Grammatical		Ungrammatical	
SLI	38/41	95%	3/41	5%
TD4	21/21	100%	0/21	0%
TD6	37/37	100%	0/37	0%
Total	96/99	97%	2/98	3%

Both typically developing groups made no errors on *se*-constructions. Three members of the SLI group each made one error: One girl inserted the *se* inappropriately (in **hulle se kos* 'their *possessive marker* food'); and two boys omitted the *se* (in **hy's by my sussie skool* instead of *hy's by my sussie se skool* 'he's at my sister *possessive marker* school', and in **die man kop draai* instead of *die man se kop draai* 'the man *possessive marker* head turns'). In the rest of the 30 minutes of the language samples, there was only one error related to *se*: The boy with SLI who said **hy's by my sussie skool*, also said **kyk die ystervarks maag* 'look at the porcupine-*s* tummy'.

6.5. DISCUSSION: PERSON AND CASE COMPREHENSION AND PRODUCTION

The task testing the comprehension and production of *se*-constructions proved problematic. The comprehension task had problems with item reliability, amongst others, and the production task was too easy,

resulting in no difference being observable between the three groups. No conclusion can therefore be reached about the comprehension or elicited production of this construction by the three groups of participants. This finding was surprising, given that the production task used in the present study was very similar to that employed by Leonard et al. (1997) with English-speaking children (the SLI ones aged 3 years 7 months to 5 years 9 months) and by Leonard et al. (2001) with Swedish-speaking children (the SLI ones aged 4 years 3 months to 5 years 7 months). They found that the children with SLI had significantly lower scores than age- and also MLU-matched controls, with all errors being omissions of the possessive morpheme.

The spontaneous production data also revealed very few differences between the groups in terms of *se* production. When studying the use of 14 grammatical morphemes in the spontaneous language samples of 100 typically developing 4-year-olds, Balason and Dollaghan (2002) found that there were more than three obligatory contexts for the occurrence of the possessive *'s* in only 8 of the samples. Similar to the finding of the present study, this morpheme occurred 100% of the time in these obligatory contexts (i.e., there was no omission of possessive *'s* in the samples of the 4-year-olds). It appears then that this is an infrequently occurring morpheme in the language of young English-speaking children, but when it does occur, it is always used correctly (also see Leonard et al. 1997:747). Whereas not as infrequently occurring in the Afrikaans data, both typically developing groups used the *se*-construction correctly whenever it did occur.

Turning now to the production of pronouns: Case studies reveal that at the time of mastery of personal pronouns, English-speaking children's MLU was 4.13, at 2 years 10 months (Oshima-Takane 1992) and 4.7, at 2 years 1 month (Schiff-Myers 1983). Anderson (1998) employed more (Spanish-speaking) participants and found substantial variability with respect to the age at which certain pronouns were mastered: Some children in the 2-year-old group demonstrated mastery whereas some aged 3 years 0 or 1 month did not. However, all children older that 3 years 1 month demonstrated mastery. These ages are well below those of the children who participated in the present study. Whereas the Afrikaans-speaking typically developing 6-year-olds demonstrated

(almost) full mastery of personal and possessive pronouns, the 4-year-olds did not.

Roberts and Rescorla (1995) found that 4-year-olds with an expressive language delay fared significantly worse than age-matched controls in the spontaneous production of pronouns. Some studies show that children with SLI substitute nominative pronouns with object ones at a higher rate than do typically developing age-matched children (Moore 2001). However, researchers are divided on whether this is the case for MLU-matched controls: Moore (2001) found no difference between the children with SLI and MLU-matched controls, whereas Wexler et al. (1998) and Loeb and Leonard (1991) found that children with SLI do make more such errors than the MLU-controls. Specifically, the latter group of researchers (1991:344) found that children with SLI who were 4 years 0 months to 5 years 0 months, when compared to typically developing MLU-matched controls, produced fewer subject case-marked pronouns. In other words, the children with SLI produced more case errors than the younger typically developing ones. Furthermore, those children (SLI and MLU-matched) who produced a number of case errors, produced few (if any) gender errors, and those who produced a number of gender errors tended to produce fewer case errors. As almost no gender errors were made by the three groups of participants in the present study, it is not possible to state whether this would be the case for Afrikaans-speaking children as well. However, what can be stated is that, in the present study, there was only one substitution of a nominative pronoun with an oblique one. The reason why not even the Afrikaans-speaking children with SLI made this error could be that the participants in the present study were older than most in other studies, and that this error no longer occurred in their language. Alternatively, it could merely be that this error type is not one made by Afrikaans-speaking children. The feature for which most error were recorded was indeed case, but possessive pronouns – not nominative ones – were being replaced by oblique ones. The TD6 group did not make errors of this kind, but both other groups did.

Studies also indicate that children with SLI and younger typically developing children make more errors with *she* than with *he* (cf. Moore 1995, 2001; Rispoli 1994, 1998a). In the present study, this was not the case. In fact, the reverse was observed: The Afrikaans-speaking children

(TD4, TD6, and those with SLI) hardly ever made any error on *sy* 'she' or *haar* 'her'; the most common error made (by the 4-year-olds and the children with SLI), in both elicited and spontaneous production, was the substitution of *sy* 'his' by *hom* 'him', as in **wat is hom naam?* 'what is him name?'.

It is particularly noteworthy that *julle* 'you-PL' had a very low rate of occurrence in the language samples of all three groups. The children also very often avoided the use of *julle* in the experimental task assessing production (by, for instance, saying *jy en sy* 'you-SGL and she') or replaced *julle* with *hulle* 'they/them' (the latter also frequently occurred in the picture selection task). It is unlikely that this frequent replacement of *julle* with *hulle* can be attributed to a lack of perspective-taking, as Ricard, Girouard, and Gouin Décarie (1999) found that 2-year-olds were already able to understand the perspective of the speaker, the hearer, and the non-addressed. More likely is the Rispoli explanation:[137] *hulle* is recalled instead of *julle*, because these two forms are phonologically highly similar and possibly also because pronouns with the form *h-* (*hulle*, *haar* 'her', *hy* 'he', *hom* 'him') are slightly more common than those with the form *j-* (*jy* 'you-SGL'*, jou* 'your-SGL'*, julle* 'you-PL').

The results of the language sample analysis support those of Moore (1995) who found that English-speaking 5-year-olds with SLI made more pronoun errors than did typically developing 5-year-olds, in a production task similar to the one used during language sample elicitation in the present study. Also similarly to what was found in the present study, Moore (2001) found that English-speaking children (language-impaired and typically developing) made no errors with the person of pronouns and almost none with the number. Errors of case and gender were made,

[137] On Rispoli's Paradigm Building Hypothesis (1994, 1998a, 1998b, 1999), accessing a word in the pronoun paradigm is guided by the grammatical features of the word as well as the phonological features of the paradigm. If the correct pronoun cannot be accessed immediately, the child's mental "search" is influenced by factors such as the number of cells in the paradigm filled by that specific word, the phonological structure of the word, and the phonetic prominence of the word. This hypothesis predicts, for example, that English-speaking children, if they cannot immediately recall *she*, will replace *she* with *her*, amongst other reasons because *her* occurs more times in the pronoun paradigm than does *she* (a prediction supported by the results of Rispoli 1998a and Moore 1995). Under such circumstances, *them* may also be replaced by *they*, due to the large similarities in the phonological form of these two words.

but typically developing children fared significantly better in terms of correct production of case than did those who were language-impaired. By contrast, Moore's (1995) typically developing children made no errors of case, whereas this was the most frequent error made by the children with language impairment. One reason Moore (1995:69) offers for the high proportion of case errors in the language of children with SLI is that case, unlike person, semantic gender, or number, does not correlate with differences in the real world. Case depends on the linguistic context of the pronoun, not on the real gender or number of the referent(s).

Rispoli (2005:108) warns that errors in pronoun form – specifically errors of case – do not occur merely because children's grammars are still immature; even with a very immature grammar, errors can be minimised if children do not attempt to act more ambitiously than that for which they have the capacity. By this, Rispoli means that errors can be limited if children (i) use only those cells of the pronoun paradigm for which entries already exist and which are therefore easily accessible, and (ii) use nouns and demonstratives instead of those pronouns which are difficult to access. As the experimental tasks revealed that Afrikaans-speaking 6-year-olds with SLI fared worse than typically developing peers in terms of production of correct pronoun forms, the results of the spontaneous language samples – which indicate relatively high levels of accuracy even by the SLI group – could possibly be explained in terms of the strategy outlined by Rispoli: The children with SLI mainly used only easily accessible pronouns and substituted the rest with nouns.

Finestack, Fey, and Catts (2006) analysed the narratives of young English-speaking school-going children with and without SLI. This analysis was done in terms of their use of complete pronominal referencing (in other words, their use of pronouns where it is clear to whom or what the pronoun is referring). It was found that this measure was not sufficiently sensitive to differentiate between the two groups. A similar finding was made in the present study: Apart from the error relating to *hom-sy* 'him-his', there were no large (quantitative) differences between the children with and without SLI in terms of their accuracy of pronoun production in spontaneous language. However, when picture selection, judgement, and sentence completion tasks were employed (i.e., when elicited rather than spontaneous pronoun use was examined),

personal pronouns was indeed a sensitive enough measure to differentiate between 6-year-olds with and those without SLI.

6.6. CHAPTER CONCLUSION

Pronoun acquisition in English has been studied extensively and for a long time (see, e.g., Cooley 1908 and Bain 1936), but there is still no comprehensive theory which can explain all the facts, especially not the use of pronoun case (Schütze 1999:754). By contrast, data on the development of the pronominal system in child speakers of other languages are scarce (Anderson 1998:394). However, it is accepted by some that, in the case of non-agglutinative languages, pronouns need to be learnt word by word, as there are no general rules guiding the acquisition of the form of the pronoun (Rispoli 1994, 1998a, 1998b).

Pronouns are particularly difficult for young children to master, seeing that their form changes according to the context in which they appear. The form of the pronoun is affected by the number and gender of the referents, by who the speaker and hearer is, and by the grammatical role of the pronoun in the sentence (Moore 2001:208; Ricard et al. 1999:68-9; also see Campbell, Brooks, and Tomasello 2000). Due to their deictic characteristics, pronouns furthermore cannot be modelled to children without potentially causing confusion; children need to listen to the pronouns in the language of other speakers in order to become familiar with the appropriate use thereof (Cole, Oshima-Takane, and Yaremko 1994:115).

Turning to the Afrikaans data, it appears that also Afrikaans-speaking children with SLI fare worse than their typically developing peers in terms of realising number and case on pronouns. Regarding research questions 1 to 4 (cf. p.3), Afrikaans-speaking children with SLI present with a delay in their comprehension and production of grammatical morphemes related to person and case on pronouns. Although the responses of the SLI and 4-year-old groups to certain items of the experimental tasks differed, no pattern could be detected in these differences. Therefore, based on the results of the experimental tasks alone, one could conclude that the language of Afrikaans-speaking children is merely delayed. However, analyses of the spontaneous language samples of these two groups reveal that the SLI group made

some errors not found in the language of the typically developing children. Therefore, the Afrikaans-speaking children with SLI do not present with merely a language delay; their language is also to some extent deviant.

Chapter 7

Tense comprehension and production

7.1. INTRODUCTION

Two tasks were used to test comprehension of past and present tense constructions. The first, discussed in section 7.2.1, was a picture selection task. The second tested only comprehension of hendiadyses (such as *geloop en eet* 'ate while walking'), the results of which are presented in section 7.2.2. Section 7.2.3 contains the results of the production task, which entailed sentence completion. In section 7.3, the results of the experimental tasks are discussed in light of what was found by other researchers for elicited production of verb morphology. The spontaneous production of past and present tense constructions, as found in the language samples of the participants, is reported in section 7.4 and discussed in section 7.5.

7.2. RESULTS: EXPERIMENTAL TASKS

7.2.1. Results: Picture selection task: Present and past tense

In order to compare the comprehension of the present/past tense distinction of Afrikaans-speaking children with SLI to that of typically developing ones, a picture selection task consisting of 24 items was performed. The items of this task are given in section 4.1 of appendix D, together with their English translations. Initially, an elaborate coding scheme consisting of five categories was used, but, as three of the four error categories were used infrequently, this scheme was simplified: Responses were recoded as either correct or not correct.

The reliability of the 24 items was low; Cronbach's alpha was .562. Individual item statistics are presented in table 7.1, with items ordered from those to which most participants gave an incorrect response to those to which most gave a correct response. As can be seen from this table, the items of this task had a wide range of difficulty: The

proportion of participants who gave the correct answer ranged from .18 to .98.

Table 7.1. Item statistics – Picture selection task: Present and past tense

Item no.	**Item**	**Proportion of participants giving correct answer**	**Corrected item-total correlation**
21	*Die hond sal skoon wees na sy bad*	.18	.151
2	*Die baba was vuil*	.24	.311
17	*Die koek sou verbrand het*	.27	.108
8	*Die posman was hier gewees*	.33	.319
14	*Die meisie het 'n stokkielekker gehad*	.38	.497
24	*Hy het die stukkende gloeilamp vervang*	.38	.054
11	*Die teddie het twee oë gehad*	.40	.245
23	*Die vrou moes lank wees om te kon bykom*	.47	.158
3	*Die potlood was lank gewees*	.49	.201
5	*Die vrou sny die gras*	.53	.126
12	*Die vrou het kos gekoop*	.58	.085
20	*Gister val die voëltjie uit sy nes*	.60	.043
22	*Die appel val*	.60	.162
6	*Die boot het gesink*	.62	.405
13	*Die seun verf die heining*	.67	.211
10	*Die melk was op*	.69	.155
9	*Gister klim ek op die dak*	.73	.158
15	*Die baba het dit ontvang*	.76	-.062
18	*Die man moet fiks wees om die berg te kan uitklim*	.76	.102
4	*Die vliegtuig het opgestyg*	.78	.045
7	*Die pop het twee arms*	.87	.148
16	*Die koeldrank het omgeval*	.87	.169
19	*Die seun het twee ballonne*	.89	.108
1	*Die ballon bars*	.98	.194

As can also be seen from this table, each individual item correlated poorly with the items as a group. One item had a negative correlation to the rest, but even of those which had a positive one, only four had a correlation stronger than .300. These four did not contain the same kind

of verb. Two were the past tense form of *be*, one the past tense form of *have*, and another the temporal *het* with the past participial form of the main verb.

In order to improve the reliability of the scale, (i) some items were subsequently removed – specifically those which did not differentiate between the three groups of participants, as well as those which rendered inexplicable response patterns; and (ii) the remaining items were grouped into two groups, according to the type of verb occurring in the item.

The first subgroup consisted of six items, all past tense forms of *be* (i.e., *was* and *was gewees*) and *have* (*het gehad*). Cronbach's alpha was .646. Although this did not indicate high reliability, it was an improvement on the .561 obtained for all 24 items. The new individual statistics for these six items are presented in table 7.2.

Table 7.2. Item statistics of subgroup of items consisting of past tense forms of *be* and *have* – Picture selection task: Present and past tense

Item no.	Item	Proportion of participants giving correct answer	Corrected item-total correlation
2	*Die baba was vuil*	.24	.311
8	*Die posman was hier gewees*	.33	.319
14	*Die meisie het 'n stokkielekker gehad*	.38	.497
11	*Die teddie het twee oë gehad*	.40	.245
3	*Die potlood was lank gewees*	.49	.201
10	*Die melk was op*	.69	.155

Figure 7.1 depicts the performance of the three groups on these six items. From this figure, it appears that the TD6 group fared better than the other two. Unlike the pattern observed for the other experimental tasks discussed thus far, there was less variability in the SLI group than in the other two. However, Levene's statistic indicated that the variability between groups was not significant ($F_{2,42}$=.843; p=.438).

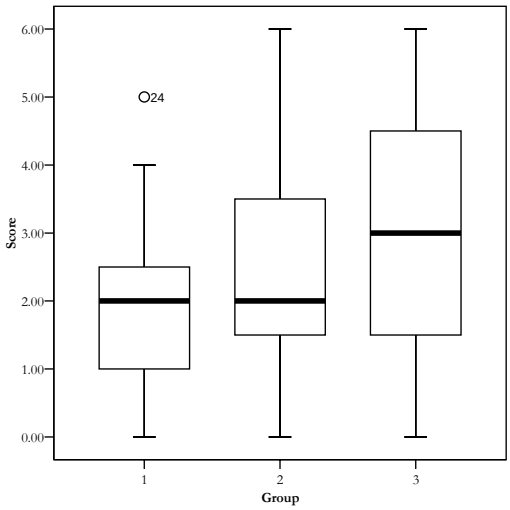

Figure 7.1. Box plot of performance per group – Subgroup of items consisting of past tense forms of *be* and *have* – Picture selection task: Present and past tense

The mean scores of the three groups are given in table 7.3. That of the 45 participants together was low: 2.53 out of a possible 6. A one-way ANOVA returned a non-significant outcome, which means that no difference between the groups could be assumed ($F_{2,42}$=2.376; p=.105). Unlike most of the experimental tasks discussed thus far then, the TD6 group did not outperform the other two on this subgroup of items; neither did the SLI group show more variability than the other two.

Table 7.3. Summary of performance per group – Subgroup of items consisting of past tense forms of *be* and *have* – Picture selection task: Present and past tense

Group	N	Mean	Standard deviation	Minimum score obtained	Maximum score obtained
SLI	15	1.87	1.45733	0	5
TD4	15	2.53	1.64172	0	6
TD6	15	3.20	1.89737	0	6
Total	45	2.53	1.72679	0	6

Even though no statistically significant difference was found between the responses of the SLI and TD4 groups, some differences existed for two

of the six items. To item 3 – *Die potlood was lank gewees* 'The pencil was long' – the majority of the SLI group's responses (nine) was incorrect, whereas the TD4 group mostly gave correct responses (eight). *Die baba was vuil* 'The baby was dirty' (item 2) was difficult for all three groups, but more so for the SLI group than for the other two. No participant in the SLI group gave the correct answer (12 of them pointed to the picture where the baby is still dirty); in the TD4 and TD6 groups, six and five participants, respectively, selected the correct picture.

A second grouping of items consisted of *het* forms, whether *het* as a main verb or the temporal auxiliary *het*. Only one item containing *het* was omitted from this subgroup, viz. item 11 (*Die teddie het twee oë gehad)*, because it had a negative item-total correlation (when compared to the others in this subgroup). The reliability of this subgroup was slightly lower than that of the first one: Cronbach's alpha was 6.11. The new individual item statistics for the seven items are given in table 7.4.

Table 7.4. Item statistics of subgroup of items consisting of past tense forms containing *het* – Picture selection task: Present and past tense

Item no.	Item	Proportion of participants giving correct answer	Corrected item-total correlation
14	*Die meisie het 'n stokkielekker gehad*	.38	.327
12	*Die vrou het kos gekoop*	.58	.352
6	*Die boot het gesink*	.62	.127
4	*Die vliegtuig het opgestyg*	.78	.517
7	*Die pop het twee arms*	.87	.395
16	*Die koeldrank het omgeval*	.87	.446
19	*Die seun het twee ballonne*	.89	.209

In Figure 7.2, the performance of the three groups on this subgroup of seven items is depicted. It appears that the TD6 group fared better than the other two and that most variability was found in the SLI group, which is a more "typical" result (considering those of the other experimental tasks discussed thus far) than that of the first subgroup. However, Levene's statistic indicated that the variability between groups was not significant ($F_{2,42}$=.315; p=.731).

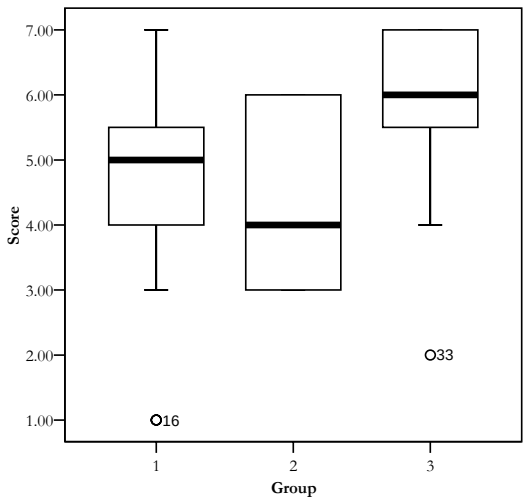

Figure 7.2. Box plot of performance per group – Subgroup of items consisting of past tense forms containing *het* – Picture selection task: Present and past tense

Table 7.5 contains the mean scores of the three groups. A one-way ANOVA returned a significant outcome, indicating that a difference between the groups could be assumed ($F_{2,42}$=4.578; p=.016). Post hoc analyses (Tukey's HSD; alpha=.05) revealed that the differences were between the SLI and TD6 groups, and between the TD4 and TD6 groups. In this sense, this subgroup rendered a result which matched that of the other experimental tasks better than did the subgroup of items involving the past tense form of *be* and *have*.

Table 7.5. Summary of performance per group – Subgroup of items consisting of past tense forms containing *het* – Picture selection task: Present and past tense

Group	N	Mean	Standard deviation	Minimum score obtained	Maximum score obtained
SLI	15	4.53	1.72654	1	7
TD4	15	4.47	1.30201	3	6
TD6	15	5.93	1.43759	2	7
Total	45	4.98	1.61652	1	7

A difference could be detected for only one individual item of the seven, namely *Die boot het gesink* 'The boat sank' (item 6): To this item,

marginally more of the SLI group's responses (eight) were incorrect than those of the TD4 group (seven); in other words, the SLI group mostly gave an incorrect response, whereas the TD4 group mostly gave a correct one.

7.2.2. Results: Judgement task – Hendiadyses: Present and past tense

The picture selection task included two hendiadyses, neither of which was included in the subgroups subsequently formed. However, hendiadyses were also assessed using a judgement task. The responses to the 10 items of this task (given in section 4.2 of appendix D, with their English translations) were coded as follows:

(i) A response was taken to be correct if a grammatical form was judged as such or an ungrammatical one judged as such.

(ii) A response was regarded as incorrect if a grammatical form was judged to be ungrammatical or an ungrammatical one to be grammatical.

Individual item statistics are given in table 7.6.

Table 7.6. Item statistics – Judgement task: Hendiadyses

Item no.	**Item**	**Proportion of participants giving correct answer**	**Corrected item-total correlation**
3	*Die seuntjie het staan en gehuil tot hy sy kombersie gekry het*	.13	.663
2	*Die baba het lê en gespeel*	.13	.723
9	*Hulle het heeldag sit en gespeel*	.18	.623
4	*Die man het loop en gedink*	.20	.463
7	*Gister het die kat heeldag staan en gemiaau*	.22	.709
		giving incorrect answer	
5	*Hy het geloop en eet*	.09	.685
10	*Die honde het gister heeldag gelê en slaap*	.11	.637
8	*Hulle het gesit en werk*	.16	.724
6	*Die man het gister koerant gesit en lees*	.16	.724
1	*Hulle het heeldag gestaan en praat*	.33	.544

The reliability for the 10 items as a group was a problem, as indicated by a high negative Cronbach's alpha (-.973). This was because participants said "yes" or "no" fairly consistently, independently of the test item. Grammatical items were then recoded, with the code being swopped (i.e., every correct response to these items was awarded zero and every incorrect response 1). Cronbach's alpha then increased to .894, which indicated high reliability.

Figure 7.3 indicates that all three groups showed great variability: The scores of the TD6 group ranged from 0 to 7 out of 10, whereas some participants in the SLI group obtained zero and others the maximum score. Levene's statistic of homogeneity of variance was not significant ($F_{2,42}$=.553; p=.579), indicating that the variance in each of the three groups can be taken to be equal.

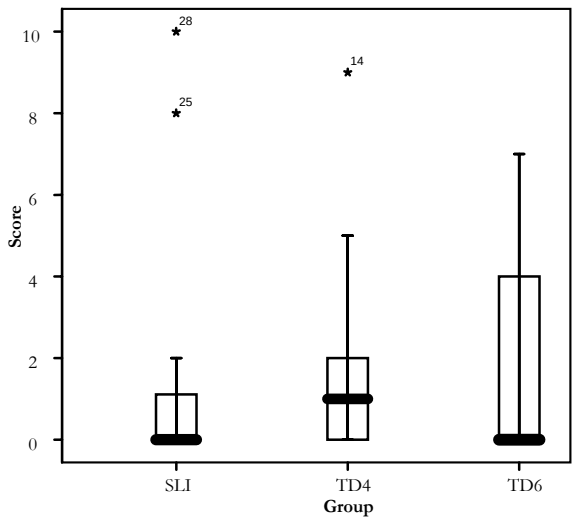

Figure 7.3. Box plot of performance per group – Judgement task: Hendiadyses

Three participants performed markedly better than their group. The first two were a boy and girl with SLI. The boy (participant 28) judged all items to be ungrammatical. Because of the recoding of responses, he obtained a perfect score. This was not his response mode on any of the other judgement tasks: Whereas he had a preference for judging items to be ungrammatical on these tasks, he did not judge all of them as such. There was no clear pattern to the girl's (participant 25) responses. One 4-

year-old boy also fared far better than the other participants in his group. On two of the four other judgement tasks, this boy judged all items to be ungrammatical. Here he showed a preference for this type of response, but he (correctly) judged the last item, *Die honde het gister heeldag gelê en slaap* 'The dogs lay sleeping all day long yesterday', to be grammatical.

Before the recoding of responses, the number of correct responses was 71, 78, and 76 out of a possible 150 for the SLI, TD4, and TD6 groups, respectively. That is a mean score of 4.73, 5.50, and 5.07 for the three groups, respectively. The performance of all groups was therefore at or close to chance level. Table 7.7 contains the mean scores after recoding of responses. A one-way ANOVA returned a non-significant outcome, which means that no difference between the mean scores (after recoding) of the three groups could be assumed ($F_{2,42}$=.145; p=.865). Item-by-item inspection of the responses of the three groups furthermore indicated that there were no noteworthy differences between the groups on or across items.

Table 7.7. Summary of performance per group – Judgement task: Hendiadyses

Group	N	Mean	Standard deviation	Minimum score obtained	Maximum score obtained
SLI	15	1,47	3,13657	0	10
TD4	15	1,67	2,43975	0	9
TD6	15	1,67	2,59119	0	7
Total	45	1,71	2,68516	0	10

7.2.3. Results: Sentence completion task: Past tense constructions

The aim of this task was to establish whether or not Afrikaans-speaking children with SLI perform age-appropriately as regards their production of various types of past tense constructions. The task had 18 items, given in section 4.3 of appendix D. However, if the participant did not give the targeted response (for instance, if a non-targeted auxiliary verb or the historic present tense was used), the researcher prompted the participant by giving the auxiliary verb in part or in full, in order to see whether the participant could then produce the rest of the targeted construction. So a participant could potentially have given 36 responses to this task.

Initially, the response (the unprompted and, where applicable, the prompted one) of each participant to each item was placed in one of 52 categories. A summary of these categories is given below.

Without the researcher providing any part of the modal auxiliary or the temporal *het*, the participant:

(i) gave the correct past tense construction;
(ii) replaced *het* with *was* 'be-PAST' (e.g., **was hy ook gekraak elke dag* instead of *het hy ook elke dag gekraak*);
(iii) used the past participle but omitted *het* (e.g., **'n blom gepluk* instead of *het 'n blom gepluk*);
(iv) used the *het* but replaced the past participle with the infinitive (e.g., **het elke dag swem* instead of *het hy elke dag geswem)*;
(v) used the *het* but inappropriately used the prefix *ge-* with the past participle (e.g., **het sy die verwer gebetaal* instead of *het sy die verwer betaal*);
(vi) used *het* twice and replaced the past participle with the infinitive (e.g., **het hy 'n appel eet het* instead of *het hy 'n appel geëet*);
(vii) gave a historic present tense construction (e.g., *eet hy 'n appel*).

After the researcher provided the modal auxiliary or the temporal *het* in full or in part, the participant:

(viii) gave the correct past tense construction;
(ix) used *het* (*het* thus occurred twice) and replaced the past participle with the infinitive;
(x) inappropriately used the prefix *ge-* with the past participle;
(xi) (still) used the historic present tense;
(xii) used *het* but replaced the past participle with the infinitive (after a modal auxiliary was provided by the researcher) (e.g., **kon sy buite speel het* instead of *kon sy buite gespeel het*).

Other categories included:

(xiii) participant gave a bare stem as response (e.g., *sit en slaap* instead of *het hy gesit en slaap*);
(xiv) participant gave only a PP/AdvP/DP as response (e.g., *laat* instead of *was hy laat*);
(xv) the response was not usable;
(xvi) participant indicated that (s)he did not know the answer;

(xvii) participant repeated the researcher's utterance (i.e., the stimulus) verbatim;
(xviii) participant gave no response.

Instead of comparing all responses (up to 36 of them per participant) across the 52 response categories, these categories were grouped so that it was possible to compare the three groups of participants in terms of the following:

A. The number of targeted (unprompted) responses given.
B. The number of grammatical past tense constructions, whether exactly like the target or not, given without prompting (including response type A) — for example, *het hy skool toe gegaan* instead of *moes hy skool toe gegaan het*; *het hy geslaap* instead of *het hy gesit en slaap*; and *wou sy buite speel* instead of *kon sy buite gespeel het*.
C. The number of targeted responses given after prompting (i.e., after a part of or the full auxiliary was given by the researcher).
D. The number of acceptable past tense constructions, whether exactly like the target or not, given after prompting (including response type C).
E. The number of historic present tense constructions which were direct equivalents of the targeted construction – naturally, these would all be without prompting by the researcher – e.g., *pluk sy 'n blom* instead of *het sy 'n blom gepluk*; *verstaan sy alles* instead of *het sy alles verstaan*; or *moet hy skool toe gaan* instead of *moes hy skool toe gegaan het*.
F. The total number of historic present tense constructions, whether direct equivalents of the targeted construction or not (including response type E) – again, these would all be without prompting by the researcher – e.g., *speel sy buite* instead of *kon sy buite gespeel het*; or *wil hy skool toe gaan* instead of *moes hy skool toe gegaan het*.
G. The number of highly idiosyncratic errors.
H. The number of past tense constructions in which *het* occurred, but the past participial (*ge-*) form was replaced by an infinitival one, e.g., **het sy 'n blom pluk* instead of *het sy 'n blom gepluk*.
I. The number of other errors – excluding error types G and H – before any prompting.
J. The number of other errors – excluding error types G and H – after prompting by the researcher.

Response types A to F thus represented grammatical responses (whether targeted or not) and types G to J ungrammatical ones. The performance of the three groups in terms of grammatical responses is presented in table 7.8. As can be seen from this table, the TD6 group gave the most targeted responses (A). A one-way ANOVA returned a significant outcome, indicating that a difference between the groups could be assumed ($F_{2,42}$=13.631; p=.000). Post hoc analyses (Tukey's HSD; alpha=.05) revealed that the significant differences where between the SLI and TD6 groups, and between the TD4 and TD6 groups.

In terms of grammatical past tense constructions (B), the TD6 group also outperformed the other groups. Base on the results of one-way ANOVA ($F_{2,42}$=15.238; p=.000), a differnce between groups could be assumed. Post hoc analysis (Tukey's HSD; alpha=.05) again indicated the significant differences being between the SLI and TD6 groups, and between the TD4 and TD6 groups.

In the SLI and TD4 groups, six and five participants, respectively, did not produce any grammatical past tense constructions (A or B), compared to one in the TD6 group. Because the TD6 group gave a higher number of grammatical past tense constructions without prompting, less prompting was, of course, necessary for this group, and therefore their mean scores for response types C and D were lower than those of the other two groups – as expected. For response type C (which was targeted responses given after prompting), a difference between the three groups could be assumed (based on the outcome returned by a one-way ANOVA; $F_{2,42}$=3.444; p=.041), but post hoc analyses with Tukey's HSD (alpha=.05) did not indicate which groups differed from which. Regarding response type D (which was acceptable past tense constructions, whether exactly like the target or not, given after prompting), differences between the groups could again be assumed (based on the outcome returned by a one-way ANOVA; $F_{2,42}$=4.537; p=.016). As was the case for response types A and B, post hoc analyses (Tukey's HSD; alpha=.05) again indicated that the significant differences were between the SLI and TD6 groups, and between the TD4 and TD6 groups.

Response types E and F entailed historic present tense constructions. For these response types, the 4-year-olds had the highest mean score,

indicating that this group preferred this type of construction to indicate past tense. However, a one-way ANOVA returned a non-significant outcome, which means that a difference between the groups could not be assumed ($F_{2,42}$=0.734; p=.486, for response type E; $F_{2,42}$=2.159; p=.128, for response type F).

Table 7.8. Summary of performance per group – Sentence completion task: Past tense, grammatical responses

RT[a]	Group	N	Mean	SD[b]	Min. score	Max. score	Levene[c]		ANOVA[c]	
							F	p	F	p
A	SLI	15	2.78	3.326	0	10	2.354	.107	13.631	.000
	TD4	15	1.73	2.520	0	9				
	TD6	15	8.00	4.472	0	16				
B	SLI	15	4.40	5.082	0	14	2.905	.066	15.238	.000
	TD4	15	2.07	3.261	0	11				
	TD6	15	11.20	5.480	0	17				
C	SLI	15	2.53	2.875	0	8	.460	.634	3.444	.041
	TD4	15	4.60	2.414	1	9				
	TD6	15	2.47	2.264	0	6				
D	SLI	15	3.27	3.173	0	9	.851	.434	4.537	.016
	TD4	15	5.73	2.576	2	11				
	TD6	15	2.93	2.550	0	7				
E	SLI	15	3.93	4.543	0	17	.011	.989	.734	.486
	TD4	15	5.80	4.144	0	14				
	TD6	15	4.47	4.340	0	15				
F	SLI	15	6.93	4.906	1	19	.822	.447	2.159	.128
	TD4	15	10.40	6.220	0	21				
	TD6	15	6.67	5.260	1	17				

[a]RT=response type. [b]SD=standard deviation. [c]df=2,42.

It appears then that the TD6 group gave statistically significantly more targeted responses than the other two groups, and also produced more untargeted but grammatical constructions than the other two groups (whether prompting by the researcher occurred or not).

Turning to the ungrammatical past tense constructions – response types G to J: The most errors occurred after prompting by the researcher (J), as can be seen from table 7.9. This could be explained as follows: If a participant did not give the targeted construction, the researcher used prompting in an attempt to elicit the targeted construction. This construction was presumably not given without prompting because the participant could not produce the construction. Now, with prompting,

the participant was "forced" to attempt to produce the construction, and this resulted in an ungrammatical form of the construction being produced. A possible reason for the low mean number of errors produced before prompting (I), is that, if participants did not know the targeted construction, they could provide an alternative (grammatical) construction. For instance, if the past tense form of *het* 'have' was not known to participants, they would not have said *het hy 'n nuwe maatjie gehad* 'he had a new friend' in response to item 16, *Hierdie seuntjie het elke dag 'n nuwe maatjie. Gister, net soos elke ander dag,* … 'Every day, this boy has a new friend. Yesterday, just like every other day, …'. They could use another grammatical construction, such as *het hy 'n nuwe maatjie* 'he has a new friend' (the historic present tense form) or *het hy weer met 'n maatjie gespeel* 'he again played with a friend'. However, when prompted, the participants did not have this freedom of choice and then a deviant or no response was likely to be given.

Table 7.9. Summary of performance per group – Sentence completion task: Past tense, ungrammatical responses

RT[a]	Group	N	Mean	SD[b]	Min. score	Max. score	Levene[c]		ANOVA[c]	
							F	p	F	p
G	SLI	15	2.33	2.526	0	8	10.987	.000	5.589	.007
	TD4	15	0.47	0.743	0	2				
	TD6	15	0.67	1.234	0	4				
H	SLI	15	0.33	0.617	0	2	16.605	.000	3.128	.054
	TD4	15	0.07	0.258	0	1				
	TD6	15	0.00	0.000	0	0				
I	SLI	15	1.40	1.844	0	5	7.101	.002	2.203	.123
	TD4	15	0.73	1.163	0	4				
	TD6	15	0.40	0.737	0	2				
J	SLI	15	8.73	6.713	1	22	2.281	.115	3.543	.038
	TD4	15	7.67	9.092	0	30				
	TD6	15	2.20	5.321	0	21				

[a]RT=response type. [b]SD=standard deviation. [c]df=2,42.

One-way ANOVA was performed on each of these types of ungrammatical responses to determine whether the differences in the mean scores of the three groups were significant. The results of these statistical analyses are also given in table 7.9. Differences between groups could be assumed to exist for response types G and J. In each case, post hoc analyses with Tukey's HSD (alpha=.05) showed the differences to be between the SLI and TD6 groups. For response type G, there was a

further difference between the TD6 and TD4 groups. The one-way ANOVA returned a non-significant outcome for response types H and I, which means that, for these response types, no difference between the groups could be assumed.

Based on the outcomes of a one-way ANOVA, differences between groups could be assumed for response type G. As expected, the highest number of "odd" errors (G) occurred in the SLI group. The mean scores of the other two groups were comparable on this measure. Post hoc analyses with Tukey's HSD (alpha=.05) confirmed that the differences were between the SLI and TD6 groups, and between the TD4 and TD6 groups.

The only other response type for which group differences could be assumed was type J, i.e., total number of errors – excluding error types G and H – after prompting by the researcher. Post hoc analyses revealed that the difference was between the SLI and TD6 groups. Here, as was expected, the SLI group produced a significantly higher number of ungrammatical past tense constructions than did the TD6 group. However, almost the same number of these constructions was produced by the SLI and TD4 groups (cf. table 7.9), and the participant who fared worst in the TD4 group made more errors than the worst-faring participant with SLI.

In terms of replacing the past participial (*ge-*) form with an infinitival one while still using *het* (response type H), the three groups did not differ significantly: All groups obtained a very low score, and this response was never given by any member of the TD6 group. Furthermore, no significant difference could be assumed between groups for the total number of ungrammatical responses before prompting by the researcher (response type I); the mean scores of all groups were again very low.

In short, the SLI and TD4 groups made a comparable number of errors after prompting by the researcher, and the SLI group made more idiosyncratic errors than did the other two groups.

7.3. DISCUSSION: EXPERIMENTAL TASKS

Acceptability judgements performed on hendiadys did not render any significant difference between the SLI, TD4, and TD6 groups. Picture selection showed that the TD6 group outperformed the other two, if only a subgroup of items (those involving *het*) were considered. However, these results should be interpreted with caution: The judgement task comprised only 10 items, and participants mostly gave one type of response to all items, whether grammatical or not. The validity of the 24 items of the picture selection task as a whole was questionable. The reported results are based on a selection of only seven of these 24 items; it could thus be that the results are an artefact of the instruments used rather than a true reflection of the ability of these three groups of children to correctly comprehend present vs. past tense constructions.

As stated, it was found that Afrikaans-speaking typically developing 6-year-olds outperform both 6-year-olds with SLI and typically developing 4-year-olds in the picture selection (tense comprehension) task; the latter two groups perform similarly. This was also the general pattern for the task eliciting production of past tense forms: The children with SLI performed like typically developing 4-year-olds, but made more idiosyncratic errors than did the 4-year-olds and age-matched controls.

The findings of the present study are only partly supported by most others on the elicited production of past tense forms. Several authors found that English-speaking children with SLI are outperformed by **both** age- and MLU-matched controls. In a study by Leonard, Miller, Rauf, Charest, and Kurtz (2003), 4- to 6-year-old children with SLI performed significantly worse than both age-matched controls and those matched for MLU on a task eliciting the production of regular *–ed* past tense forms: Fewer past tense forms were produced in obligatory contexts by the children with SLI, whereas there was no statistically significant difference between the performance of the other two groups.

Oetting and Horohov (1997) found that, in elicited production, 6-year-olds with SLI were outperformed by age-matched controls as well as MLU-matched controls in terms of regular past tense forms (the difference being primarily for infrequently inflected verbs). The children

with SLI also overgeneralised regular past tense marking on irregular verbs more than did either of the control groups.

Like Rice et al. (1995) and Rice and Wexler (1996), Rice, Wexler, and Herschberger (1998:1421) reported that 5-year-olds with SLI were outperformed by both the age-matched and younger (approximately 3-year-old) MLU-matched controls in terms of spontaneous and probed use of regular past tense marking, regular third-person singular marking, *be* forms, and probed use of *do* forms. These forms were mastered by the typically developing 5-year-olds (they used these morphemes in 90% or more of the obligatory contexts). The 3-year-olds used these forms in 45 to 70% of the obligatory contexts and the children with SLI only in 25 to 48%. Similar results were obtained when these children with SLI were 6-year-olds: They were again outperformed by the age-matched and younger controls. The morphemes in question were mastered by the typically developing children at 4 years of age, whereas the children with SLI only mastered them after 7 years (Rice et al. 1998:1421).

Remaining with older children, Marchman, Wulfeck, and Weismer (1999) and Marchman et al. (2004:209) found that, in terms of the elicited production of regular past tense forms, children with SLI (mean age 8 years 9 months) performed similarly to age-matched controls; the most frequently occurring error was zero-marking. In terms of number of errors, the two groups also fared equally well on a task eliciting the production of irregular past tense forms. However, the distribution of errors across the two groups of children was not similar: The error type made most frequently by both groups was suffixation; however, the SLI group produced significantly more zero-marked forms than did the typically developing controls. Whereas the pattern of (irregular) past tense marking was the same for the younger and older members of the control group (they had a preference for suffixation), the younger children with SLI preferred zero-marking, whereas the older ones more commonly made use of suffixation (Marchman et al. 2004:210).

Van der Lely and Ullman (1996) found that older children with SLI (aged 9 years 3 months to 12 years 10 months) produced significantly fewer regular and irregular past tense forms than did language-matched controls when presented with real and nonsense words. Unmarked forms constituted 78% and 80% of their regular and irregular verbs.

In contrast to these studies, and more like the results of the present one, Conti-Ramsden and Hesketh (2003) found no significant difference between the performance of the following two groups of children on a past tense elicitation task: children with SLI (aged 4 years 4 months to 5 years 10 months) and 2- to 3-year-old controls (matched for language age of the children with SLI). However, one of the authors' conclusions is that their task (very similar to the one used in the present study) was too difficult for the young children and, therefore, possibly did not obtain optimum data from them (Conti-Ramsden and Hesketh 2003:259). Note, however, that Conti-Ramsden (2003:1032) found that these children with SLI performed significantly more poorly than age-matched controls on this task.

These general findings (children with SLI faring more poorly than age- and/or MLU-matched controls) have been replicated for children who speak languages other than English as well. Hansson and Leonard (2003) examined the elicited use of verb morphology by Swedish-speaking 4- to 5-year-olds with SLI. They found that these children used present tense inflection and irregular past tense forms as proficiently as did age-matched and younger, MLU-matched controls. However, the children with SLI were outperformed by the other groups in terms of use of copulas and regular past tense inflections. These findings replicated those of Hansson, Nettelbladt, and Leonard (2000), who made use of spontaneous language samples. Note, however, that these findings contrast with those of Håkansson (2001), who found no statistically significant difference in terms of elicited production of tensed verb forms between Swedish-speaking children with SLI (aged 4 years 0 months to 6 years 3 months) and controls matched on language age.

For Hebrew, Dromi et al. (1993:766) found that children with SLI used significantly fewer past tense forms than did age-matched and also (younger) MLU-matched controls in response to experimental items.

Bortolini et al. (2002), in search of a clinical marker for SLI in Italian, found that 4- to 7-year-old children with SLI performed significantly worse than age-matched controls on an elicitation task targeting the production of present tense third-person plural marking on verbs.

In conclusion, the results of the present study are supported in part by those of previous studies on the elicited production of present or past tense constructions by children with SLI.

7.4. TENSE PRODUCTION IN THE LANGUAGE SAMPLES

The use of present and past tense constructions in the first 100 complete and fully intelligible utterances of each language sample was examined. The number of times the following were used correctly and incorrectly were tallied: (i) present tense forms of main verbs, modal auxiliaries, *have* forms, *be* forms, and hendiadyses; (ii) historic present tense forms; (iii) past tense forms of modal auxiliaries, *have* forms, *be* forms, and hendiadyses; (iv) past tense constructions consisting of the temporal *het* and the past participial form (both the *ge-* form and the one resembling the infinitive); and (v) passive constructions in the past tense form. Tables 7.10 and 7.11 summarise the results. Table 7.11 contains the statistics based on the mean scores of the informants. Note that not all participants produced the constructions under investigation, which explains why the degrees of freedom are smaller in some cases, for example for hendiadyses.

Table 7.10. Present tense constructions used correctly and incorrectly in the language samples

	SLI	**TD4**	**TD6**	**Total**
Main verbs	458/469 97.7%	370/378 97.9%	511/513 99.6%	1339/1360 98.5%
Modals	243/259 93.8%	337/340 99.1%	282/284 99.3%	862/883 97.6%
***Have* forms**	64/68 94.1%	115/116 99.1%	74/74 100%	253/258 98.1%
***Be* forms**	305/343 88.9%	332/341 97.4%	319/321 99.4%	956/1005 95.1%
Hendiadyses	4/4 100%	18/18 100%	17/18 94.4%	39/40 97.5%
Total	1074/1143 94.0%	1172/1193 98.2%	1203/1210 99.4%	3449/3546 97.3%

Present tense verb forms were used with a high degree of accuracy (88.9% or more) by all three groups. For all types of present tense forms

combined, a significant difference between groups for the proportion of accurate forms could be assumed (based on the outcomes of a one-way ANOVA; $F_{2,42}$=7.742; p=.001). Post hoc analyses (Tukey's HSD; p=.05) indicated these differences to be between the SLI group and the TD4 group, and between the SLI group and the TD6 group. However, no differences could be assumed between groups in terms of the level of accuracy with which main verbs were produced (one-way ANOVA;[138] $F_{2,42}$=2.435; p=.100); *have* forms were produced ($F_{2,42}$=2.840; p=.07); or hendiadyses were produced ($F_{2,16}$=0.421; p=.663). Difference between groups could, however, be assumed for the production of modal auxiliaries ($F_{2,42}$=3.625; p=.035) and *be* forms ($F_{2,41}$=5.744; p=.006). In the case of modal auxiliaries, post hoc analyses (Tukey's HSD; alpha=.05) did not reveal which groups differed from which, but as regards *be* forms, the difference was between the two groups of 6-year-olds. The results of the statistical analyses are summarised in table 7.11.

Table 7.11. Summary of performance per group – Production of present tense forms in the language samples

CT[a]	Gr[b]	N	M[c]	SD[d]	Min score	Max score	Levene		ANOVA	
							F (df)	p	F (df)	p
Main verbs	SLI	15	.977	.028	.92	1.00	6.222 (2,42)	.004	2.435 (2,42)	.100
	TD4	15	.979	.021	.95	1.00				
	TD6	15	.993	.018	.94	1.00				
Modals	SLI	15	.919	.142	.60	1.00	15.359 (2,42)	.000	15.238 (2,42)	.035
	TD4	15	.992	.016	.95	1.00				
	TD6	15	.989	.028	.92	1.00				
Have forms	SLI	15	.873	.289	.00	1.00	15.330 (2,42)	.000	3.444 (2,42)	.070
	TD4	15	.998	.007	.97	1.00				
	TD6	15	1.00	.000	1.00	1.00				
Be forms	SLI	14	.904	.109	.64	1.00	1.606 (2,41)	.000	4.537 (2,41)	.006
	TD4	15	.968	.065	.75	1.00				
	TD6	15	.993	.017	.94	1.00				
Hendiadyses	SLI	2	1.00	.000	1.00	1.00	2.132 (2,16)	.151	.734 (2,16)	.663
	TD4	7	1.00	.000	1.00	1.00				
	TD6	10	.950	.158	.50	1.00				
Total	SLI	15	.940	.062	.80	1.00	14.421 (2,42)	.000	2.159 (2,42)	.001
	TD4	15	.981	.024	.90	1.00				
	TD6	15	.993	.009	.98	1.00				

[a]CT=Type of past tense construction. [b]Gr=group. [c]M=mean. [d]SD=standard deviation.

[138] For correct present tense form divided by total number of present tense forms.

For all three groups, most errors were ones of omission. However, other types of errors also occurred. One made by one participant in each of the TD4 and SLI groups was the inappropriate insertion of a *be* form, as in example (109). Another was the inappropriate insertion of a main verb, which yields a doubling pattern, as exemplified in (110).

(109)
nou's jy op die perdjie ry
now-be-CONTR you-SGL on the horsie ride
'Now you are riding on the horsie'

Target:
nou ry jy op die perdjie
now ride you-SGL on the horsie

(110)
die's al die mense wat kom by ons kom kuier
these-be-CONTR all the people who come at us come visit
'These are all the people who are coming to visit us'

Target:
die's al die mense wat by ons kom kuier
these-be-CONTR all the people who at us come visit

Other errors were only made by the participants with SLI. These include (i) substituting a *have* form with a *be* one; (ii) substituting a *be* form with a *have* one; (iii) substituting a *be* form with a modal auxiliary; (iv) inappropriately inserting a modal auxiliary, as in (111), where a doubling pattern is again yielded; and (v) using the incorrect form of the infinitive, as in (112) and (113).

(111)
gaan hulle hamers gaan nou kry
will their hammers will now get
'Will now get their hammers'

Target:
gaan hulle hamers nou kry
will their hammers now get

(112)
dit moet hier in die kas is
this must here in the cupboard is
'This must be here in the cupboard'

Target:
dit moet hier in die kas wees
this must here in the cupboard be

(113)
sy gaan ons nie nou weer te pla nie
she will us not now again to bother not
'She will not bother us again now'

Target:
sy gaan ons nie nou weer pla nie
she will us not now again bother not

All error types occurring on present tense verb forms in the first 100 utterances of the language samples also occurred in the remainder of the 30 minutes. Table 7.12 contains a summary of the occurrence of **past** tense forms in the first 100 utterances of the language samples.

Table 7.12. Past tense constructions used correctly and incorrectly in the language samples

	SLI	TD4	TD6	Total
Modals	0/0 --%	1/1 100%	16/16 100%	17/17 100%
***Have* forms**	3/3 100%	4/4 100%	6/9 66.7%	13/16 81.3%
***Be* forms**	10/11 90.9%	14/21 66.7%	54/55 98.2%	78/87 89.7%
Hendiadyses	1/1 100%	2/2 100%	3/3 100%	6/6 100%
Het ge-	47/59 79.7%	73/75 97.3%	121/122 99.2%	241/256 94.1%
Het* but no *ge-	2/3 66.7%	2/2 100%	9/9 100%	13/14 92.9%
Passive forms	2/3 66.7%	2/3 66.7%	6/6 100%	10/12 83.3%
Total	65/80 80.0%	98/108 90.7%	215/220 97.7%	378/408 92.6%

From table 7.12, it can be seen that the group with SLI used fewer past tense forms than either of the two typically developing groups, but that the performance of the latter two groups were also not similar: The 6-year-olds used more than double the number of past tense constructions than the 4-year-olds. Also, although the two typically developing groups both fared well in terms of accuracy, the 6-year-olds still outperformed the 4-year-olds. A one-way ANOVA returned a significant outcome, which means that a difference between the groups in terms of accurate production of all types of past tense constructions combined could be assumed: $F_{2,41}$=4.012; p=.026. Post hoc analyses (Tukey's HSD; p=.05) showed these differences to be between the SLI and TD6 groups.

In terms of specific types of past tense constructions, differences between groups could be assumed for *het ge-* forms only (one-way ANOVA; $F_{2,40}$=5.921; p=.006). Post hoc analyses (Tukey's HSD; p=.05)

revealed that these differences were between the SLI and TD4 groups and between the SLI and TD6 groups. The results of the statistical analayses are summarised in table 7.13.

Table 7.13. Summary of performance per group – Production of past tense forms in the language samples [results of statistical anaysis left out when number of partipants producing relevant data was too low]

CT[a]	Gr[b]	N	M[c]	SD[d]	Min. score	Max. score	Levene		ANOVA	
							F (df)	p	F (df)	p
Modals	SLI	0	.	.	.	.				
	TD4	1	1.00	.	1.00	1.00				
	TD6	9	1.00	.000	1.00	1.00				
Have forms	SLI	1	1.00	.	1.00	1.00	8.174	.021	.551	.597
	TD4	3	1.00	0.00	1.00	1.00	(1,8)		(2,8)	
	TD6	7	7.61	.418	0.00	1.00				
Be forms	SLI	7	.964	.094	0.75	1.00	15.430	.000	2.704	.086
	TD4	9	.777	.363	0.00	1.00	(2,26)		(2,26)	
	TD6	13	.980	.069	0.75	1.00				
Hendiady-ses	SLI	1	1.00	.	1.00	1.00				
	TD4	2	1.00	.000	1.00	1.00				
	TD6	2	1.00	.000	1.00	1.00				
Het ge-		13	.720	.421	0.00	1.00	28.243	.000	5.921	.006
		15	.977	.061	0.80	1.00	(2,40)		(2,40)	
		15	.996	.016	0.94	1.00				
Het but no *ge-*	SLI	3	.667	.577	0.00	1.00	19.600	.001	1.225	.350
	TD4	2	1.00	.000	1.00	1.00	(2,7)		(2,7)	
	TD6	5	1.00	.000	1.00	1.00				
Passsive forms	SLI	3	.667	.577	0.00	1.00	22.250	.001	1.282	.329
	TD4	2	.750	.354	0.50	1.00	(2,8)		(2,8)	
	TD6	6	1.00	0.00	1.00	1.00				
Total	SLI	14	.777	.311	0.00	1.00	12.026	.000	4.012	.026
	TD4	15	.925	.146	0.50	1.00	(2,41)		(2,41)	
	TD6	15	.978	.047	0.83	1.00				

[a]CT=Type of past tense construction. [b]Gr=group. [c]M=mean. [d]SD=standard deviation.

As expected, the participants with SLI made the most errors of the three groups. One reason that one might be tempted to offer for the low number of past tense constructions in the language of children with SLI is that they prefer to use the historic present form instead of the *het ge-* form. However, an examination of the language samples revealed that the group for which most historic present tense forms occurred was, in fact, the TD6 one (38 times), despite the fact that this group also used

more than double the number of *het ge-* forms than either of the other two groups. Historic present tense forms occurred 21 times in the first 100 utterances of the 4-year-olds and only four times in those of the participants with SLI.

In terms of types of errors, some were made only by children in the SLI group. These were: (i) omission of the past participle, as in example (114); (ii) omission of the *ge-* of the past participle, as in (115); and (iii) omission of temporal *het*, as in (116).

(114)	*Target:*
hulle altwee het op 'n blou bed	hulle altwee het op 'n blou bed geslaap/gelê
they both did on a blue bed	they both did on a blue bed sleep/lie-PAST PART
'They both slept/lay on a blue bed'	

(115)	*Target:*
soom haar kou het	so haar gekou het
so her chew did	so her chew-PAST PART did
'Chewed her like this'	

(116)	*Target:*
hulle seergekry	hulle het seergekry
they sore-get-PAST PART	they did sore-get-PAST PART
'They got hurt'	

In the remainder of the 30 minutes, the past tense of *have* was produced as *gehê het* instead of as *gehad het*, but only in the typically developing 6-year-old group. The following two utterances in the remainder of the 30 minutes were the only ones of their kind. They are given here for the sake of interest. Utterance (117) was produced by a girl with SLI and (118) by a 4-year-old girl.

(117)	*Target:*
want hulle het al paar keer shock het	want hulle het al 'n paar keer geshock
because they did already few time shock did	because they did already few time shock-PAST PART
'Because they have already shocked themselves a few times'	

(118)
het jy nie gehê sy moet skree nie?
did you not have-PAST PART she must scream not

Target:
wou jy nie hê sy moet skree nie
want-to-PAST you-SGL not have-INF she must scream not
or
wou jy nie gehad het sy moet skree nie
want-to-PAST you-SGL not have-PAST PART she must scream not

'Did you not want her to cry?'

7.5. DISCUSSION: SPONTANEOUS DATA ON TENSE PRODUCTION

In the present study, all present tense verb forms were used correctly by all three groups to a high degree. In terms of correct production of past tense forms, the participants with SLI fared worse than the other two groups overall, but still demonstrated relatively high levels of accuracy (on average, almost 80% or more). This is in contrast to what Oetting and Horohov (1997) found for their 6-year-olds with SLI. These children's levels of accuracy in terms of (regular) past tense marking in their spontaneous language use was only 72%, with the age-matched controls faring better but the language-matched ones worse. Beverly and Williams (2004) also found that English-speaking children with SLI with an MLU of less than 3 produced the present tense forms of *be* significantly more in obligatory contexts than did MLU-matched controls in spontaneous language samples. By contrast, the 4-year-olds in the present study still fared better than the children with SLI, in terms of the production of *het ge-* forms. This is in accord with what Balason and Dollaghan (2002) found. They studied the use of 14 grammatical morphemes in the spontaneous language samples of 100 typically developing 4-year-olds and also saw high levels of accuracy. Regular past tense occurred in 95% of obligatory contexts (compared to 97.3% in the present study), and irregular past tense in 87%. Regarding contractible and uncontractible copula *be*, the percentage of occurrence in obligatory contexts was 88% and 93%, respectively; that of contractible auxiliary *be* was 85%. In the present study, *be* forms occurred correctly in 97.4% of the times (in present tense form) in the spontaneous language of the 4-year-olds; the only single error was one of insertion into an inappropriate context.

The results of the spontaneous language production task lend support to that of Paradis and Crago (2000), who also found that children with SLI are outperformed by both control groups. They determined that French-speaking 7-year-olds with SLI used finite verbs in obligatory contexts in a language sample to a high degree (88-89%), but still performed significantly worse than age-matched controls (89-99.5%). As regards the correct choice of tense (present, past, of future) in obligatory contexts, the results of the children with SLI did not differ significantly from those of the control group for present tense, but the children with SLI did fare significantly more poorly for past and future tense. Paradis and Crago (2001:263) found that these same children with SLI were also outperformed in terms of production of past tense by MLU-matched (3-year-old) controls.

Other researchers who found that children with SLI are outperformed by MLU-matched controls include Loeb and Leonard (1991). They made use of spontaneous language production supplemented, where necessary, by responses to probes, and found that children with SLI (4 years 0 months to 5 years 0 months) made more limited use of copula *is*, auxiliary *is*, and the third person singular *–s* than did MLU-matched controls (2 years 11 months to 3 years 4 months).

Hansson and Nettelbladt (1995) found that 5-year-old Swedish-speaking children with SLI made more errors related to verbs (i.e., errors of tense, on auxiliaries, and on modals) in spontaneous language use than did MLU-matched controls. Interestingly – and not totally unlike the case in the present study – not one of the six aspects related to verb morphology rendered a significant difference between the two groups when studied on its own, but when all six were combined, the verb-related errors made by the group with SLI were significantly more than those made by the MLU-matched controls.

However, other researchers have found that children with SLI fared similarly to younger, MLU-matched controls. Rom and Leonard (1990) compared the language samples of 4- to 5-year-old Hebrew-speaking children with SLI to those of younger typically developing children matched on a morpheme-per-utterance measure. They found no difference in present tense inflection and also not in past tense inflection. Hansson (1997) compared the verb usage in spontaneous language

samples of Swedish-speaking children with SLI to that of younger, MLU-matched controls. She found that the children with SLI used a higher proportion of lexical verbs, as opposed to copulas, modals and the auxiliary (Hansson 1997:209) – the latter two were frequently omitted from obligatory contexts. These children also tended to use a higher proportion of non-finite verb forms than their MLU-matched controls. However, simple verb forms (in other words, present and past tense forms) were used equally well by the two groups.

Blake et al. (2004) found that there was no significant difference between the correct use of regular past tense forms by children with SLI (aged 5 years 1 month to 9 years 8 months) and that of language-matched controls (matched in terms of expressive language score) in spontaneous language samples. They found the same for the children with SLI and age-matched controls. However, in terms of irregular past tense forms, the SLI group fared significantly worse than the age-matched controls (but not worse than the language-matched ones). As a group, the children with SLI overregularised a greater number of different irregular verbs than did either control group.

Roberts and Rescorla (1995) compared the spontaneous production of verb morphology of 4-year-olds with an expressive language delay to that of age-matched and MLU-matched controls. They found significant differences between the production of infinitival forms, irregular past tense forms, auxiliaries (including modals), *do* auxiliaries, and copulas by the children with SLI and the age-matched controls, with the children with SLI faring worse (as expected); no such difference was found between the children with SLI and their MLU-matched controls. For all three groups, errors of addition were the least frequent (with no difference between groups as regards this type of error). Substitutions occurred more frequently (here the children with SLI and the MLU-matched controls performed similarly and were outperformed by the age-matched controls). The most frequently occurring error type was that of omission: Again, there was no statistically significant difference between the frequency of occurrence of this error type when comparing the SLI and MLU-matched groups, but these two were outperformed by the age-matched controls.

7.6. CHAPTER CONCLUSION

In the literature, there is no consensus on whether children with SLI are outperformed by their typically developing peers **and** by younger typically developing children. The general finding of the present study was that the 6-year-olds with SLI were indeed outperformed by the typically developing 6-year-olds but not by the typically developing 4-year-olds, in terms of comprehension and elicited production of tense. However, in terms of spontaneous production, both typically developing groups fared better than the children with SLI.

These results render the following answer to research questions 1 to 4 (cf. p. 3): Afrikaans-speaking children with SLI present with a delay in their comprehension and production of grammatical morphemes related to tense, but these children also make significantly more highly idiosyncratic errors than younger typically developing Afrikaans-speaking children. Therefore, it appears that the language of Afrikaans-speaking children is delayed but also somewhat deviant.

Chapter 8

What are the linguistic characteristics of Afrikaans-speaking children with SLI?

8.1. INTRODUCTION

This chapter gives an overview of the errors made by the language-impaired and typically developing Afrikaans-speaking children. In section 8.2, the performance of the three groups of participants across experimental tasks is compared, and the performance of some of the individual children is discussed. In addition, in section 8.3.1, the error types found in the spontaneous language samples are compared across groups. This enables one to observe general response patterns by the three groups of participants. Furthermore, in section 8.3.2, additional information on the analyses of the language samples is presented: Errors not necessarily related to the grammatical features number, person, case, and tense (and therefore not discussed in the previous three chapters) are discussed here. These include word order errors: The types of word order errors made as well as those not made by the three groups of participants are considered. In section 8.4, the results of discriminant analysis are presented, where it is shown that performance on a selection of experimental tasks succeeds better in classifying the 45 participants correctly into the three groups (SLI, typically developing 4-year-old, typically developing 6-year-old) than does a selection of measures from the language samples. Also in this section, the issue of a possible clinical marker of SLI in Afrikaans is discussed.

8.2. THE LINGUISTIC CHARACTERISTICS REVEALED BY THE EXPERIMENTAL TASKS

In total, 15 experimental tasks were performed, each of them assessing the comprehension or production of the singular/plural distinction, pronouns, or tense. An overview of these tasks is presented in table 8.1. An indication is given of whether or not there was a statistically significant difference between (i) the performance of the three groups;

(ii) the mean scores of the SLI children and those of the typically developing 4-year-olds; (iii) the mean scores of the SLI children and those of their typically developing same-aged peers; (iv) the mean scores of the two typically developing groups; and (v) the degree of variance occurring in the three groups of participants.

Table 8.1. Overview of the difference in results between the three groups of participants on the 15 experimental tasks

Task no.	**Experimental task**	**Difference between groups**				
		Overall	**SLI, TD4**	**SLI, TD6**	**TD4, TD6**	**Difference in variance across groups**
1	PicSel[a]: Sgl/pl	Yes	No	Yes	Yes	Yes
2	Jdgm[b]: RW[c], incorrect reg[d] pl	Yes	No	Yes	Yes	No
3a	Jdgm: RW, incorrect irreg[e] pl	Yes	No	Yes	Yes	Yes
3b	Jdgm: RW, correct irreg pl	No	-- [f]	--	--	No
4a	Jdgm: NW[g], incorrect irreg pl	No	--	--	--	No
4b	Jdgm: NW, correct irreg pl	No	--	--	--	No
5	SenCom[h]: RW, reg pl	Yes	No	Yes	Yes	Yes
6	SenCom: RW, irreg pl	Yes	No	Yes	Yes	Yes
7	SenCom: NW, pl	Yes	No	Yes	Yes	No
8	PicSel: Pronouns	Yes	No	Yes	Yes	Yes
9	Jdgm: Pronouns	Yes	No	Yes	Yes	No
10	SenCom: Pronouns	Yes	No	Yes	Yes	No
11	PicSel: *se*-constructions	Excluded due to low reliability of items (Cronbach's alpha .327)				
12	SenCom: *se*-constructions	No	--	--	--	Yes
13a	PicSel: Past tense of *be* and *have*	No	--	--	--	No
13b	PicSel: Past tense forms with *het*	Yes	No	Yes	Yes	No
14	Jdgm: Hendiadyses	No	--	--	--	No
15a	SenCom: Targeted past tense constructions (unprompted)	Yes	No	Yes	Yes	No
15b	SenCom: Total grammatical past tense constructions (unprompted)	Yes	No	Yes	Yes	No
15c	SenCom: Targeted past tense	Yes	?[i]	?	?	No

	constructions (prompted)					
15d	SenCom: Total grammatical past tense constructions (prompted)	Yes	No	Yes	Yes	No
15e	SenCom: historic present constructions equivalent to target (unprompted)	No	--	--	--	No
15f	SenCom: Total grammatical historic present constructions (unprompted)	No	--	--	--	No
15g	SenCom: highly idiosyncratic errors related to past tense constructions	Yes	No	Yes	Yes	Yes
15h	SenCom: *Het* without *ge-*	No	--	--	--	Yes
15i	SenCom: Total errors related to past tense constructions (before prompting)	No	--	--	--	Yes
15j	SenCom: Total errors related to past tense constructions (after prompting)	Yes	No	Yes	No	No

[a]PicSel=picture selection task. [b]Jdgm=judgement task. [c]RW=real words. [d]Reg=regular. [e]Irreg=irregular. [f]Because there were no statistically significant differences between the three groups, post hoc analyses were not considered. [g]NW=nonsense words. [h]SenCom=sentence completion task. [i]Although there was a statistically significant difference between the three groups, this difference was not strong enough to show up in post hoc testing.

As can be seen from table 8.1, the children with SLI fared worse than their typically developing peers on 15 of the 26 aspects measured by the experimental tasks. For all of these 15, the children with SLI performed on a par with the typically developing 4-year-olds. In addition, as could also be seen from the box plots in chapters 5 to 7, the general pattern was that, where the variability differed between the three groups, the SLI group showed the most intra-group variability. This variance was statistically significant for nine of the 26 aspects measured by the experimental tasks.

In an attempt to establish whether there was one (or more) general factor responsible for the differentiation among the three groups, factor analysis (principal component, varimax rotation) was performed. Several solutions were considered, including solutions where the many scores

obtained on the sentence completion task assessing production of past tense constructions were not taken into consideration. In all the different solutions, the first factor after (varimax) rotation turned out to be stable with consistent high loadings (>.50) for the following seven experimental task:

(i) The picture selection task assessing comprehension of the singular/plural distinction.
(ii) The sentence completion task assessing production of regular plural forms of real words.
(iii) The sentence completion task assessing production of irregular plural forms of real words.
(iv) The sentence completion task assessing production of plural forms of nonsense words.
(v) The picture selection task assessing comprehension of pronouns.
(vi) The judgement task assessing comprehension of pronouns.
(vii) The sentence completion task assessing production of pronouns.

When considering the composite score on these seven tasks (by adding the z scores), the difference between that of the three groups can be portrayed as in figure 8.1: The SLI and TD4 groups appeared to perform similarly and the TD6 group better than the other two groups. Most variability seemed to occur in the SLI group, with some children in this group performing as well as their typically developing peers and others worse than the 4-year-olds. However, the difference in variance between the groups was not significant (Levene's test; $F_{2,42}$=2.007; p=.147).

Table 8.2 contains the details of the performance of the three groups on the composite index. A one-way ANOVA returned a significant outcome, which means that a difference between the mean scores of the groups could be assumed ($F_{2,42}$=30.662; p=.000). Post hoc analyses (Tukey's HSD; alpha=.05) revealed that the statistically significant differences were between the SLI and TD4 groups, on the one hand, and the TD6 group, on the other. There was no statistically significant difference between the mean scores of the SLI and TD4 groups.

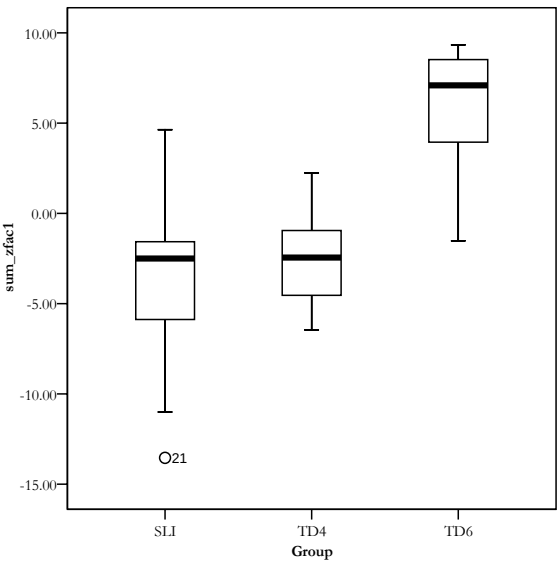

Figure 8.1. Box plot of performance per group – Composite score of seven experimental tasks

Table 8.2. Summary of performance per group – Composite index consisting of a selection of seven experimental tasks

Group	N	Mean	Standard deviation	Minimum score obtained	Maximum score obtained
SLI	15	-3.47	4.91243	-13.54	4.64
TD4	15	-2.57	2.40113	-6.45	2.25
TD6	15	6.04	3.24329	-1.51	9.34
Total	45	0.00	5.62460	-13.54	9.34

Considering the performance of the individual participants on this composite index, two of the children with SLI fared markedly worse than the rest of their group: One was a boy, participant 21 (SLI-6),[139] whose composite score was -13.54; the other was a girl, participant 20 (SLI-5), whose score was -11.00. These scores were noticeably worse than the worst one in the TD4 group, which was -6.45 – obtained by a girl, participant 4 (TD4-4). Another two children with SLI performed

[139] Participant codes and additional information on participants can be found in table 4.1. Alternatively, consult table 8.8, in which codes for the participants with SLI are also given.

markedly better than their group: Again, one was a boy, participant 26 (SLI-11), with a composite score of 4.64, and the other a girl, participant 25 (SLI-10), with a score of 3.83. These two scores were higher than the lowest four in the TD6 group, illustrating the high degree of variability found in the SLI group.

8.3. THE LINGUISTIC CHARACTERISTICS REVEALED BY THE LANGUAGE SAMPLES

A 30-minute long language sample was collected from each participant. The first 100 complete and fully intelligible utterances in each sample were analysed for errors pertaining to correct and incorrect occurrences of (i) singular and plural forms of nouns, (ii) pronouns, (iii) *se*-constructions, and (iv) various types of past and present tense constructions. The results of some of these analyses are presented in section 8.3.1. However, the whole first 30 minutes of each language sample was examined for errors other than those mentioned above, for instance, for errors pertaining to word order or the inappropriate insertion or omission of a determiner. The results of this examination are given in section 8.3.2, together with an indication of the type of errors – specifically those related to word order – which did not occur.

8.3.1. Error analysis of the first 100 utterances of each language sample

The language samples were examined for the correct occurrence and the substitution, incorrect insertion, and omission of those aspects assessed by the experimental tasks. Table 8.3 gives an overview of a selection of those measures which produced differences between the groups, specifically (i) the proportion of plural forms which were produced correctly; (ii) the proportion of pronouns produced correctly; (iii) the proportion of present tense constructions produced correctly; and (iv) the number of past tense forms vs. present tense forms.

In general, the SLI group fared worse than the TD6 group. However, in contrast to the pattern found for the experimental tasks, the SLI group was also, at times, outperformed by the TD4 group. The two typically developing groups fared similarly. Again, the most variability was found

in the SLI group, with some children faring as well as the typically developing ones.

Table 8.3. Overview of some of the measures of the language sample analysis

Measure	**Difference between groups**				**Difference in variance across groups**
	Over-all	**SLI, TD4**	**SLI, TD6**	**TD4, TD6**	
Prop[a] correct plurals	Yes	No	Yes	No	Yes
Prop correct pronouns	Yes	No	Yes	No	Yes
Prop correct present tense	Yes	Yes	Yes	No	Yes
Present tense vs. past tense	Yes	No	Yes	Yes	No

[a]Prop=proportion

At times, there was no score for a particular child for a certain measure, simply because the child did not attempt the construction in question. Despite the challenge posed by low frequency of occurrence (or absence) of some of the measures, it was possible to establish that there was a correlation between the performance of the groups on the four measures given in table 8.3. The significant correlations (2-tailed) as well the others are indicated in Table 8.4.

Table 8.4. Pearson's correlation between measures of the language sample

Measure	Prop[a] plural	Prop pronouns	Prop present	Past vs. present
Prop plural	--	.216 p=154	.562 p=.000	.330 p=.027
Prop pronouns	.216 p=154	--	.426 p=.004	.215 p=.157
Prop present	.562 p=.000	.426 p=.004	--	.236 p=.118
Past vs. present	.330 p=.027	.215 p=.157	.236 p=.118	--

[a]Prop=proportion

The difference between the three groups in terms of their composite scores on these four measures (by summing their z scores) is portrayed in figure 8.2. Unlike the case for the composite score of the experimental tasks, the SLI group appeared to fare worse than both typically developing groups, with the latter two performing similarly. Again, most variability appeared to occur in the SLI group, with some children in this

group performing better than the best-performing, and others worse than the worst-performing, typically developing ones. In this case, the difference in variance between the groups was significant (Levene's test; $F_{2,42}$=9.311; p=.000).

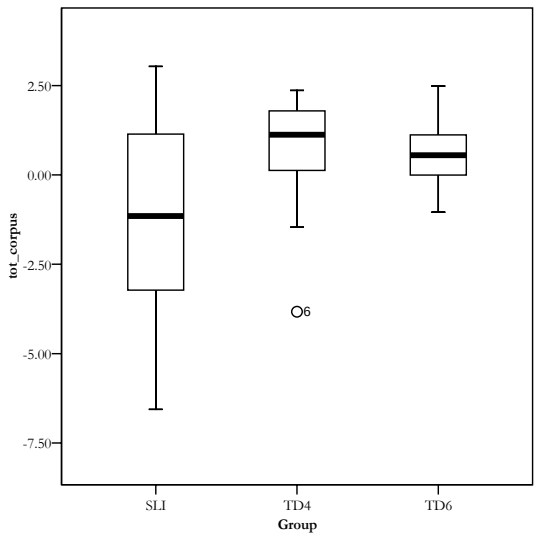

Figure 8.2. Box plot of performance per group – Composite score of four measures of the language sample analysis

In table 8.5, the details of the performance of the three groups on the composite index for the language sample analysis are given. A one-way ANOVA returned a significant outcome, indicating that a difference between the mean scores of the groups could be assumed ($F_{2,42}$=4.268; p=.021). Post hoc analyses (Tukey's HSD; alpha=.05) revealed that the statistically significant differences were between the SLI group, on the one hand, and the two typically developing ones, on the other. Based on the outcome of a one-way ANOVA, no significant difference between the TD4 and TD6 groups could be assumed. This pattern differs from the one for the composite score of the experimental tasks: There, the SLI children fared similarly to the TD4 children.

Table 8.5. Summary of performance per group – Composite index consisting of four measures of the language sample analysis

Group	N	Mean	Standard deviation	Minimum score obtained	Maximum score obtained
SLI	15	-1.26	3.03358	-6.56	3.04
TD4	15	0.66	1.63232	-3.83	2.36
TD6	15	0.60	0.88641	-1.05	2.48
Total	45	0.00	2.20091	-6.56	3.04

8.3.2. Error analysis of the full first 30 minutes of each language sample – other errors

From the above, it appears that the Afrikaans-speaking children with SLI fared on a par with the younger typically developing ones on the experimental tasks, but worse than both groups of typically developing children in terms of correct spontaneous production of the grammatical morphemes related to number, person, case, and tense. In this section, other errors made in the language sample are discussed. The first set of errors is verb-related. A summary of the errors and their frequency of occurrence in the first 30 minutes of the language samples are given in table 8.6, with illustrative examples following the table.

Table 8.6. Frequency of verb-related errors in the language samples of the three groups of participants

Error type	Error made by					
	SLI		TD4		TD6	
Errors involving infinitives	29[a]	[12][b]	14	[10]	11	[6]
Omission/insertion of main verbs	15	[6]	6	[5]	1	[1]
Omission/insertion of main *het*	2	[2]	0	[0]	0	[0]
Omission of verb particle	12	[6]	2	[1]	2	[2]
Other verb-related errors (difficult to classify /idiosyncratic)	18	[7]	0	[0]	0	[0]

[a]This figure indicates the number of times the error occurred in the 30 minutes of language sample. [b]The figure in square brackets indicates how many children in that group made the error.

Errors on infinitives included the incorrect form of *het* 'have' and *wees* 'be'; the omission of an infinitive, as in example (119); the omission of a part of the infinitival structure, as in (120), where the *te* of *om te probeer swem* 'to try swim' has been omitted; and the inappropriate insertion of a

part of the infinitival structure, as in (121), where *om* should not have occurred.

(119)
hoe kan hy ons goeters?
how can he our stuff
'How can he steal our stuff?'

Target:
hoe kan hy ons goeters steel?
how can he our stuff steal

(120)
ek het alles gedoen om probeer swem
I did everything do-PAST PART *infinitive-complementiser* try swim
'I did everything to try swim'

Target:
ek het alles gedoen om te probeer swem
I did everything do-PAST PART *infinitive-complementiser* to try swim

(121)
mens hoef nie om te betaal nie
one have-to not *infinitive-complementiser* to pay not
'One does not have to pay'

Target:
mens hoef nie te betaal nie
one have-to not to pay not

Errors on infinitives were made by all three groups of children. However, the number of errors made by the SLI group was more than double that made by the TD4 group, although only two more children in the SLI than in the TD4 group made this error. Of the 10 children in the TD4 group who made this error, six made it only once and the remaining four twice each. By contrast, of the 12 children with SLI who made this error, only four made it only once; the others made it two to three times each, with two children – participants 21 (SLI-6) and 29 (SLI-14) – each making five such errors.[140]

The second error type related to the inappropriate omission or insertion of a main verb. In example (122), the verb *gaan* 'go' is omitted, and, in (123), *reën* 'rain' occurs twice.

[140] Table 8.8 contains the information on which child with SLI made which types of error.

(122)
ek saam
I with
'I'm going with'

Target:
ek gaan saam
I go with

(123)
nou reën hulle nat reën
now rain they wet rain
'Now they are getting wet in the rain'

Target:
nou reën hulle nat
now rain they wet

As was the case for errors on infinitives, a comparable number of children in the SLI and TD4 groups inserted or omitted a main verb, but the number of errors made by the SLI group was more than double that made by the TD4 group. The same pattern emerged as before: Of the five children in the TD4 group, four made the error once only. Three of the six children with SLI made the error only once and one made it twice. However, one boy – participant 21 (SLI-6) – made it four times and one girl – participant 27 (SLI-12) – seven times. *Het* 'have' as a main verb was also omitted and inserted inappropriately, but only by the SLI group and only twice: once each by two boys.

The omission of part of a particle-verb is illustrated in example (124), where the *op* of *oppas* 'look after' has been omitted. This error was made almost exclusively by the SLI group. Of the six children from this group who made this error, most made it only once, but one child each made the error twice, three times, and four times.

(124)
so hy pas vir my boetie
so he look for my brother-DIM
'So he looks after my brother'

Target:
so hy pas vir my boetie op
so he look for my brother-DIM after

Only the children with SLI made verb-related errors which were highly idiosyncratic and/or difficult to classify. By nature, this category of errors is a particularly diverse one. Examples (125) to (127) are aimed at illustrating this diversity. In (125), the target construction could be either a passive one – *ek word deur 'n volstruis daar op my hand gepik* 'I am pecked there by an ostrich on my hand' – or an active one – *'n volstruis het my daar op my hand gepik* 'an ostrich pecked me there on my hand'.

(125)
ek word 'n volstruis het daar op my hand gepik
I be-PASS-PRESENT a ostrich did there on my hand peck-PAST PART /PASS PART

The intended meaning of (126) and (127) is not clear. For this reason, only a gloss, and not a target construction, is provided.

(126)
dan vat hy 'n kinders maak
then take he a children make

(127)
hy wil net luister tog wat het hy gesticker vat
he want-to just listen just what did he sticker-PAST PART take

Half of the 18 errors were made by one boy, participant 21 (SLI-6). Two other boys made two and three errors each. For the remainder of the SLI participants who made such an error, each made it only once in their 30 minute language sample.

The second set of errors to be considered here is non-verb-related. These errors are summarised in table 8.7. Some illustrative examples are provided below.

In terms of omitting the subject, a similar number of children in the SLI and TD4 groups made this error, but the errors in the SLI group were almost three times as many as those in the TD4 group. In the SLI group, one boy – participant 21 (SLI-6) – was responsible for 12 of the 29 errors, two girls made three errors each, another five children made two errors each, and one girl omitted the subject once.

Five of the six children with SLI who omitted the object did so only once. The girl who made this error three times – participant 29 (SLI-14) – did not omit the subject once.

Prepositions were omitted, inserted, and substituted with other prepositions by all three groups of participants, but less so by the TD4 group than by the other two. The two 6-year-old groups had almost the same number of children making this error, but, collectively, the

Table 8.7. Frequency of non-verb-related errors in the language samples of the three groups of participants

Error type	Error made by					
	SLI		TD4		TD6	
Omission of subject[141]	29[a]	[9][b]	10	[7]	1	[1]
Omission of object	8	[6]	2	[2]	0	[0]
Omission of single noun	5	[4]	0	[0]	0	[0]
Omission of complementiser	1	[1]	0	[0]	1	[1]
Omission/insertion/substitution of prepositions	36	[10]	12	[5]	19	[8]
Omission/insertion of determiners	70	[13]	26	[8]	7	[5]
Omission/insertion of *nie*	10	[8]	1	[1]	2	[2]
Other omission	13	[10]	1	[1]	4	[2]
Other insertion	1	[1]	0	[0]	1	[1]
Other non-verb-related error (difficult to classify /idiosyncratic)	33	[9]	9	[8]	3	[3]

[a]This figure indicates the number of times the error occurred in the 30 minutes of language sample. [b]The figure in square brackets indicates how many children in that group made the relevant error.

10 children in the SLI group made this error almost twice as often as did the 8 children in the TD6 group. One boy and one girl – participants 26 (SLI-11) and 29 (SLI-14) – were responsible for seven and nine of the 36 errors, respectively. Two boys – participants 16 (SLI-1) and 21 (SLI-6) – made five errors each, and the rest of the six children with SLI made one or two errors each.

An example of the substitution of one preposition with another is **in die plaas* 'in the farm' instead of *op die plaas* 'on the farm'. An example of the inappropriate insertion of a preposition is given in (128).

[141] Due to the nature of the conversation – freeplay with frequent comments on the objects present and the actions being performed with them – children from all three groups at times made use of elliptical utterances, particularly ones from which the subject was omitted. An example would be where a child says *gaan nou hierdie een vat* 'going to take this one now' while he reaches for another wooden block. These subjectless utterances were not included here, not even those of the one boy with SLI – participant 24 (SLI-9) – who had a very strong preference for such subjectless utterances over ones containing a subject.

(128)	*Target:*
dit werk nie so by hierso nie	dit werk nie so hierso nie
it work not so by here not	it work not so here not
'It does not work that way here'	

As was the case for prepositions, determiners were omitted and inserted inappropriately by all three groups of participants, but more children in the SLI than in the other two groups made this error, and the error was made a disproportionately high number of times by the children with SLI. Of the 70 errors made by this group in total, 23 were made by one boy – participant 21 (SLI-6) – and another 11 by another boy – participant 24 (SLI-9). A girl – participant 29 (SLI-14) – made nine; two boys each made six – participants 16 (SLI-1) and 26 (SLI-11); two girls made four each; and the other seven children made either one or two. Only two children in the SLI group did not make any errors related to determiners. Examples of the inappropriate insertion of determiners by the children with SLI is **'n goeters* 'a stuff' instead of *goeters* 'stuff', as well as the one in (129).

(129)	*Target:*
jy soek ook 'n ene?	jy soek ook ene?
you look-for also a one	you look-for also one
'Do you also want one?'	

Although the children who omitted or inserted *nie* inappropriately mostly did so only once, far more children with SLI than typically developing ones made this error. An example of the omission of *nie* is given is (130),[142] and one of inappropriate insertion is given in (131).

(130)	*Target:*
ons het visse nie	ons het nie visse nie
we have fish-PL not	we have not fish-PL not
'We do not have fish'	

[142] This utterance would not have been ungrammatical had the child meant "It's **fish** we don't have (but all the other animals are here)". However, this utterance was produced in response to a question by the researcher: *En het julle visse op die plaas, kinders?* 'And do you have fish on the farm, children?'. There was no indication that the child meant to say anything other than "No, we do not have fish".

(131)	*Target:*
hulle wil nie skoonmaak nie hier nie	hulle wil nie hier skoonmaak nie
they want-to not clean-make not here not	they want-to not here clean-make not
'They do not want to clean here'	

What is termed "other omission" in table 8.7 entailed the omission of lexical items or phrases in which no clear pattern could be detected; diverse errors involving omission were grouped together under this rather uninformative label. More children with SLI than typically developing ones made this type of error, although six of the 10 children with SLI who did make this error did so only once. A boy and girl – participants 21 (SLI-6) and 29 (SLI-14) – made three and two errors each, respectively. Examples of such omissions are given in (132) to (134) below.

(132)	*Target:*
*kom die kos	hier kom die kos
come the food	here come the food
'Here comes the food'	

(133)	*Target:*
ons nie kan eet nie kan ons nie groot kan word nie	as ons nie kan eet nie kan ons nie grootword nie
we not can eat not can we not big can become not	if we not can eat not can we not big-become not
'If we cannot eat, we not cannot grow up'	

(134)	*Target:*
is ons toe	toe is ons toe
be we closed	then be we closed
'Then we were closed'	

In contrast to the difficult to classify and/or idiosyncratic verb-related errors which were made by only the children with SLI, the non-verb-related errors were made by all three groups of participants. However, the SLI group made far more of them than did the two groups of typically developing children. A total of nine such errors were made collectively by eight children in the TD4 group, whereas nine children with SLI made 33 in total. Of these, 11 were made by one boy, participant 21 (SLI-6). A girl and boy – participants 24 (SLI-9) and 27

(SLI-12) – made five errors each, another boy – participant 16 (SLI-1) – made three, and the other five made one or two such errors each. As was said for the verb-related errors, this category of errors is highly diverse by nature. A number of examples is given in (135) to (138), in an attempt to illustrate the types of errors classified as highly idiosyncratic and/or otherwise difficult to classify.

(135)
ons het ons honde te né 'n binnehond `n buitehond
we have our dogs to hey a inside-dog a outside-dog
'Our dogs are inside and outside dogs'

Target:
ons honde is huishonde en buitehonde
our dogs be house-dogs and outside-dogs

(136)
'n rooietjie hoedjie
a red-DIM hat-DIM
'A red hat'

Target:
a rooi hoedjie
a red hat-DIM

(137)
daar gaan hy daai in 'n fiets in
there go/will he that in a bicycle in
'There is a bicycle in there'

Target:
daar is 'n fiets in
there be a bicycle in

(138)
nou gaan ek aan koffies
now go/will I on coffees
'I am going to take the coffee now'

Target:
nou gaan ek die koffie vat
now will I the coffee take

Table 8.8 contains a summary of the errors made by the SLI group, other than those discussed in the previous three chapters. In total, 13 of the 15 members of this group made such errors. The two girls who did not – participants 17 (SLI-2) and 20 (SLI-5) – did, however, make errors pertaining to person, number, case, or tense in their spontaneous language production.

Table 8.8. Summary of the frequency of errors (excluding those related to the grammatical features number, person, case and tense) made by the SLI children

Error type	Participant												
	16	18	19	21	22	23	24	25	26	27	28	29	30
	SLI1	SLI3	SLI4	SLI6	SLI7	SLI8	SLI9	SLI10	SLI11	SLI12	SLI13	SLI14	SLI15
Infinitive	1	2	3	5	2	3	1	2	3	1	1	5	
Main V	1			4			2	1	1	7			
Main *het*	1								1				
Prepositional V	1		4	2		1			3		1		
Other V-related			1	9			2	1	1		3		1
Omit S	2	1	3	12	2		2	2	2	3			
Omit O				1			1	1	1	1		3	
Omit N		1	1	2					1				
Omit C								1					
Preposition	5	2		5	1		2	1	7		2	9	2
Determiner	6	1	1	23	2	1	11	4	6	1	1	9	4
Nie	1	1				1	1		1	1	1	3	
Omit other	1		1	3	1	1	1	1	1	1		2	
Other insertion						1							
Other non-verb-related	3		2	11	1		5	2	2	5			2

8.3.3. Word order errors

The discussion now turns to the word order errors which occurred in the language samples of the 45 participants. All three groups of participants made word order errors, but not all types were made by all groups.

Only the typically developing 6-year-olds produced utterances in which the subordinate conjunction *omdat* 'because' was treated as a co-ordinate conjunction, similar to its synonym *want* 'because'. Three such utterances occurred, illustrated by example (139). However, no co-ordinate conjunctions were followed by a subordinate word order.

(139)	*Target:*
dis omdat ek tel nie die hoef op nie	dis omdat ek nie die hoef optel nie
it-is-CONTR because I pick not the hoof up not	it-is-CONTR because I not the hoof up-pick not
'It's because I do not pick the hoof up'	

Relative clauses with an incorrect (verb-second or SVO) surface word order occurred in the language of all three groups of children. An example of such an utterance is provided in (140). In (141), the same incorrect word order is shown.

(140)	*Target:*
en hierdie is sy mamma wat jy het daarso	en hierdie is sy mamma wat jy daarso het
and this is his mommy that you have there	and this is his mommy that you there have
'And this is his mommy that you have there'	

(141)	*Target:*
dat hy kan sy fietsie ry	dat hy sy fietsie kan ry
that he can his bicycle-DIM ride	that he his bicycle-DIM can ride
'That he can ride his bicycle'	

Main clauses with an SOV surface word order (the order found in embedded clauses) also occurred – as shown in example (142) – but only in the language of two children with SLI. Only one instance of VSO occurred, in the language of participant 21 (SLI-6); this utterance is given in (143).

(142)	*Target:*
hulle TV kyk	hulle kyk TV
they TV watch	they watch TV
'They are watching TV'	

(143)	*Target:*
vryf hy die been en 'n pappa	hy vryf die been van pappa
rub he the leg and a daddy	he rub the leg of daddy
'He is rubbing daddy's leg'	

The 4-year-olds as well as the children with SLI appeared to have problems with adverb placement. Examples of utterances with the incorrect word order in which adverbs occur, are (144) and (145).

(144)	*Target:*
hierdie al goed	al hierdie goed
these all stuff	all these stuff
'All these stuff'	

(145)	*Target:*
sy's 'n dinasaur ook	sy's ook 'n dinasaur
she-be-CONTR a dinasaur as well	she-be-CONTR also a dinasaur
'Among other things, she is a dinasaur'	'She too is a dinasaur'

Word order errors related to the order of adverbs or AdvPs also occurred, but not in the language of the 4-year-olds. Examples (146) and (147) illustrate this type of error.

(146)	*Target:*
mens staan langs die poot anders	mens staan langs die poot anders kan
miskien kan hy op jou voet trap	hy miskien op jou voet trap
one stand next-to the paw otherwise	one stand next-to the paw otherwise
maybe can he on your foot step	can he maybe on your foot step
'One stands next-to the paw, otherwise he can maybe step on your foot'	

(147)	*Target:*
maar nou in die groter skool het ek begin	maar nou het ek in die groter skool begin
but now in the bigger school did I start	but now did I in the bigger school start
'But now I've started big school'	

A third type of error occurring in utterances containing adverbs was related to the word order following fronted adverbs or AdvPs. Such errors were found in the language of all three groups and are illustrated in (148) and (149).

(148)	*Target:*
laas jaar ek was by 'n ou plaas	laas jaar was ek op 'n ou plaas
last year I be-PAST by a old farm	last year be-PAST I on a old farm
'Last year I was on an old farm'	

(149)	*Target:*
toe ons daar kom ek het nie eers geskrik vir hulle nie	toe ons daar kom het ek nie eers geskrik vir hulle nie
when we there come I did not even get-a-fright-PAST PART for them not	when we there come did I not even get-a-fright-PAST PART for them not

'When we came there, I was not even frightened by them'

The children with SLI and the 4-year-olds made errors in the word order of *wh*-questions. Examples are given in (150) and (151). The *wh*-element was fronted, but subject-verb inversion did not take place. Utterances with a S*wh*V or V*wh*S word order did not occur in the data. One utterance, from the language sample of a girl with SLI, contained a *wh*-question in which the subject and verb had the correct surface word order, but in which the adverb occurred in the incorrect position. This utterance is given in (152).

(150)	*Target:*
watte dit is?	wat is dit?
what this is	what is this

'What is this?'

(151)	*Target:*
hoekom ding kan nie trap nie?	hoekom kan die ding nie trap nie?
why thing can not pedal not	why can the thing not pedal not

'Why can the thing not pedal?'

(152)	*Target:*
hoekom weer werk ons net so bietjie?	hoekom werk ons weer net so bietjie?
why again work we just such bit	why work we again just such bit

'Why do we again just work a little bit?'

Other word order errors, ones which are difficult to classify in terms of misplaced elements, also occurred, mostly in the language of children with SLI. Two examples are given here, in (153) and (154).

(153)	*Target:*
en hulle meet om hulle op die lorrie te gaan	en hulle meet hulle om op die lorrie te gaan
and they measure *infinitive-complementiser* they on the truck to go	and they measure them *infinitive-complementiser* on the truck to go

'And they measure them to go onto the truck'

(154)	*Target:*
ons babatjies ons by hier kan kies	ons babatjies kan ons by hierdie kies
our baby-DIM-PL we by here can choose	our baby-DIM-PL can we by there choose

'Our babies we can choose to match these' [=we can choose figurines (ones which match these pieces of toy furniture) to be our babies]

The 4-year-olds and the children with SLI made word order errors in utterances containing particle-verbs, i.e., verbs consisting of a verbal stem and a particle belonging to the category noun, preposition, or adverb. Examples (155) and (156) contain such utterances.

(155)	*Target:*
ek sal ry fiets	ek sal fietsry
I will ride bicycle	I will bicycle-ride

'I will ride bicycle'

(156)	*Target:*
daar val af die een	daar val die een af
there fall off the one	there fall the one off

'There the one falls off'

It appears then that a range of word order errors were produced, but that not all three groups produced all types of errors. Table 8.9 contains a summary of the types of word order errors and the groups by which they were made. As can be seen from this table, a word order error which was unique to the SLI group was that of main clauses with a surface SOV or VSO order.

Table 8.9. Summary of word order errors made per group

Errors related to	Made by		
	SLI group	**TD4 group**	**TD6 group**
Treating *omdat* like *want*			Yes
Relative clauses with SVO	Yes	Yes	Yes
Main clauses with SOV	Yes		
Main clauses with VSO	Yes, once		
Adverb placement in utterance	Yes	Yes	
Order of adverbs or AdvPs	Yes		Yes
Word order after fronted adverbs or AdvPs	Yes	Yes	Yes
Wh-questions	Yes	Yes	
Other, more difficult to classify	Yes		Yes
Verb-particle	Yes	Yes	

8.4. DO THE ERRORS REVEAL A POSSIBLE CLINICAL MARKER OF SLI IN AFRIKAANS?

Another approach, that of discriminant analysis, was taken to compare the performance of the three groups of participants across experimental tasks. The aim was to ascertain which combination of experimental tasks would result in the most accurate classification of the 45 participants into the three groups (SLI, TD4, or TD6). For these analyses, all experimental tasks were included, using the stepwise procedure to include and exclude the task results in the discriminant analysis (probability F entry .05; removal .10). The combination of the following three tasks was selected as the best to place the participant into one of the three groups (SLI, TD4, or TD6):

(i) The picture selection task assessing comprehension of the singular/plural distinction.

(ii) The judgement task involving what should have been regular plural forms of real words.

(iii) The number of errors – excluding highly idiosyncratic ones and past tense constructions with *het* but where the past participial (*ge-*) form was replaced by an infinitival one – after prompting by the researcher, on the sentence completion task assessing production of past tense forms.

Table 8.10 shows the results in terms of a classification table. This table makes a distinction between the actual group membership and the predicted group membership.

Table 8.10. Results of classification of participants into three groups based on a selection of three experimental measures

Actual group	**Predicted group membership**			**Total**
	SLI	**TD4**	**TD6**	
SLI	7	5	3	15
TD4	4	11	0	15
TD6	0	1	14	15
Total	11	17	17	45

This analysis classified almost all TD6 group members as belonging to that group. The participant misclassified as a typically developing 4-year-old was participant 33 (TD6-3), who, interestingly, had the second highest MLU of all participants. Problems occurred in differentiating between the members of the TD4 and SLI groups, as could be expected considering the separate analyses of the experimental tasks. Nevertheless, the majority of the TD4 group was classified as such, with only four members of this group misclassified (all four of them as children with SLI). The general pattern observed for the experimental tasks was that the SLI and TD4 groups obtain similar average scores but that the range of scores in the SLI group is larger than that in the TD4 group. This is reflected in the difficulty that this discriminant analysis had with the correct classification of the members of the SLI group: Only seven were classified correctly, five were seen to be typically developing 4-year-olds and another three to be typically developing 6-year-olds. This latter misclassification (that of children with SLI as being typically developing) is interesting from a clinical point of view, because these children with SLI are classified as having no language problems. The SLI children classified as belonging to the TD6 group are participants 25 (SLI-10), 26 (SLI-11), and 27 (SLI-12); the composite score of all three of them had a positive value.

Discriminant analysis was also performed with the various measures of the spontaneous language samples – but only with measures related to the grammatical features number, person, case, and tense. As in the case of the experimental tasks, the aim was to ascertain what combination of

measures would result in the most accurate classification of the 45 participants. Table 8.11 shows the results of the stepwise discriminant analysis. A combination of the following two measures was selected as the best to place the participant into one of the three groups (SLI, TD4, or TD6):

(i) The proportion of correct present tense constructions out of all present tense constructions.
(ii) The number of past tense forms vs. present tense forms.

Table 8.11. Results of classification of participants into three groups based on a selection of two measures from the language samples

Actual group	**Predicted group membership**			**Total**
	SLI	**TD4**	**TD6**	
SLI	8	5	2	15
TD4	1	10	4	15
TD6	0	3	12	15
Total	9	18	18	45

This analysis was slightly less successful at correctly classifying participants in terms of their actual group membership than was the similar analysis involving the experimental tasks. Based on the selected two measures of the language sample, two thirds (30) of the 45 participants were classified correctly compared to 32 by the similar analysis involving the experimental tasks.

The group most often misclassified was the SLI one: Seven of its members were deemed to be typically developing. This again confirms that most variability occurred in the SLI group: Some of its members performed as well as typically developing 6-year-olds. The two participants with SLI who were classified as belonging to the TD6 group were not the same ones as those classified as such by the experimental tasks. This emphasises the importance of using a combination of spontaneous and elicited data when diagnosing SLI in Afrikaans-speaking children.

One of the two participants classified as a TD6 group member by the two measures of the language sample was participant 20 (SLI-5), who obtained a composite score of 2.15. Recall that she was one of the two children with SLI who fared worst on the composite score pertaining to

the experimental tasks, but that she was one of the two children who made no errors in her language sample except those related to the grammatical features number, person, case, and tense. The other child was also a girl – participant 17 (SLI-2) – one who made almost no errors in her spontaneous language sample (the other girl who does not feature at all in table 8.8). Her MLU was one of the lower ones (it fell within the bottom third of her group). This could lead one to think that she made use of short utterances in an attempt to avoid problem structures and, by doing so, increased the accuracy of her utterances. As mentioned by Blake et al. (2004:31), the fact that children with SLI sometimes differ from controls in terms of correct morphology when comparisons are made based on elicited production but not when based on spontaneous production could simply be due to avoidance, in their spontaneous language use, of unfamiliar forms by children with SLI. This could be the case for this girl with SLI. However, none of the four children with MLUs lower than hers appeared to use these strategies. The other child who fared poorly on the composite score pertaining to the experimental tasks – participant 21 (SLI-6) – also fared worst on the composite pertaining to measures of the spontaneous language sample: He obtained a score of -6.56. Two other children also fared poorly: participant 22 (SLI-7), with a score of -6.13, and participant 26 (SLI-11), with a score of -5.08.

Because the average scores of the TD4 and TD6 groups did not differ significantly, it is understandable that some of these groups' members were classified as belonging to the other. What is of interest is that one typically developing 4-year-old was classified as language-impaired. This was participant 6 (TD4-6), whose MLU was also the second lowest of all TD4 participants. However, based on the selection of seven experimental tasks, her score was average compared to that of the rest of the TD4 group.

Interestingly, the 6-year-old who had the lowest composite score on the two measures of the language sample – participant 33 (TD6-3) – had the second highest MLU of all participants. So, although she made more errors than the rest of her group, she also produced longer utterances than most of her group.

From the discriminant analysis and language sample analysis, it appears that a combination of experimental and spontaneous data differentiates successfully between children with and without SLI, to a great extent. Considering only spontaneous production might lead to underdiagnosis, because it is, at least in theory, possible for children with SLI to avoid certain structures in their spontaneous language use. Elicited production should therefore also be used when diagnosing an Afrikaans-speaking child as SLI. As stated by Blake et al. (2004:38), differences between spontaneous and elicited production tasks make it unlikely that a morphological measure based on spontaneous speech alone will be useful in diagnosing SLI (see also Bedore and Leonard 1998). Whereas elicited production tasks pose their own special difficulties for children with SLI, Blake et al. (2004:39) state that they may also be better at detecting subtle deficits in older children with SLI.

Three of the seven measures discussed in this chapter are related to the production of verbs. It appears then that one should consider the elicited production of past tense forms and the spontaneous production of present and past tense forms in the search for a clinical marker of SLI in Afrikaans. According to Rice et al. (1998:1412), such a marker is "a linguistic form, or principle that can be shown to be characteristic of children with specific language impairment". Rice and Wexler (1996) identified finiteness, or tense marking, as a sensitive and specific clinical marker of SLI in English (see also Marchman et al. 1999).

The number of highly idiosyncratic and/or difficult to classify verb-related errors in spontaneous production appears to differentiate very accurately between Afrikaans-speaking children with and without SLI. However, including "difficult to classify /idiosyncratic errors" as part of a clinical marker could be problematic in practice: This category is one of exclusion rather than inclusion – in order to ascertain whether a child made such an error, one would first have to establish what is meant by "classifiable errors" before one will be able to deem any error "difficult to classify". The fact that difficult to classify errors are included when considering a clinical marker of SLI in Afrikaans is not a problem per se – Blake et al. (2004) also found such errors, which they called "odd", to be characteristic of the language of their participants with SLI. Rather, the practicalities of classifying errors as difficult-to-classify are the problem.

Bortolini et al. (2002:90-91) state that the notion 'clinical marker' can be interpreted in two ways. The first is that the marker represents a clear symptom of SLI and also a particular cause for this symptom. The second, a weaker interpretation, is that the clinical marker is representative of the symptom without assuming that the symptom reflects a single cause. Conti-Ramsden and Hesketh (2003:252) argue for a third interpretation, namely that a clinical marker (or risk marker) represents a symptom, but that no assumption is made about whether the marker reflects a single cause or that this symptom alone identifies the disorder. "On the contrary, it is assumed that the risk marker is more likely to be used in combination, to complement information available" (Conti-Ramsden and Hesketh 2003:252).

If a composite consisting of the seven measures discussed above is taken to be a clinical marker of SLI in Afrikaans, then 'clinical marker' should here be given the interpretation of Conti-Ramsden and Hesketh: It may be a useful risk marker when used together with other information that a clinician has on the child, but it does not necessarily reflect a particular cause for the symptom(s) which they represent.

8.5. CHAPTER CONCLUSION

In general, the Afrikaans-speaking children with SLI fared on a par with typically developing 4-year-olds and worse than typically developing 6-year-olds on experimental tasks assessing the comprehension and production of grammatical morphemes related to the features number, person, case, and tense. In terms of spontaneous production of morphemes related to these grammatical features, the two typically developing groups fared similarly, with the children with SLI being outperformed by both. A similar pattern was observed for other errors found in the spontaneous language samples. The general observation regarding variability was that most variability occurred in the SLI group.

Discriminant analysis and language sample analysis revealed that a combination of six measures would probably differentiate very successfully between Afrikaans-speaking children with and without SLI. A composite of these measures could possibly act as a clinical marker, although further investigation is required in this regard; the composite could possibly be simplified.

As yet, no explanation has been attempted as to why SLI presents itself the way it does in Afrikaans. In chapter 9, we see that current linguistic accounts do not offer adequate explanations for the way in which SLI presents itself in Afrikaans. An alternative, more comprehensive account of SLI as it presents itself in Afrikaans is therefore given, based on the data obtained in the present study.

Chapter 9

Accounts of SLI as it presents itself in Afrikaans

9.1. INTRODUCTION

In chapter 2, the content of three linguistic accounts of SLI was discussed, namely that of the ATOM, RDDR, and Feature Deficit Hypothesis. In the present chapter, the merit of these accounts will be evaluated and the predictions that they would make for SLI in Afrikaans will be discussed. Then it will be shown that these three accounts of SLI do not, in fact, account for the Afrikaans data presented in this study. An alternative account of SLI as it presents itself in the data of this study is then offered. In short, this account entails that Afrikaans-speaking children with SLI seem to have an intact and well-functioning computational system, but that they experience problems with mapping of syntactic objects (functional morphemes and chains) onto sound representations.

9.2. THE AGREEMENT/TENSE OMISSION MODEL

9.2.1. Merit of the ATOM

Wexler (1994:335) made two related claims that were subsequently incorporated into the ATOM. The first is that a verb will move to TP if there is a TP available in the derivation, and the second that the verb will stay in its base-generated infinitival form if there is no TP. These claims need to be reconsidered, however, for two reasons.

The first reason is that, in Minimalist syntax, the verb is assumed to enter the Numeration in its inflected form; the verb does not receive its inflection by merging with some grammatical morpheme during derivation. For example, when the verb *walked* enters the Numeration, it already has the [past] feature and the relevant phonological features associated with the past tense suffix *–ed*. The tense feature of the verb is semantically interpretable, and need not be checked and eliminated in

order to prevent the derivation from crashing (cf. Hornstein et al. 2005:295). By contrast, the tense feature of the head T of TP is assumed to be semantically uninterpretable, which means that it has to be checked and eliminated in the course of deriving the LF-representation of the sentence (cf. Biberauer and Roberts 2005; Legate 2002:3).[143] Thus, if there is no TP, the verb will not move, neither overtly nor covertly. This does not imply, however, that the verb will necessarily occur in its infinitival form in its base-generated position: In this position, the verb can have any one of the tense forms that it has available in the lexicon. In other words, without a TP in the structure, the verb will only occur in its infinitival form if it has entered the Numeration in that form.

In short then, a verb may occur in its finite form irrespective of whether the structure contains a TP with the appropriate head T. Evidence for the absence of TP should thus not focus on the inappropriate occurrence of infinitival forms, but rather on the absence of overt verb movement in languages in which such movement does occur. If there is no TP, then the finite verb, when it does occur, simply cannot move to such a category. Moreover, the fact that in some languages, such as Afrikaans, the finite and infinitival form of the verb are not distinguishable[144] is also a reason for not focusing on the inappropriate occurrence of infinitival forms as evidence for the absence of the TP (cf. section 3.3.1.5).

The second reason for reconsidering Wexler's (1994:335) proposal concerns the fact that it does not clarify whether, and why, movement takes place overtly or covertly: It is simply assumed that the verb moves to the T if a TP is present in the derivation. Recall, however, that in some languages, such as English, the verb does not move overtly out of the VP before Spell-Out; it does move covertly, though, to check the T's

[143] If one views T as having the semantically interpretable feature, with V having the uninterpretable one (which is possible in principle), then my argumentation against the ATOM prediction regarding the form of unraised verbs does not hold. However, this is generally not assumed, particularly not recently under the Probe-Goal system, where it is crucial that the higher category has an unvalued feature if it is going to act as a probe.

[144] The present tense and historic past tense forms of finite verbs are the same as the infinitival form, e.g., *stap* 'walk' and *om te stap* 'to walk'; the past tense form of finite verbs are not, e.g., *stap* 'walk' and *gestap* 'walk-PAST PART=walked'.

tense feature after Spell-Out[145] (cf. section 3.4.3). In such languages then, feature checking is postponed until after Spell-Out (cf. Hornstein et al. 2005:47). Suppose now that the verb is retrieved from the lexicon in its infinitival form, as Wexler (1994:329) implies is the case for English.[146] Suppose further that TP is indeed selected. If the verb is moved overtly to T, it will be phonologically realised with the appropriate tense morphology. By contrast, if the verb is covertly moved to T – which is generally assumed to be the case in English – the verb will be phonologically realised in its infinitival form. Therefore, the appropriate or inappropriate form of the verb can be explained with reference to whether movement takes place overtly or covertly. More specifically, given the independently required distinction between overt and covert movement, the occurrence of the inappropriate infinitival form of the verb (in both typically developing children and those with SLI) can be explained without reference to the absence/presence of TP. The difference between these two groups of children could then be ascribed to some overt "tense-lowering operation" – where the tense morpheme and the verb merges in the "other" direction, by means of the tense morpheme in I lowering onto the verb in V – which is acquired and successfully used by typically developing children but not by children with SLI. The merit of such an account would be that it does not require a specific assumption about the presence/absence of TP; however, it would require an assumption about tense lowering operations, and it would face the well-known objections against lowering operations (cf. Chomsky 1982b:55,256-7). Alternatively, Wexler and colleagues could reformulate their proposal as follows for English, adopting the overall presence of TP: T can be either (i) specified for tense (and an extended projection principle (EPP)-feature), yielding tensed verbal forms after covert raising of V to T; or (ii) unspecified/underspecified for tense (while still having an EPP-feature), requiring the presence of an infinitival verbal form (i.e., the default form). Nevertheless, as Wexler's proposal stands at present, it does not incorporate the distinction

[145] In English, it is possible to say *John often kisses Mary*, but not **John kisses often Mary*. The verb *kisses* can thus not move overtly from the V to the T. However, in languages such as French, overt verb movement from V to T occurs, as illustrated by the following example, where the verb is *embrasse*: *Jean embrasse souvent Marie*.

[146] According to Wexler (1994:329), where the verb appears without the *–s* (as in *Mary play baseball*), it is the infinitive and not the verb stem which is produced.

between overt and covert movement, which raises questions about its merit.[147]

A further criticism against the ATOM concerns the claim that one would not find utterances such as *Her walks* in the language of children with SLI, where subject-verb agreement and tense are indicated overtly, and the subject pronoun has accusative case. If the subject is taken to originate in the specifier position of the VP (or νP) and there is no TP present in the derivation, then the subject cannot move to the TP. If the subject does not move, one would expect DPs with any case to occur in the subject position of the sentence, because nominal expressions (for example, pronouns in English) are assumed to be retrieved from the lexicon with their case. Because there is no TP to check whether the case of the DP occurring in the subject position is, in fact, the correct case, such DPs can occur in what Wexler calls the "default" case, which is taken to be accusative for English. Because the case feature of the DP can receive a phonetic interpretation,[148] it follows that the occurrence of a DP with the incorrect, accusative case will not cause the derivation to crash at PF. In fact, examples such as *Her walks* do occur relatively frequently in the language of children with SLI (cf. Pine, Rowland, Lieven, and Theakston 2002).

Despite the above criticisms, [149] and although not explicitly stated as such by Rice, Wexler, and colleagues, the ATOM – interpreted within a

[147] Also see the comments in section 3.4.3 on the overt-covert distinction possibly becoming a defunct one (cf. Hornstein et al. 2005:312).

[148] It could, of course, also be that the subject does carry the correct abstract case (NOM), but that this case is given the incorrect sound form, i.e., that an error occurs with the mapping of the morphological information onto the phonological form.

[149] I also take note of (i) the criticism by Rispoli (1999, 2002, 2005) against the ATOM; (ii) Charest and Leonard's (2004) indication that the proposals of the ATOM need to be altered in order to account for their empirical findings; (iii) Joseph, Pine, and Conti-Ramsden's (2002) and Pine, Rowland, Lieven, and Theakston's (2002) finding that there are relatively frequent exceptions to the predictions of the ATOM; and (iv) Pine et al.'s (2002:273) comment that the range of situations in which the predictions of the ATOM can be tested is limited. Pine et al. (2004: 913) word the latter criticism more strongly: "… the ATOM derives much of its power from the fact that it is actually extremely difficult to test". A related criticism is that the "invisibility" of agreement (and subsequent assignment of nominative in the case of [-tense, +agr]) is unfalsifiable, which could lead to the whole proposal being seen as somewhat stipulative. I furthermore take note of Lin's (2006) suggestion that an alternative account – one on

Minimalist framework – seems to account for the following characteristics of SLI:[150]

(i) The use of inappropriate tense markers, as in *Who carry her bag* or *Which door did it creacked?* (from Van der Lely 2004). If the tense feature of the TP is not checked by that of the verb, then it is possible for the verb to have the finite form where the infinitival form would have been required and vice versa, the reason being that the verb does not enter into a tense agreement relation with TP.

(ii) The inappropriate use of accusative case on subject pronouns.

There are, however, characteristics of SLI for which the ATOM does not seem to offer an account. The first is the lower percentage of use of grammatical morphemes. As noted above, verbs are retrieved from the lexicon with their grammatical morphology. The absence of a TP should thus not influence the percentage of use of grammatical morphology, whether on verbs or any other category.[151]

The ATOM can also not account for all word order problems in question constructions. The tree diagrams in (157) and (158) indicate that, even without a TP – i.e., with no T for the verb and no specifier position of TP for the subject to move to – question constructions should still demonstrate the correct surface word order for *wh*-question constructions and *yes/no* ones containing a modal auxiliary.[152] However, as indicated in (159), modal-less *yes/no*-question constructions will not be grammatical – for instance, **You wash the car?* or **Wash you the car?* should in theory occur instead of *Do you wash the car?*. Seeing that there is no T

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which nominative case is assigned by an interpretable mood feature on T – is adopted to account for the findings that children with SLI mark tense better than they do agreement.

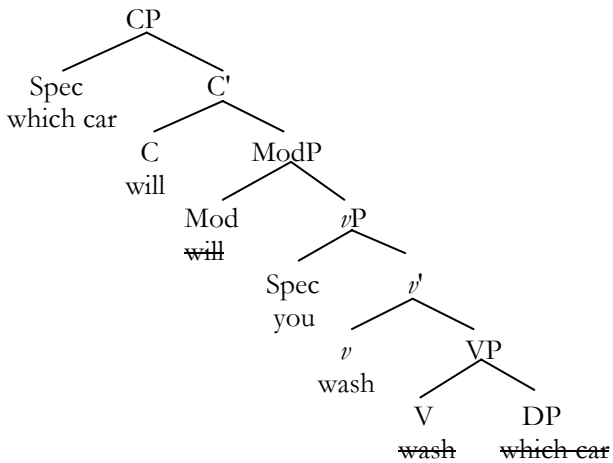
[150] See section 2.3 for a discussion of these characteristics.

[151] Note that this criticism does not apply to Wexler's original proposal, but to my revised interpretation of the ATOM-model, which assumes that verbs enter syntax together with their inflection.

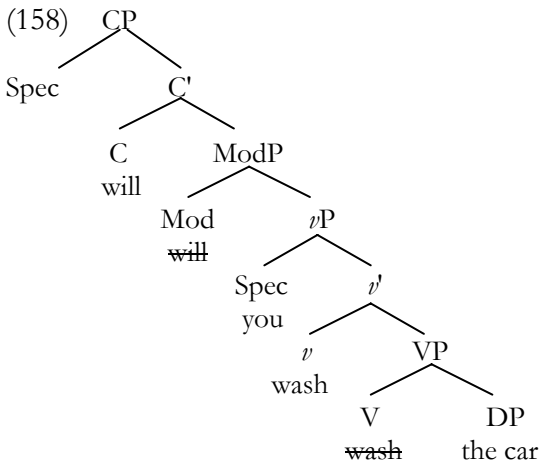
[152] One could also argue that there is indeed a TP present in (157) and (158). More specifically, ModP might be taken to be identical to TP for the reason that modals in English (unlike in languages such as Dutch and Afrikaans) are always [+tense]; i.e., there are no infinitival forms such as *to will/to can/to must* in English.

under which the "dummy" (or expletive) auxiliary *do* can initially occur, *yes/no*-question constructions without *do*-support are to be expected.[153]

(157)

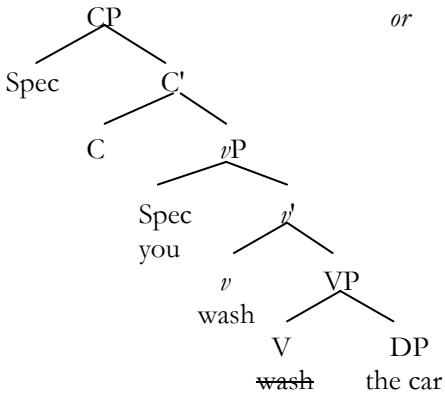


(158)



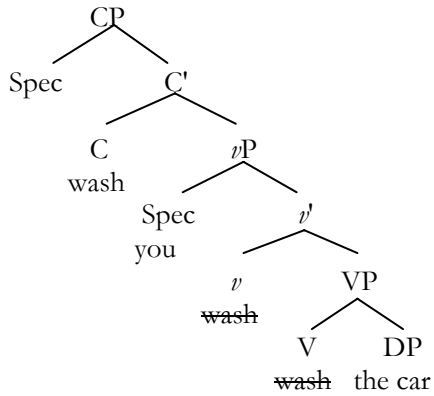
[153] See section 3.4.3 for a brief discussion on English question constructions requiring *do*-support. *Yes/no*-question constructions in which auxiliaries such as *have* and *be* should have occurred are also expected to be ungrammatical, as these auxiliaries are also seen as elements which are merged in the T – and therefore do not have to **move** to the T (cf. Lightfoot 1979, 1991, 1999; Roberts 1985, 1993, 2007).

(159a)



or

(159b)



The ATOM also does not offer an account for the problems in establishing (non-)co-referential relationships and interpreting passive constructions, but these fall outside of the scope of the ATOM.

9.2.2. Predictions of the ATOM for Afrikaans

Recall that, in Afrikaans, the present tense form of all verbs (with the exception of *hê* 'have' and *wees* 'be') resembles the form of the infinitive, that is, a "bare" stem without any realised tense/infinitival marker.[154] For example, *loop* 'walk' occurs in the same form in *Hy loop elke dag* 'He walks every day' and *Hy dink daaraan om te loop* 'He is thinking of walking'. In sentences expressing present tense and containing one or more modal auxiliaries, the tense is indicated on (the first of) these auxiliaries and not on the main verb; the latter appears in the infinitival form. Only in sentences expressing past tense does the phonological form of most main verbs[155] differ from that of the infinitival form; this difference concerns the presence of the prefix *ge-* which is used to form the past participial form. For example, the past participle of *loop* 'walk' is *geloop*, as in *Hy het gister geloop* 'He walked yesterday'. However, in such sentences, specifically those not containing modal auxiliaries, past tense is not indicated on the main verb, but on the (obligatory) temporal auxiliary *het*. Where such sentences do contain modal auxiliaries, past tense is

[154] See section 3.3.1.5 for the various phonological forms of the verbs *hê* and *wees*.

[155] That is, of those which do not contain the derivational prefixes *be-*, *ge-*, *er-*, *her-*, *ont-* and *ver-,* or unstressed *aan-, agter-, deur-, om-, onder-, oor-,* and *voor-* (cf. Donaldson 1993:section 8.5.1).

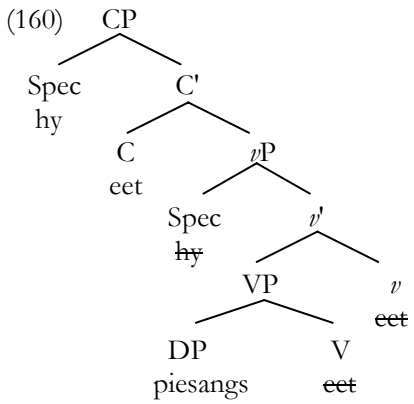
indicated either on (one or more of) these modals[156] or with the temporal auxiliary *het*, in which case the modal auxiliary may occur in either its present tense or its past tense form. For example, *Hy wil geloop het*, *Hy wou geloop het*, and *Hy wou loop*, could all have the same temporal reference.

For Afrikaans then, the ATOM would predict that verbs may occur in their infinitival form in the language of children with SLI. This prediction does not seem to be linguistically significant, however: The present tense verbs must also appear in a form resembling the infinitival form in the language of both typically developing children and adult speakers of Afrikaans. Therefore, this prediction of the ATOM is not testable as far as present tense constructions in Afrikaans are concerned.

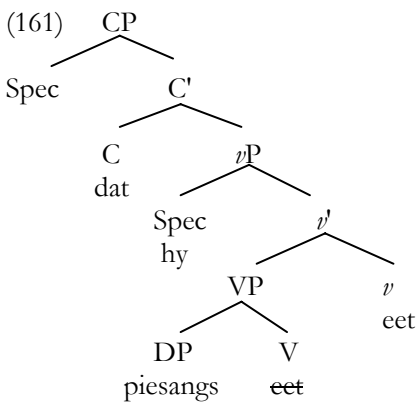
However, the claim made by the ATOM that verbs cannot always move to check the tense feature of the TP (seeing that the TP is not always present) is a potentially significant one. On this claim, the sentences of Afrikaans-speaking children with SLI should have a grammatical word order, if one assumes that (i) Afrikaans is SOV underlyingly, and (ii) the subject is initially merged in the specifier position of *v*P. If there is no TP to which the subject can move, then the subject will still move to the specifier position of CP. The verb will move from the V position to C (instead of moving from V to T and then from T to C), and the object will remain in situ, arguably having its (accusative) case checked under agreement with small *v* at LF (i.e., after the direct object has moved to the specifier position of *v*P). As indicated in (160), this will still render a grammatical surface SVO word order in matrix clauses. Also, in embedded clauses, the (grammatical) surface SOV word order should still be rendered, regardless of whether or not the TP is present. This is illustrated in (161).

[156] The modal then has a different form, e.g., *moes* 'had to' instead of *moet* 'must', or *kon* 'could have' instead of *kan* 'can'.

(160)



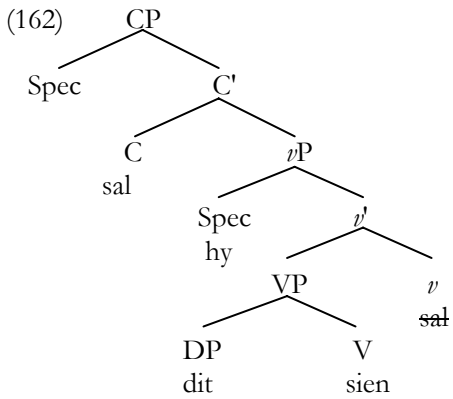
(161)



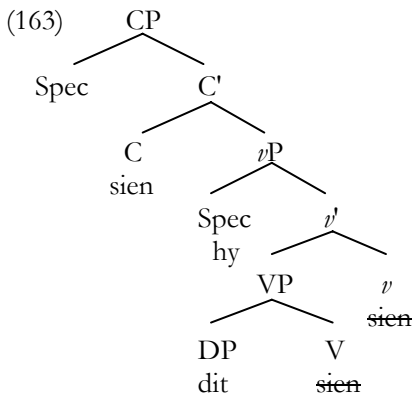
Also, Afrikaans *yes/no*-questions (both those containing a modal auxiliary and those without a modal), as well as *wh*-questions, should demonstrate the grammatical surface word order, regardless of the presence or absence of the TP. This is illustrated in (162), (163), and (164), respectively.

One prediction that the ATOM then makes is that the utterances of Afrikaans-speaking children with SLI should demonstrate correct word order in main clauses.

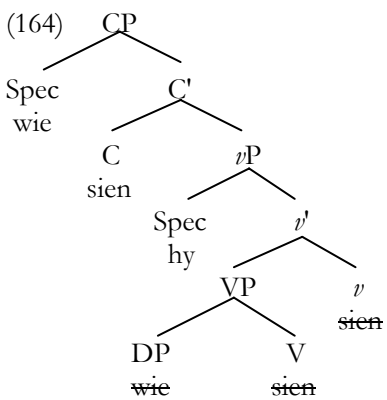
(162)



(163)



(164)



Regarding subject pronoun case, it is unclear what the ATOM predicts for the language of Afrikaans-speaking children with SLI. The reason for this is that it is not obvious, on Schütze and Wexler's (1996:671) analysis,

what the default case would be in Afrikaans.[157] Schütze and Wexler (1996:671) claim that English differs from a language like German, in the sense that the default case in English is accusative, whereas it is nominative in German. They present the following English (165) and German (166) examples to illustrate this point.

(165a) Me/*I, I like beans
(165b) Who did it? – Me/*I
(165c) Me/*I too
(165d) It's us/*we
(165e) What? Me/*I cheat on you? Never!

(166a) Was? Ich/*Mich dich betrügen? Nie!
'What? I/Me cheat on you? Never!'
(166b) Der, den habe ich gesehen[158]
'He, him I saw'
(166c) Lass mich dein/*deinen Liebhaber sein
'Let me-ACC be your-NOM/your-ACC lover'
(166d) Der/?Dem Hans, mit dem spreche ich nicht mehr
'Hans-NOM/DAT, with him I do not speak anymore'

The Afrikaans equivalents of the English examples in (165a-c) and (165e) are given in (167) below. An Afrikaans equivalent of example (165d) is not given – but an example with the first person singular is given in its stead – as *we* and *us* have the same sound form in Afrikaans, namely *ons*.

(167a) *My/Ek, ek hou van boontjies
'Me/I, I like beans'
(167b) Wie het dit gedoen? – *My/Ek
'Who did it? – Me/I'
(167c) *My/Ek ook
'Me/I too'
(167d) Dis ek/*my
'It's I/me'

[157] In fact, it is not clear what should be understood under 'default case' in general under Wexler's analysis.

[158] In this construction, hanging topic left dislocation occurs. However, a construction with contrastive left dislocation, as shown in (i), is also acceptable.

(i) Den Hans, den kenne ich nicht
'Hans-ACC, him I don't know'

(167e) Wat? *My/Ek jou verkul? Nooit nie!
'What? Me/I cheat on you? Never!'

On the one hand, it would appear from (167) that Afrikaans differs from English in terms of default case. The default case in English is claimed to be accusative, but the same cannot be claimed for Afrikaans. On the other hand, Afrikaans also appears to differ from German, for which the default case is claimed to be nominative. As regards example (166a), Afrikaans and German are the same. However, Afrikaans resembles English and not German as regards constructions similar to that given in example (166b), as shown in (168).[159,160]

(168a) *Ek/My, my het hy geslaan
'I/Me, me he hit'
(168b) *Sy/Haar, haar het hy gesien
'She/Her, her he saw'

When considering the examples in (167) and (168), it appears that the default case in Afrikaans is not obviously either nominative or accusative. However, one could argue that the left-most *ek/my* in (168a) and *sy/haar* in (168b) are fronted, with the second instance being a repetition; i.e., the *ek/my* and *sy/haar* are not base-generated in a left peripheral topic position.[161] If this is the case, then the examples in (168) should receive less emphasis when considering default case than those in

[159] The Afrikaans equivalents of examples (166c-d) do not provide evidence as to the default case of Afrikaans: (166c) translates as *Laat my jou liefling wees*, where the second-person pronoun will be *jou* regardless of its case. However, a sentence such as *Laat ek jy/*jou wees en jy ek/*my* 'Let me be you and you be me' clearly shows that predicate nominals bear nominative case in Afrikaans. In (166d), Afrikaans would not permit an article before the proper noun, and even if it did, the form of the article would be *die*, regardless of the case of the DP *die Hans*.

[160] As mentioned in note 158, it should be possible to have a contrastive left dislocated constituent with accusative case in German. *Mich, mich hat er geschlagen* 'Me, me he hit' should therefore also be acceptable (similar to *Mij, mij heeft ie geslagen* being acceptable in Dutch). If this is the case, then Afrikaans resembles both English and German in this respect.

[161] Compare English *wh*-question constructions such as *Who (yes) who did it?*, Dutch ones such as *Wie (ja) wie heeft het gedaan?*, and Afrikaans ones such as *Wie (ja) wie het dit gedoen?*, where the left-most *wh*-element is not base-generated in this left-most position but is rather a repeated *wh*-element.

(167), in which case the default case in Afrikaans, based on (167), could be taken to be nominative.

In short, it is not entirely clear what the ATOM would predict in terms of subject pronoun case in the language of Afrikaans-speaking children with SLI. However, recall the above criticism against the claim that utterances such as *Her walks* – with the subject pronoun in the accusative case – should not occur in the language of children with SLI: Seeing that there is nothing against which the case of the retrieved pronoun can be checked, subject pronouns should be able to enter the Numeration with any and all case features available in the grammar. The prediction is then that utterances such as those in (169) should occur in the language of Afrikaans-speaking children with SLI. However, the case feature on the pronoun is uninterpretable and thus in need of checking in order to keep the derivation from crashing. It is therefore not clear why a derivation rendering **Hom/*Sy sien my* would, in fact, converge.[162]

(169a) Hy sien my
He-NOM see me
'He sees me'
(169b) *Hom sien my
Him-ACC see me
'Him sees me'
(169c) *Sy sien my
His-GEN see me
'His sees me'

Finally, the ATOM makes no prediction regarding the production and comprehension of (non-)co-referential relationships and passive constructions; these aspects fall outside of the scope of the ATOM. Hence, it is not possible to predict on the basis of this proposal whether Afrikaans-speaking children with SLI will experience difficulties when compared to their typically developing peers.

[162] That is, given the ATOM, it is not clear. However, an explanation for this is given in section 9.6.3.

9.2.3. Are the predictions of the ATOM for Afrikaans borne out?

As stated above, the ATOM would predict that Afrikaans verbs may occur in their infinitival form in the language of children with SLI. As these verbs must also appear in a form resembling the infinitival one in the language of both typically developing children and adult speakers, this prediction was judged to be linguistically insignificant. The only present tense verb forms which may potentially have been interesting, were those of *have* and *be*, for which the infinitival form and the inflected form differ. Unlike what was predicted by the ATOM, the Afrikaans-speaking children with SLI did not produce utterances such as (170) and (171), where *have* and *be* occur in their infinitival form. Interestingly, one girl with SLI did the reverse: She used the inflected form of *be* (i.e., *is*) instead of the infinitival one (*wees*), as illustrated in (172).[163]

(170)	*Target:*
sy hierdie mannetjie hê	sy het hierdie mannetjie
she this figurine have-INF	she have this figurine
'She has this figurine'	

(171)	*Target:*
hy hier wees	hy is hier
he here be-INF	he be here
'He is here'	

(172)	*Target:*
moet daar nog 'n wit ding in is	daar moet nog 'n wit ding in wees
must there still a white thing in is	there must still a white thing in be
'There must still be a white thing in there'	

A second possible prediction that the ATOM made for Afrikaans was that utterances of Afrikaans-speaking children with SLI will demonstrate the correct surface word order, under the assumption that XPs can move to the specifier position of CP and V can move to C in main clauses. This was not always the case. Simple declaratives with SOV and embedded sentences with SVO occurred, as shown in (173) and (174), respectively.

[163] This girl did not produce *wees* at all in the 30 minute language sample. She did produce grammatical utterances containing *is*; however, she also at times omitted *is* from obligatory contexts.

(173)	*Target:*
hy vir ons jok	hy jok vir ons
he for us lie	he lie to us
'He is lying to us'	

(174)	*Target:*
seker maar daai wit hondjie wat se naam is Nuschka	seker maar daai wit hondjie wat se naam Nuschka is
probably just that white doggie whose name be Nuschka	probably just that white doggie whose name Nuschka be
'Probably that white doggie whose name is Nuschka'	

As stated above, it is not entirely clear what the ATOM would predict in terms of subject pronoun case in the language of Afrikaans-speaking children with SLI, as it is not clear what the default case is in Afrikaans. However, as stated, seeing that there is nothing against which the case of the retrieved pronoun can be checked, subject pronouns could possibly be expected to occur in any and all cases available in the lexicon. This prediction was not borne out by the Afrikaans data: No utterances such as **Hom sien my* 'Him sees me' or **Sy sien my* 'His-GENITIVE sees me' were found. However, three children with SLI did make errors on subject pronouns. Unlike what the ATOM would predict, these errors were not related to case, but rather were errors of omission, such as those shown in (175).

(175)	*Target:*
sien nie die bedde nie	ek(?) sien nie die beddens nie
see not the beds not	I(?) see not the beds not
'I(?) do not see the beds'	

9.3. THE REPRESENTATIONAL DEFICIT FOR DEPENDENT RELATIONS HYPOTHESIS

9.3.1. Merit of the RDDR

As mentioned in section 2.4.2, Van der Lely (2003:126, 2004) stated that she works within Chomsky's (1995a) Minimalist Programme in her analysis of the language problems of children with SLI, although the RDDR is not "tied to" this programme. Perhaps then, one could view the ongoing revision of the RDDR (and now the Computational

Complexity Hypothesis), first proposed in 1994, as an attempt to keep abreast with developments in Minimalist syntax. However, Van der Lely seems to adopt a rather eclectic approach when deciding which principles of Minimalist syntax to incorporate into the RDDR. For example, she provides the following explanation for the problems that children with SLI experience with the interpretation of (certain types of) passive constructions: "The SLI children seem to have a specific problem ... with the representation of the movement of the internal argument to the subject position where it receives case and its thematic role" (Van der Lely 1996:267-8). As regards case, one can argue that, in 1996, Van der Lely was simply working within an older version of syntactic theory. For this reason, she refers to case as being assigned, rather than being checked, as has been proposed since Chomsky (1993). However, the same cannot be said of her statement that the internal argument moves in order to receive a thematic role: Since the earliest proposals presented within the principles and parameters approach, it has been assumed that arguments receive their thematic roles in the sentence positions in which they are initially generated, specifically before any movement operations are performed (Haegeman 1994:310; O'Grady 1997:289). Thus, the claim that arguments cannot receive certain thematic roles because they do not undergo movement, does not concur with assumptions about theta-role assignment in Minimalist syntax (nor with such assumptions in previous theories within the principles and parameters approach). On more than one occasion, Van der Lely states that the RDDR offers an explanation for the problems children with SLI experience with the interpretation of passive constructions (see, e.g., Van der Lely 1996:267, 2003:127, 2004). This statement, however, only holds true if one accepts a key assumption which is contrary to that of the syntactic framework in which she claims to work. If not, the RDDR does not fully explain the problems these children have with the interpretation of passive constructions.

Furthermore, Van der Lely and Stollwerck (1997) claim that the RDDR can explain why children with SLI experience problems in understanding (non-)co-referential relationships. Typically, such children find it difficult to correctly interpret personal and reflexive pronouns in constructions where syntactic knowledge – and not (only) semantic clues or real-world knowledge – is required to determine the referents of such pronouns, as in *Is Mowgli tickling him?*, *Baloo Bear says that Mowgli is tickling himself*, and

The boy says that every monkey is washing himself (Van der Lely and Stollwerck 1997:275). In short, one needs knowledge of the (non-)co-referential relationships between personal pronouns, reflexive pronouns, and DPs to understand to what/whom they (can) refer (cf. section 3.4.4.3). On the RDDR, children with SLI find the interpretation of sentences like those above difficult because these children fail to establish the syntactic relationships required for the relevant (non-)co-referential interpretations.[164]

The RDDR does seem to provide an account of the problems that children with SLI have with the production of passive constructions and other constructions involving Move (such as those involved in question formation). As noted in section 2.4.2, Van der Lely (1996:246) claims that the RDDR can explain (i) why the phonological realisation of grammatical features is optional in the language of children with SLI, and (ii) why this optionality involves omission of such features in obligatory contexts rather than insertion in inappropriate contexts. On her explanation, the tense feature is phonologically realised if it has been checked; if it is not checked, it will be absent from the phonological form of the utterance and the verb will accordingly appear in its infinitival form. It is indeed the case that children with SLI optionally realise features phonologically (in other words, that they sometimes pronounce an obligatory morpheme and at other times not). However, Van der Lely's explanation is incompatible with the Minimalist assumption that lexical items enter the Numeration in their inflected form. Given this assumption, the phonetic realisation of grammatical features is not dependent on Move, and the verb will only appear in the infinitival form if it entered the Numeration in that form. If the verb entered the Numeration in the finite form, that form (and therefore the obligatory grammatical morpheme) will appear, regardless of whether or not Move occurs. In short, if the form of the verb is not a reliable indicator of whether movement has occurred, then the RDDR does not provide an adequate explanation for the omission of grammatical morphemes in the

[164] It appears that this explanation for the problem with the interpretation of (non-)co-referential relationships is not related to the optionality of the second principle that Van der Lely (2003:127) claims to be involved in movement (cf. section 2.4.2). What is at issue here is the "complexity of syntactic dependent relationships between constituents" (Van der Lely and Stollwerck 1997:282).

language of children with SLI.[165] The reason why the RDDR's explanation is not adequate is because the verb's phonological form is not dependent on the application of Move.

Moreover, it is not the case that children with SLI only (optionally) omit grammatical morphemes; they also sometimes insert such morphemes into inappropriate contexts, as shown in the **You got a tape recorders* (Gopnik 1990a:147) example given in chapter 2. The RDDR, in its current form, offers no explanation for the latter phenomenon.

9.3.2. Predictions of the RDDR for Afrikaans

According to Van der Lely (2003:127), the operation Move is optional in the grammar of children with SLI. Accordingly, a first consequence of the RDDR would be that the utterances of Afrikaans-speaking children with SLI should demonstrate varying word order. Specifically, in simple declaratives, the surface SOV order should occur frequently, as this is the order that will result if no movement takes place. Similarly, *wh*-questions in which the *wh*-phrase did not move from its original underlying position should also occur, rendering forms such as **Jy wat doen?* 'You what do?' instead of *Wat doen jy?*. However, other surface word orders should, at least in principle, occur equally frequently. For example, sentences with the surface SVO main clause order, such as *Ek eet druiwe* 'I eat grapes', should occur, with the verb *eet* moved to the left, but the object *druiwe* remaining in its initial underlying position.

Secondly, in terms of the RDDR, Afrikaans-speaking children with SLI should have difficulties understanding and producing passive constructions – although, as pointed out above, Van der Lely's reasons for why children with SLI experience problems with these constructions are not entirely clear. A third consequence of the RDDR would be that Afrikaans-speaking children with SLI should experience problems in interpreting and producing constructions in which co-referential relationships occur.

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[165] I acknowledge that this criticism of RDDR is highly "theory-internal", i.e., strictly related to the perspective of Chomsky's (1995a) Minimalist Programme. Some of Van der Lely's proposals might be compatible with a Distributive Morphology approach, where functional heads are spelled out late in the derivation, i.e., after syntactic computation.

Recall that Van der Lely (1996:246) states that the RDDR can explain (i) why children with SLI appear to use grammatical morphemes optionally, and (ii) why this optionality involves omission of such morphemes in obligatory contexts and not insertion in inappropriate contexts. Although the reasons she provides for these claims are open to criticism, as pointed out above, her prediction would be that Afrikaans-speaking children with SLI sometimes inappropriately omit grammatical morphemes but do not insert them into inappropriate contexts.

9.3.3. Are the predictions of the RDDR for Afrikaans borne out?

The prediction of the RDDR that Afrikaans-speaking children with SLI should produce utterances with varying word order was not borne out by the data. Simple declaratives almost exclusively demonstrated the surface verb-second order (and not the SOV one which would occur if no movement takes place). Furthermore, *wh*-questions in which the *wh*-phrase did not move from its original underlying position did not occur. In other words, *wh*-movement does not appear to apply optionally in *wh*-question constructions produced by Afrikaans-speaking children with SLI. Question constructions (whether of the *wh*-kind or not) mostly demonstrated a grammatical word order, as shown in (176) and (177).

(176)
hoekom gaan daai een so?
why go that one so
'Why is that one going like that?'

(177)
soek jy 'n bed?
look-for you a bed
'Would you like a bed?'

Question constructions with a verb-second order did occur, but not ones containing a *wh*-element. An example of such (acceptable) forms is given in (178). Where question forms were not grammatical, the ungrammaticality lay mainly with the omission of constituents or single words, rather than with their position in the construction – as shown in (179) and (180), the meaning of the latter example being unclear.

(178)
ek kan maar dit afhaal?
I can just it off-take
'It's OK for me to take this off?'

(179)
*waar die yskas dan?
where the fridge then
'Where is the fridge then?'

Target:
waar is die yskas dan?
where be the fridge then

(180)
kan ek nie dit ander mense nie?
can I not this/it other people not?

Regarding the prediction in terms of the RDDR that Afrikaans-speaking children with SLI have difficulties understanding and producing passive constructions, this is difficult to assess, seeing that passives occurred at a very low rate in the language of all three groups of children, even in that of the typically developing 6-year-olds. In total, only one "full" passive construction was found in the first 30 minutes of the 45 language samples (22.5 hours in total).

As stated above, a third consequence of the RDDR would be that Afrikaans-speaking children with SLI experience problems in interpreting and producing constructions in which co-referential relationships occur. As was the case for passive constructions, these constructions were not tested by the experimental tasks, so evidence needs to be sought in the language samples. Like passive constructions, constructions in which co-referential relationships occur were not produced frequently – eight times in total in the first 30 minutes of the language samples: twice by typically developing 6-year-olds; twice by 4-year-olds; and four times by children with SLI (in total, seven children produced a construction in which co-referential relationships occurred). Of these eight constructions, not one contained a *–self* form (as in *Hy trek homself aan* 'He dresses himself'); all eight were *mekaar* 'each other / one another' forms as in (181), produced by a typically developing 6-year-old girl. One of these, produced by a boy with SLI and given in (182), was ungrammatical.

(181)
en ek het lanklaas gesien hoe gee hulle vir mekaar 'n soentjie
and I did not-for-a-long-while see-PAST PART how give they for each-other a kiss-DIM
'And it has been a long while since I saw them giving each other a kiss'

(182)	*Target:*
as daar nog 'n kas is dan moet ons	as daar nog 'n kas is dan moet ons
hom ook op mekaar sit	hom ook op die ander sit
if there another cupboard is then	if there another cupboard is then
must we him also on each other put	must we him also on the other put

'If there is another upboard, we must put him on the others too'

A fourth prediction of Van der Lely for the language of Afrikaans-speaking children with SLI was that grammatical morphemes would sometimes be omitted inappropriately but not inserted into inappropriate contexts. This prediction was not borne out by the Afrikaans data. Although errors of omission were far more frequent than those of insertion, the latter did also occur.

9.4. THE FEATURE DEFICIT HYPOTHESIS

9.4.1. Merit of the Feature Deficit Hypothesis

Recall that on the Feature Deficit Hypothesis, SLI is the result of a deficit in the knowledge of rules regarding the morphological marking of a specific class of linguistic features, and that this deficit is claimed to result in an inability to formulate implicit grammatical rules. The characteristics of SLI that the Feature Deficit Hypothesis seems to account for are the following:

(i) The insertion of grammatical morphemes in inappropriate contexts. This could occur when the incorrect memorised form (the one with phonologically realised grammatical morphology instead of the one without) is selected.

(ii) A lower percentage of use of grammatical morphemes. This could occur if the memorised form without the phonologically realised grammatical morphology is more often selected than the one with the relevant morphology.

However, Gopnik's hypothesis seemingly fails to account for the following characteristics of the language of persons with SLI, because an explanation for these characteristics of SLI falls outside of the scope of her account:

(i) Word order problems in question constructions.
(ii) Problems in establishing (non-)co-referential relationships.[166]
(iii) Difficulty in interpreting passive constructions, which Gopnik (1990b) did not find to be problematic for her participants with SLI.

A further potential criticism against Gopnik's hypothesis concerns the increased burden on lexical acquisition in the case of people with SLI. For English-speaking people with SLI, memorising **every** stem as well as **each** of its inflected forms (e.g., *walk*, *walked*, *walking*, *walks*) should, at least in principle, be possible, given the relatively impoverished system of morphological inflection in English. However, relying on rote learning to compensate for a lack of implicit grammatical rules would place an intolerably high burden on the lexical memorisation by speakers of languages with a significantly higher number of inflected forms for lexical items.[167] This raises questions about the cross-linguistic generalisability of Gopnik's hypothesis.

9.4.2. Predictions of the Feature Deficit Hypothesis for Afrikaans

In terms of Gopnik's Feature Deficit Hypothesis, there are at least five predictions which could be made about the language of Afrikaans-speaking children with SLI. Firstly, such children should find it difficult to consistently use the correct singular vs. plural forms of nouns; hence they would have to rely on memorisation to determine the plural form of each noun. To a certain extent, this is what typically developing Afrikaans-speaking children have to do as well: There is no single default rule for forming Afrikaans plurals, unlike for English, where "add *–s* to the singular form" will result in a high level of accuracy. Furthermore,

[166] Note that, if pronouns are taken to be essentially spelled out feature bundles, then problems in establishing (non-)co-referential relationships might also be related to the difficulties children with SLI experience with the features of pronominal forms.
[167] For example, according to Pinker (1994:127), Greek has about 350 and Turkish up to 2 million forms for each verb.

there are many exceptions to the pluralisation rules in Afrikaans (cf. section 3.3.1.1). In contrast to nouns, number is not indicated through affixation on personal and possessive pronouns, but rather through a difference in the way they are spelled out phonologically. The resulting phonological forms have to be memorised by all speakers of Afrikaans, because, as in English, there is no generic rule for forming the plural counterpart of a singular personal or possessive pronoun (i.e., the "add *–s* to the singular form" rule cannot be applied to these pronouns). Because all speakers of Afrikaans must memorise all plural forms of pronouns and many plural forms of nouns, Gopnik's hypothesis makes no interesting prediction for the language of Afrikaans-speaking children with SLI as regards their use of plural forms. The prediction it does make is that Afrikaans-speaking children with and without SLI should demonstrate more or less the same level of accuracy in using plural forms.

A second prediction of the Feature Deficit Hypothesis concerns grammatical gender. As this is not overtly expressed in Afrikaans, it is predicted that the language of Afrikaans-speaking children with SLI should not demonstrate any problems in this regard.[168]

The third prediction concerns the grammatical expression of person and case. In Afrikaans, verbs are not inflected for person; however, person and case are phonologically indicated on personal and possessive pronouns – through variation in sound, not through affixation. On Gopnik's hypothesis then, Afrikaans-speaking children with SLI should at times use the incorrect form of the pronoun (e.g., *julle* 'you-PL' instead of *hulle* 'they'). However, this same prediction should hold for typically developing Afrikaans-speaking children as well. In short, because the

[168] As noted in section 3.3.1.3, in Afrikaans, semantic gender is indicated on some nouns denoting people and (less commonly) animals, mostly by the use of derivational suffixes (cf. note 49). Whether semantic gender is indicated phonologically in the form of suppletion, affixation, compounding, or not at all, has to be learnt by all speakers of Afrikaans. On Gopnik's hypothesis, Afrikaans-speaking children with SLI may at times use the noun denoting a male entity where a noun denoting a female one should have been used and vice versa. However, as there is no single implicit rule for expressing semantic gender in Afrikaans, the same prediction should hold for typically developing Afrikaans-speaking children. Again, on the Feature Deficit Hypothesis, Afrikaans-speaking children with and without SLI should demonstrate the same level of accuracy in using nouns denoting semantic gender.

phonological form of Afrikaans personal and possessive pronouns cannot be derived in terms of a default grammatical rule, **all** children need to memorise the correct phonological form of these pronouns.

The fourth prediction relates to the phonological realisation of tense. As mentioned in section 3.3.1.5, tense is not phonologically indicated on (the vast majority of) main verbs in Afrikaans. The present tense form of the main verb is the same as the infinitival form.[169] Past tense can be indicated by using any of the following:

(i) The temporal auxiliary *het* and the past participial form of the main verb, as can be seen in (183) below.
(ii) The past tense form of the modal auxiliary/-ies and the infinitival form of the main verb, as in *sou slaap* 'would have slept' and *sou moes kon slaap* 'would have had to be able to sleep'.
(iii) The past tense form of the modal auxiliary/-ies, the temporal auxiliary *het* and the past participial form of the main verb, as in *sou geslaap het* 'would have slept' and *sou moes kon geslaap het* 'would have had to be able to sleep'.
(iv) The present tense form of the modal auxiliary, the temporal auxiliary *het* and the past participial form of the main verb, as in *sal geslaap het* 'would have slept' and the less common *sal moet kan geslaap het* 'would have had to be able to sleep'.
(v) The present tense form of the main verb, which is phonologically identical to the infinitival form, in contexts where past tense is denoted by an AdvP, as can be seen in (184).

(183)
Toe ons daar gekom het, het hulle geslaap
when we there come-PAST PART did did they sleep-PAST PART
'When we came there, they slept'

(184)
Toe ons daar kom, slaap hulle
when we there come sleep they
'When we came there, they slept'

Note that (183) and (184), which are paraphrases of each other, can both also be paraphrased as (185) and (186).

[169] Compare *slaap* 'sleep' and *verkies om te slaap* 'prefer(s) to sleep'.

(185)
Toe ons daar gekom het, slaap hulle
when we there come-PAST PART did sleep they
'When we came there, they slept'

(186)
Toe ons daar kom, het hulle geslaap[170]
when we there come did they sleep-PAST PART
'When we came there, they slept'

On Gopnik's hypothesis, Afrikaans-speaking children with SLI should experience difficulty acquiring the past tense rules in (i) to (v) above. Utterances such as the following should therefore appear in the language of these children.[171]

(187)
Hulle slaap
they sleep
'They sleep'

Target:
Hulle het geslaap
they did sleep-PAST PART
'They slept'

(188)
Hulle sal slaap
they will sleep- INF
'They will sleep'

Target:
Hulle sou slaap
they will-PAST sleep- INF
'They would have slept'

(189)
Hulle het slaap
they did sleep-INF
'They slept'

Target:
Hulle het geslaap
they did sleep-PAST PART
'They slept'

(190)
Hulle geslaap
they sleep-PAST PART
'They slept'

Target:
Hulle het geslaap
they did sleep-PAST PART
'They slept'

[170] Besides the meaning indicated by the English translation, this sentence can also have the meaning 'When we came there, we discovered that they had (previously) been sleeping'.
[171] Examples (187) and (188) are ungrammatical on the intended meaning; examples (189) and (190) are ungrammatical regardless of intended meaning.

Finally, as noted above, Gopnik's Feature Deficit Hypothesis does not seem to offer any account for the difficulties children with SLI experience with the production and interpretation of question constructions, (non-)co-referential relationships, and passive constructions. Accordingly, it is not clear whether, on this hypothesis, Afrikaans-speaking children with SLI should experience difficulties in this regard when compared to their typically developing peers.

9.4.3. Are the predictions of the Feature Deficit Hypothesis for Afrikaans borne out?

There were at least five predictions made about the language of Afrikaans-speaking children with SLI, in terms of Gopnik's Feature Deficit Hypothesis. The first was that such children should find it difficult to consistently use the correct singular vs. plural forms of nouns; hence, they would have to rely on memorisation to determine the plural form of each noun. Recall that, due to the nature of the Afrikaans plural system, the actual prediction is that Afrikaans-speaking children with and without SLI should demonstrate more or less the same level of accuracy in using plural forms. This prediction was not borne out by the Afrikaans data: The 6-year-olds with SLI were outperformed by those without SLI.

The second prediction concerned grammatical gender. As such gender is not encoded in Afrikaans, it was predicted that the language of Afrikaans-speaking children with SLI should not demonstrate any problems in this regard. No task specifically assessed grammatical gender; therefore, it is not possible to state whether or not this hypothesis was supported.

The third prediction concerned the grammatical expression of person and case: Afrikaans-speaking children with and those without SLI should at times use the incorrect form of the pronoun. This prediction was not fully borne out by the Afrikaans data. The typically developing 6-year-olds fared better than those with SLI and better than the 4-year-olds in terms of both elicited and spontaneous production of pronouns. Certain errors of case (on both pronouns and *se*-constructions) were made by the 6-year-olds with SLI but not by those without SLI.

The fourth prediction related to the phonological realisation of tense: Afrikaans-speaking children with SLI should experience difficulty acquiring past tense rules, and utterances such as **Hulle slaap* (meaning 'They slept') instead of *Hulle het geslaap* 'They slept' should therefore appear in their language. However, no evidence of this error type was found in the spontaneous language samples. Furthermore, it was not possible to assess whether such forms occurred inappropriately in the experimental task or not: Such forms did indeed occur frequently, but had to be taken as being appropriate, as the researcher provided the adverb *gister* 'yesterday', which then permitted the use of the historic present tense, as in *Gister slaap hulle* 'Yesterday they slept'. Likewise, the inappropriate occurrence of utterances such as **Hulle sal slaap* instead of *Hulle sou slaap* was not determinable by the experimental tasks, and there was no evidence of this error type in the spontaneous language of any of the groups.

It was also predicted that utterances such as **Hulle het slaap* instead of *Hulle het geslaap* would occur. This error type was not made by any of the 4-year-olds and occurred only once in the language samples of the typically developing 6-year-olds: A girl produced the utterance given in (191).

(191)	*Target:*
dit was toe ek vir jou wag het	dit was toe ek vir jou gewag het
it was when I for you-SGL wait-INF did	it was when I for you-SGL wait-PAST PART did

'It was when I waited for you'

By contrast, this error was made four times in the first 100 utterances of language samples of the children with SLI and another 14 times in the remainder of the 30 minutes. Two examples are given in (192) and (193), the latter concerning a particle-verb.

(192)	*Target:*
ons het kyk 'n puppet show	ons het 'n puppet show gekyk
we did watch-INF a puppet show	we did a puppet show watch-PAST PART

'We watched a puppet show'

(193)	*Target:*
daai klein kleintjie het hy heel melk opdrink?	daai klein kleintjie het hy al sy melk opgedrink?
that little little-one did he whole milk up-drink-INF	that little little-one did he all his milk up-drink-PAST PART

'That little one, did he finish all his milk?'

The omission of the temporal auxiliary *het* occurred only in the language of the children with SLI: six times in the first 100 utterances and 11 times in the remainder of the 30 minutes. Examples of such errors are given in (194) and (195).

(194)	*Target:*
hy jy bed gesteel	hy het jou bed gesteel
he you-SGL-NOM bed steal-PAST PART	he did your-SGL bed steal-PAST PART

'He stole your bed'

(195)	*Target:*
jy moet nie geloop nie	jy moet/moes nie geloop het nie
you-SGL must not walk-PAST PART not	you-SGL must/must-PAST not walk -PAST PART did not

'You were not supposed to walk' / 'You should not have walked'

Finally, on Gopnik's Feature Deficit Hypothesis, it is not clear whether Afrikaans-speaking children with SLI should experience difficulties in terms of the production and interpretation of passive constructions, (non-)co-referential relationships, and question constructions when compared to their typically developing peers. As stated in section 9.3.3, passive constructions and those containing co-referential relationships had a very low rate of occurrence in the language samples of all three groups of children, making it difficult to draw any conclusion regarding these constructions. In terms of question constructions, the children with SLI made errors not found in the language of the typically developing 6-year-olds. However, these errors mostly related to the omission of words or constituents, and definitely not to grammatical morphemes.

9.5. SUMMARY: PREDICTIONS OF THE THREE ACCOUNTS FOR SLI IN AFRIKAANS

Research question 5 asked whether or not the predictions made for the language of Afrikaans-speaking children with SLI by some current theoretical accounts of SLI are borne out by the Afrikaans data obtained in this study. Support was found neither for the three predictions of the ATOM nor for the four of the RDDR. Of the five made by the Feature Deficit Hypothesis, one was partly borne out.

Apart from the fact that the accounts of SLI examined here do not make useful predictions for the language of Afrikaans-speaking children with SLI, the children with SLI in the present study made errors in their spontaneous language production which fall outside the scope of these accounts. Therefore, it appears that there is a need for an alternative account of SLI as it presents itself in Afrikaans. In the next section, an attempt is made to address this need.

9.6. AN ALTERNATIVE ACCOUNT OF SLI AS IT PRESENTS ITSELF IN AFRIKAANS

9.6.1. Background

A general assumption was that Minimalist syntax has the potential to offer interesting explanations for the problems that children with SLI experience with grammatical morphology and constituent movement. In chapter 3, it was said that the assumptions and devices of Minimalist syntax could make it possible to give a unified explanation of apparently unrelated phenomena (i.e., problems with grammatical morphemes, word order, question and passive constructions, and co-reference) in terms of the devices of feature checking and movement – in the sense that movement is driven by the need for feature checking in order to prevent a derivation from crashing. In this section, we investigate whether this is indeed the case: Can an account for the language problems of the Afrikaans-speaking children with SLI be offered in terms of these assumptions and devices of Minimalist syntax?

Before examining whether or not this is possible, another look is taken at exactly what needs to be accounted for. In section 9.6.2, the error

patterns regarding the grammatical features number, person, case, and tense are discussed separately. The purpose of this discussion is to establish exactly what it is that a theoretical account of SLI has to account for, i.e., how SLI presents itself in Afrikaans in terms of problems with these four features. Then, in section 9.6.3, an attempt is made at offering an explanation for these errors in term of the devices of Minimalist syntax. The utterances with ungrammatical word order produced by the Afrikaans-speaking children with SLI are re-examined in section 9.6.4. In section 9.6.5, we consider whether the problems regarding the morphological expression of grammatical features and those pertaining to word order are explainable as two types of manifestation of one underlying problem in the grammar of Afrikaans-speaking children with SLI.

9.6.2. Another look at the errors pertaining to grammatical features

In terms of the comprehension of the grammatical feature **number**, there were differences between the three groups of children, but no clear pattern could be detected in these differences (except that the typically developing 6-year-old group fared well and the other two groups almost equally poorly). An account of SLI as it presents itself in Afrikaans does not have to explain these differences, given the small number of items involved and the fact that the children with SLI and the 4-year-olds performed similarly to a great extent. The comprehension of number by the children with SLI could therefore be merely delayed, but probably not deviant.

In terms of the elicited production of plural forms of both real and nonsense words, it appeared that the children with SLI presented with a delay: There were differences between the SLI and typically developing 4-year-old groups on certain items, but, in general, the children with SLI and the typically developing 4-year-old group omitted the plural morpheme a similar number of times, and also replaced the targeted plural morpheme with another one a similar number of times.

The same cannot be said for the spontaneous production of plural forms: Here, only the children with SLI omitted the plural marker (but in total only twice), and they replaced one plural morpheme with another

far more frequently than did either of the two typically developing groups. Mostly irregular plural forms were replaced by regular ones. This pattern cannot be seen as one of delay; rather, the use of plural forms by the Afrikaans-speaking children with SLI appears to deviate from the norm. An account of SLI in Afrikaans needs to explain this deviation.

Turning to the grammatical feature **case**: On the elicited production of pronouns, the children with SLI made more errors than did either of the two groups of typically developing children, with the 4-year-olds faring worse than the 6-year-olds. In spontaneous production of pronouns, the same pattern was seen: The children with SLI fared the worst and the typically developing 6-year-olds the best in terms of correct realisation of pronoun case. The majority of the errors involved substituting possessive *sy* ('his') with *hom* ('him'). The errors made by the children with SLI on *se*-constructions were so few that one should not have to account for them. However, the fact that the children with SLI are more delayed than even the 4-year-olds in terms of correctly realising pronoun case needs to be accounted for.

The proportion of errors related to **person** in the elicited language of the children with SLI was approximately double that of the 4-year-olds. This needs to be accounted for. In terms of spontaneous production of person on pronouns, almost no errors occurred.

Regarding the elicited production of past **tense** forms, the SLI and typically developing 4-year-old groups performed similarly in terms of grammatical past tense constructions (whether it was the targeted construction or another one which was produced); the typically developing 6-year-old group performed better than the other two. There was no difference in the frequency of use of the historic present tense form by the three groups. The only notable difference between the groups was that the SLI group made more idiosyncratic errors than the other two; there was no significant difference in the number of other errors between the three groups. In terms of spontaneous production of past tense forms, the children with SLI fared worse than the other two groups in terms of correct production of *het ge-* forms. Mostly, the errors involved the omission of the temporal *het*, but the past participle was also omitted at times (and at other times only the *ge-* of the past participle was omitted). Interestingly, the children with SLI fared similarly to the

typically developing 6-year-olds – and thus better than the typically developing 4-year-old group – in terms of the correct production of the past tense forms of *be*. Here, the typically developing 4-year-old group omitted the *be* and sometimes used *is/het gewees* 'be-PRESENT/did be-PAST PART' instead of *was (gewees)* 'be-PAST (be-PAST PART)'.[172] So there are two aspects that need to be accounted for: the fact that *het ge-* forms were problematic only for the children with SLI and not for the two groups of typically developing children; and the fact that the children with SLI presented like same-aged typically developing ones in terms of the production of past tense forms of *be*, whereas the 4-year-olds made errors on these constructions.

Regarding the spontaneous production of present tense forms, the children with SLI omitted modal auxiliaries at times, whereas the two typically developing groups did not. Also, the children with SLI omitted present tense *be* forms more than three times as often as the 4-year-olds. An account of SLI in Afrikaans should ideally address these differences.

In summary, an adequate account of SLI as it presents itself in Afrikaans needs to offer explanations for why Afrikaans-speaking children with SLI

(i) use the incorrect plural morpheme far more frequently than do younger and age-matched typically developing children;
(ii) make more errors pertaining to case and person of pronoun than do younger and age-matched typically developing children;
(iii) make more idiosyncratic errors and more errors on *het ge-* forms when producing past tense constructions than do younger and age-matched typically developing children;
(iv) omit modal auxiliaries at times, whereas typically developing (younger and same-aged) children do not;
(v) present like same-aged typically developing children in terms of the production of past tense forms of *be*, whereas 4-year-olds make errors on these constructions;

[172] It should be noted though that speakers of some dialects of Afrikaans accept *is gewees* and *het gewees* in main clauses, as in *Ons is/het gister daar gewees*. It is mostly *het gewees* that was used by the 4-year-olds, and always in main clauses. By contrast, *is gewees* and *was gewees* are unacceptable in subordinate clauses (apparently for all speakers of Afrikaans), but not *het gewees*: *Toe ons gister daar gewees het* vs. **Toe ons gister daar gewees is/was*. *Gewees is/was/het* was not used in subordinate clauses by any of the participants.

(vi) omit present tense *be* forms more than three times as often as 4-year-olds.

9.6.3. A Minimalist account of the errors pertaining to grammatical features

Before turning to explanations for the errors pertaining to grammatical features in the language of Afrikaans-speaking children with SLI, a brief discussion is required of which features are present in the lexicon. Recall that lexical items are defined as bundles of features (Chomsky 1995a:230), specifically phonological, semantic, and formal (or syntactic) features, and that retrieving a lexical item from the lexicon to form a part of a Numeration thus implies retrieving a set of features. On the Lexicalist view, lexical items reach the Numeration as fully inflected bundles of features; all features (including phonological and semantic ones) are specified (cf. Chomsky 1995a:275). To be more specific, morphological forms are created in the lexicon. That is, an inflectional feature A is associated with a root B via some morphological rule applying in the lexicon, and this complex word receives a sound representation before it enters the syntactic derivation as a lexical item. Stated differently, the complex word [X+infl] forms a word that is part of the Numeration, which constitutes the input for the syntactic derivation.

An alternative view, one which is compatible with Minimalist syntax, is that of Distributed Morphology (cf. Halle and Marantz 1993). According to this approach, in short, lexical items are retrieved from the lexicon and all their formal features are added to them before they reach the narrow syntax. After the derivation has taken place, phonological features are added to the items at PF. Specifically, all morphological structures are built in the syntax (as opposed to in the lexicon). The nodes that are manipulated in the syntactic derivation are of two types, namely functional morphemes and roots. Functional morphemes are composed exclusively of non-phonetic features, such as [past], [present], [plural], or [singular], or the feature(s) that make up the determiner node of the definite article *the*. Roots comprise the open class, i.e., lexical, vocabulary (e.g., *car* or *sit*). In the PF component of the grammar, these functional morphemes receive phonological representations (i.e., sound form) in the process of Vocabulary Insertion. This process involves the

selection of a vocabulary item from a set of possible Spell-Outs of this functional morpheme. Stated differently, Vocabulary Insertion is a process that provides phonological content to functional heads, which are assumed to be feature bundles without phonological content in the syntactic derivation. For example, in the case of Vocabulary Insertion of an English past tense form, a vocabulary item must be selected from the competing items in (196).

(196)

T[past] ←> -t/__ {lent, sent, …}	(=specific past tense form)
T[past] ←> -ø/__ {hit, quit, …}	(=specific past tense form)
T[past] ←> -ed	(=default past tense form)

According to Distributed Morphology, vocabulary items compete according to specificity, so that the most highly specified item is inserted. That is, more specified items (e.g., irregular ones) can block less specified ones (e.g., regular ones) (cf. Embick 2007). When Vocabulary Insertion takes place, the vocabulary item (i.e., the functional morpheme) is adjoined to the root.[173]

Note this competition between vocabulary items during the process of Vocabulary Insertion, i.e., the process taking place in the PF-component of the grammar, where these functional morphemes receive a phonological representation. Thus, Vocabulary Insertion assigns phonological content to the syntactic nodes. When one vocabulary item (e.g., *–t*) "wins" this competition, it prevents the other vocabulary items from being inserted. So, when *–t* appears as T[past] in the context of the root *lend*, it is at the expense of the default case, which has the form *–ed*. According to Embick and Marantz (2007), blocking in the sense of a competition for the expression of syntactic or semantic features is limited to the insertion of the phonological exponents of such features (where "exponent" refers to the phonological expression of a morpheme; cf Embick and Noyer 2001) at terminal nodes from the syntax. Blocking therefore does not occur at the word level or above,

[173] To be more precise, the vocabulary item (or the functional morpheme) adjoins to the root+category-defining head (e.g., small *v*). However, for the sake of simplicity, the vocabulary item representing the functional morpheme will be taken to attach to the root (e.g., V) directly.

and there is no competition between grammatical and ungrammatical structures.

Bearing this in mind, if explanations are to be given for (i) to (vi) of section 9.6.2, the following could be suggested:

(i) Where an incorrect plural form is produced, the correct feature bundle has been selected from the lexicon, but, at PF, this feature bundle was spelled out incorrectly, i.e., it received the incorrect (in terms of non-SLI grammar) sound form. In terms of Distributed Morphology, one could say that the "incorrect" vocabulary item was inserted, which means that *–s* rather than *–e* (or vice versa) is selected as the exponent (or sound form) for the abstract plural feature. These incorrectly spelled out, but nevertheless interpretable, plural forms will not cause a derivation to crash in the semantic component, seeing that the feature [+plural] is still present. This feature is merely realised phonologically in a way that is non-adult-like. The problem here lies not with the semantic or syntactic features – after all, the meaning is conveyed adequately and the derivation is not caused to crash – but with the phonological features, which could point to a problem at Spell-Out in PF.

(ii) A similar explanation can be given for the case errors found on pronouns: The correct feature bundle is selected from the lexicon – one which would be spelled out as *sy* by adult speakers of Afrikaans – and, after undergoing the necessary movement operations in the computational component, this feature bundle is initially, incorrectly, spelled out as *hom* by Afrikaans-speaking children, and for a prolonged period by those with SLI. These children thus do not select a pronoun with incorrect case; rather, the third-person singular masculine possessive pronoun has the form *hom* in the grammar of these children. It is clear from the Afrikaans pronoun paradigm why the children would prefer *hom* over *sy*:[174] *Sy* is the nominative form of the third-person singular feminine pronoun. The oblique and possessive forms of this pronoun are both *haar*. *Hy* is the nominative form of the third-

[174] See (14) in section 3.3.1.4 for the Afrikaans pronoun paradigm.

person singular masculine pronoun. However, its oblique and possessive forms differ: The oblique is *hom*, similar in sound form to the feminine *haar* (to a certain extent), but the possessive form is the same as the nominative form of the third-person singular feminine pronoun, viz. *sy*. By substituting *sy* 'his' with *hom*, paradigm leveling takes place. Again, the problem appears to lie not with the semantic or syntactic features themselves, but with the phonological form given to the feature bundle at Spell-Out.

Note that the sound form which the child chooses still belongs to the (personal) pronominal paradigm. In a sense then, the mapping of the incorrect sound form is "local", by which is meant that the sound form is chosen from a specific paradigm of "pronominal" sound forms. From this, one might conclude that the child has difficulties in identifying the right sound form (out of a larger set of forms) which maps onto a feature structure (e.g., [third-person; sgl; feminine]). An alternative explanation for the occurrence of incorrect forms of personal pronouns might thus be that the Vocabulary Insertion rules are not yet as fixed, or as robustly organised, as the Vocabulary Insertion rules in the grammar of (older) typically developing Afrikaans-speaking children.

A possible reason why children with SLI make errors pertaining to person without causing the derivation to crash – such as *dit is my hand* instead of *dit is haar hand* – is the following: Person, together with number and gender, is a so-called phi-feature. This particular phi-feature is semantically interpretable and therefore does not need to be checked for LF purposes. It could thus be that the children with SLI select a pronoun with incorrect person without causing the derivation to crash in the semantic component. Similarly, the derivation will not crash in the phonological component, as the feature in question is interpretable. Alternatively, the correct feature is selected but it is spelled out at PF in a non-adult-like way, i.e., it is given a different sound form to that in the adult grammar.

(iii) The relative scarcity of generative literature on the grammar of Afrikaans auxiliaries makes it difficult to explain the errors on *het ge-* past tense forms and the omission of modal auxiliaries by

Afrikaans-speaking children with SLI. The errors on *het ge-* forms were of three types: At times, *het* was omitted; at times, *ge-* of the past participle was omitted; and at times, the past participle was omitted as a whole. Each of these errors will be accounted for below. Before turning to these accounts, one should notice that there are various formal means of expressing past tense in Afrikaans (cf. section 3.3.1.5). In terms of Distibuted Morphology, this could again be a case where there is a set of competing forms from which the child has to choose, and where a non-adult-like form "wins" the competition.

Where *het* is omitted in a sentence containing a modal auxiliary – e.g., *Hy sou gestap het* 'He would have walked' – such omission should not cause the derivation to crash, given that the tense feature is carried by the modal and that the modal can move to check the V feature of the T. However, the past participle is not selected by this modal, but by *het*. Therefore one needs to assume that *het* (i.e., the node representing the temporal auxiliary) is somehow present in the syntactic structure. This *het* then receives no sound form at Spell-Out, possibly because past tense property is already expressed by the modal (*sou*, in this case). Also, if there is no modal auxiliary in the sentence – as in *Hy het gestap* 'He walked' – then the derivation should crash if the *het* is omitted, given that the T would have an unchecked V feature. However, these derivations do not crash in the case of children with SLI; therefore, an alternative explanation is required. One possibility could be that *het* is initially present in the derivation, is copied and moved to the T (yielding *Hy het gestap het*), but that at the point of Spell-Out no copy of *het* (not even the left-most one of the chain {*het*, *het*}) receives sound form. In terms of Distributed Morphology, one would argue that the syntactic node representing the temporal auxiliary is not assigned an exponent (or sound form), due to Vocabulary Insertion (i.e., the mapping of a sound form onto a node carrying certain features) not taking place. This results in the node remaining silent at PF. A possible reason why a child with SLI would find it acceptable to leave *het* phonologically empty (or silent) could be related to Kayne's (1993) proposal that 'have' could be seen as 'be' plus an incorporated preposition (i.e., 'have'=Preposition$_{\text{DAT/LOCATIVE}}$+'be'), along the lines of Benveniste

(1966). As both 'be' and the abstract preposition are semantically poor, it could be that the child does not provide the complex form [P+'be'] with phonological contents at Spell-Out.

Where *ge-* is omitted, one could argue that the feature bundle which in the adult grammar matches the sound form of the past participle is indeed selected from the lexicon, but that, at Spell-Out, this feature bundle receives a sound form matching that of the infinitive in the adult grammar. In terms of Distributed Morphology, a non-adult-like vocabulary item would have "won" the competition between the verbal forms (finite form, infinitival form, participial form). This explanation is plausible, seeing that there are indeed competing past participial forms: those which resemble infinitival ones (such as *onthou* 'remember' – *het onthou* 'remembered') and those with *ge-* (such as *bou* 'build' – *het gebou* 'built'). The Afrikaans-speaking child with SLI has to identify one past participial form from a set of competing potential candidates, and the correct form is then not necessarily identified.

However, even if one assumes that the incorrect verb form (i.e., the infinitive instead of the past participle) was selected from the lexicon, this incorrect selection should not cause the derivation to crash, as neither the infinitive nor the past participle has features which check any feature of the T; the T's features are checked by the temporal auxiliary *het*. However, a past participial form presumably has a feature which causes it to be selected as the complement of *het*. If an infinitive is selected instead of a past participle, then a selectional feature of *het* is not checked. Given that, despite this (apparently) unchecked feature, the derivation does not crash, one could assume that the feature is, in fact, checked: A feature bundle resembling that of a past participle was selected from the lexicon by the child with SLI; at Spell-Out, this feature bundle is realised in a way which differs morphologically from the way in which the adult speaker of Afrikaans would realise it. Again, one could argue that the problem in the grammar of the Afrikaans-speaking child with SLI lies not in the syntactic representation, but at Spell-Out; i.e., at the point where the syntactic representation is mapped onto a phonological representation.

Where a past participle is omitted as a whole – as in *Hulle altwee het op 'n blou bed ~~geslaap~~* – there are possible semantic implications, as the sentence now no longer necessarily conveys the intended meaning. If the absence of the past participle is ascribed to non-selection from the lexicon, this would mean that the selectional feature of *het* which requires a past participle complement would remain unchecked. This should cause the derivation to crash, but the derivation, in fact, converges. Therefore, it is argued that the past participle is indeed selected from the lexicon but is then, for some or other reason, not spelled out in the phonological component.[175] This would mean that the complement feature of *het* is checked in the course of the syntactic derivation, which explains why the derivation converges.

(iv) The omission of modal auxiliaries (as in *OK, nou die kinders eet. Hoe moet hulle eet?* 'OK, now the children (must) eat. How must they eat?') is problematic for two reasons. The first is that the element which carries tense is not present, so there is no verbal element which checks the V feature of the T – a similar problem to one discussed above in connection with the omission of *het*. Again, one could propose that the modal is initially present in the derivation, is copied and moved to the T, and that, at Spell-Out, both copies of the modal are then deleted instead of only the lowest one. The question arises as to why both copies can be deleted. This is not possible in the grammar of adult speakers of Afrikaans; typically, the head of the chain (i.e., the left-most copy) is spelled out, seeing that this is the one which has had most of its features checked. One could propose that this principle (viz. phonologically realising the copy which has entered into most checking relations) is not yet known to Afrikaans-speaking children with SLI. For these children then, other considerations are involved in deciding which copy to spell out. However, the "decision" as to which copy to spell out might be so complex (given that it is not a principled decision) that these children might

[175] One reason could be that the problems which the child with SLI experience with selecting the correct verbal form are of such a magnitude that the child opts for not mapping the terminal node onto a sound form at all.

opt for omitting the sound form of all copies, resulting in none of the copies being spelled out phonologically.

The second problem pertaining to the omission of modal auxiliaries is that the meaning of the sentence might no longer be clear if a modal is omitted. Unlike the omission of the temporal auxiliary *het* – which does not lead to an interpretation problem, due to the fact that the "past" interpretation is arguably recoverable from the past participle verb; cf. **Hy geslaap* vs *Hy het geslaap* – the omission of a modal auxiliary could make the intended meaning of the sentence unclear. For example, by omitting a modal auxiliary like *sal* 'will', *moet* 'must', *mag* 'may', or *kan* 'can', it is not clear exactly what the child intends to ask with **Ons met die ding werk?*.

(v, vi) The fact that the Afrikaans-speaking children with SLI are age-appropriate in terms of their production of the past tense forms of *be*, but frequently omit the present tense form of *be*, could be explained as follows: A structure expressing a proposition minimally consists of a subject argument and a predicate, and the smallest construction by which such a proposition can be expressed is a so-called small clause. A small clause does not allow for more than one argument: It consists of a subject to which a specific attribute is given (e.g., *John handsome* in *I find John handsome*). Where the *be* is omitted, a construction similar to a small clause is rendered – the *be* is implied and its omission does not alter the intended meaning of the sentence. However, if one wants to convey the idea that a subject previously had a specific attribute but no longer has it, the verb can no longer be implied. For instance, one can omit the *be* in **Ek hier* 'I here' and still convey the intended meaning, namely "I am here". However, if one wants to convey that one had been somewhere (as in *Ek was hier (gewees)* 'I had been here'), a phonologically realised verb is required. On this proposal then, *is* 'be-PRESENT' can be left phonologically empty without compromising meaning, but *was (gewees)* 'be-PAST' must be expressed phonologically in order to convey the intended meaning.

In conclusion, it appears that, in the grammar of Afrikaans-speaking children with SLI, the abstract feature representation and the movement operations are intact. In other words, the language problems that these children experience do not seem to reside in the computational system underlying the construction of a syntactic representation. That is, SLI-children are able to build a convergent LF-representation. Their problem seems to lie at Spell-Out, where the feature bundles need to receive sound form: Either a deviant (i.e., non-adult-like) sound form is given, or the features are not spelled out phonologically at all.

9.6.4. Another look at the word order errors

Recall that all three groups of participants made word order errors, but not all types of errors were made by all groups, and that the only error type which appeared unique to the SLI group was that of SOV and VSO in non-embedded clauses. In this section, we will revisit some of the examples given in section 8.3.3. Specifically, it will be argued that these problems with word order relate to the Spell-Out of chains, i.e., to the "decision" as to which copy will be realised in the PF-representation. At times, the head of a chain is spelled out (this is not discussed here, seeing that this renders the correct, adult-like word order); at times, an intermediate copy is spelled out (e.g., the copy of a verb in T is spelled out in T instead of the copy in C); and at yet other times, the syntactic constituent is spelled out in situ (i.e., the "lowest" copy receives sound form). Though not given in section 8.3.3, there were also examples in the Afrikaans data of more than one copy receiving sound form, and these examples will also be discussed here.

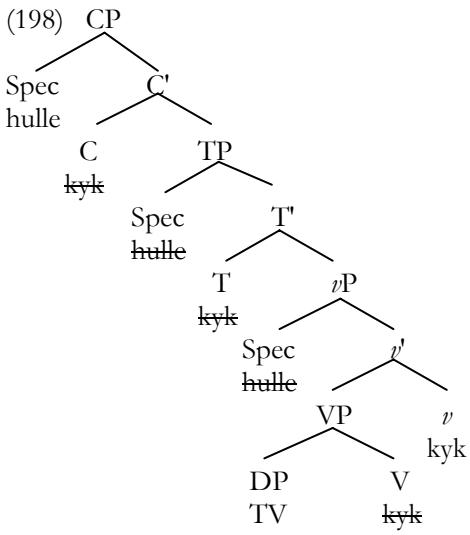
Let us begin by considering the derivation of examples (142), (143), and (154) – repeated here as (197), (199), and (201), respectively – presented in (198), (200) and (202). From (198), it appears that the child with SLI does not experience problems with the movement operations required for feature checking. Rather, it appears that the problem lies at Spell-Out, where an incorrect copy receives sound form. More specifically, in (198), the copy of *kyk* surfaces phonologically in the head position of small *v*. It is assumed that the verb is finite (and as such specified for the grammatical features tense and agreement). As such, the verb also undergoes movement to C (via T), rendering a verb-second pattern. In other words, the computational rules of this Afrikaans-speaking child

with SLI work in the same way as they do in adult Afrikaans. The only difference is that, in contrast to adult Afrikaans, the head of the chain is not spelled out here, but rather a lower copy. In (198), it is indicated that it is an intermediate copy (the one in *v*) which is spelled out; however, one could also argue that it is the lowest copy (the one in V) which receives sound form.[176]

(197)
hulle TV kyk
they TV watch
'They are watching TV'

Target:
hulle kyk TV
they watch TV

(198)



A boy with SLI produced utterance (199), which was a statement but has the surface word order of a *yes/no*-question.

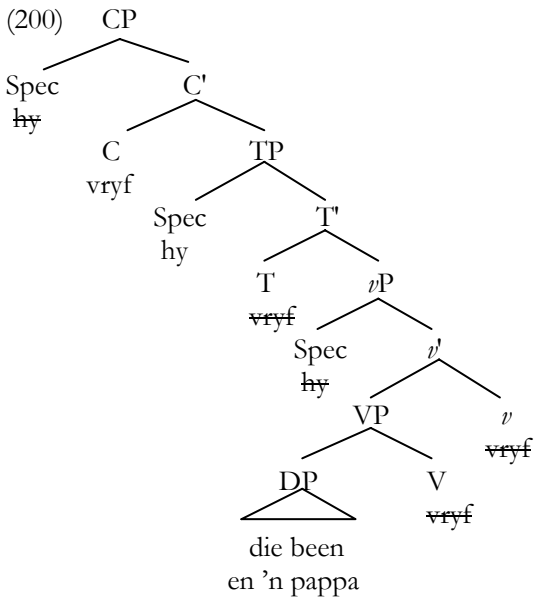
(199)
vryf hy die been en 'n pappa
rub he the leg and a daddy
'He is rubbing daddy's leg'

Target:
hy vryf die been van pappa
he rub the leg of daddy

[176] Alternatively, one could argue that *TV kyk* (or then *TV-kyk*) is, in fact, a compound verb, in which case the analysis of (197) would be similar to that of (210).

As shown in (200), the verb *vryf* moved from the VP to the *v*, the T, and then the C. The left-most copy of *vryf* was then spelled out (correctly so), whereas that of *hy* – which moved from the specifier position of *v*P, to that of TP, and then to that of CP – was not. As in the case of (198), an intermediate copy thus received sound form.

(200)

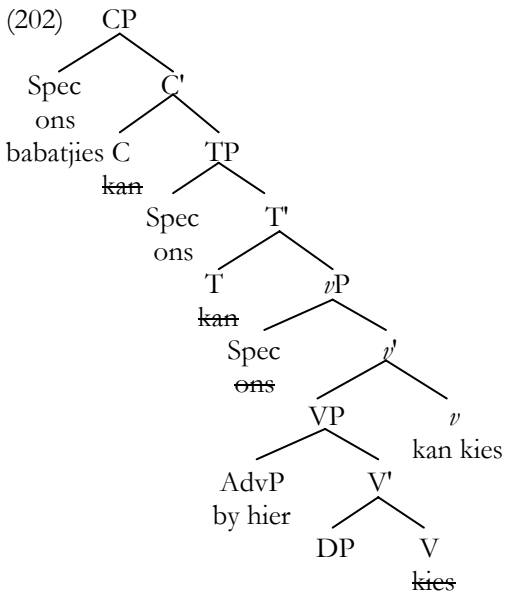


In (201), *ons babatjies* is focalised, meaning that the modal auxiliary *kan* 'can' needs to move to the C – seeing that focalisation requires subject-verb inversion in Afrikaans. This presumably took place, as shown in (202), as did the other required movement operations, after which the left-most and intermediate copies of *kan* did not receive sound form at Spell-Out; the lowest copy did, rendering an incorrect word order.

(201)	*Target:*
ons babatjies ons by hier kan kies	ons babatjies kan ons by hierdie kies
our babies-DIM we by here can choose	our babies-DIM can we by there choose

'Our babies we can choose to match these' [=we can choose figurines (ones which match these pieces of toy furniture) to be our babies]

(202)



As stated in chapter 8, "other" word order errors – ones which are difficult to group in terms of misplaced elements –occurred, mostly in the language of children with SLI. An example of such an error is repeated here as (203).

(203)	*Target:*
en hulle meet om hulle op die lorrie te gaan	en hulle meet hulle om op die lorrie te gaan
and they measure *infinitive-complementiser* they on the truck to go	and they measure them *infinitive-complementiser* on the truck to go

'And they measure them to go onto the truck'

In (203), a left-most copy (of *hulle*) was deleted incorrectly – presumably because similar information is realised phonologically elsewhere in the utterance: Here an infinitival clause is introduced by the infinitive complementiser *om*. The subject of the infinitival clause is PRO – not an "ordinary" pronoun, because this subject cannot receive case. In the adult grammar, there is a co-referential relationship between the second *hulle* (of which the referent is ostriches) and the PRO. In the child's utterance, this co-referential relationship is still expressed, because it is *hulle* – and not some other pronoun such as *sy* 'she' – which is in the subject position of the infinitival clause. In other words, instead of

"silent" PRO, the features of PRO are realised phonologically as *hulle* – *hulle* because of the co-referential relationship in question – and the "real" *hulle* then does not receive sound form, because its features are all realised phonologically elsewhere in the utterance. Stated differently, there is competition between two proniminal forms, namely between an empty form PRO and a phonologically overt form *hulle*. In this case, the incorrect form "won" the competition.

On these derivations it would appear that Afrikaans-speaking children with SLI do not experience a problem with the syntactic computation in terms of Move (or Copy and Merge), but that the problem lies with spelling out the correct copies that constitute a chain. Whereas the left-most copy is typically spelled out in the adult grammar and (usually) all lower copies deleted, these children sometimes delete left-most copies and spell out lower (intermediate or right-most) ones.

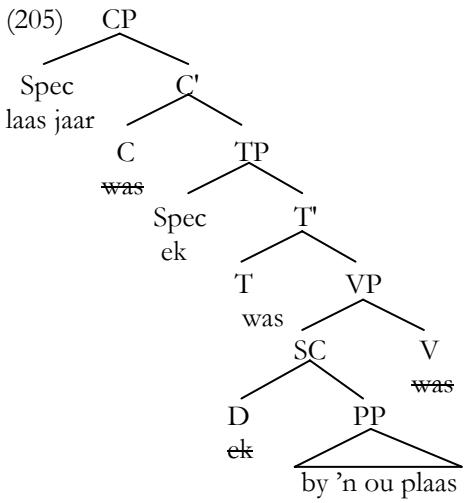
When considering the other types of word order errors made by the children with SLI (those which were **also** made by one or both of the groups of typically developing children), a similar observation is made. To illustrate this point, the derivation of some of the example utterances given in chapter 8 – and repeated here for the sake of convenience – is presented below. The tree diagram in (205) proposes that all the necessary movement operations occurred but that the left-most copy of *was* was then not spelled out; an intermediate copy was spelled out.

(204)
laas jaar ek was by 'n ou plaas
last year I be-PAST by a old farm
'Last year I was on an old farm'

Target:
laas jaar was ek by 'n ou plaas
last year be-PAST I by a old farm

The utterance in (206) is a *wh*-question construction. The *wh*-element has the correct surface position, but so-called subject-verb inversion apparently did not take place. However, from (207), it appears that a copy of the auxiliary did, in fact, move to the complementiser position, but that this copy then did not receive phonological form at Spell-Out; an intermediate copy did (or the lowest one, if one argues that it is the copy in V which received sound form).

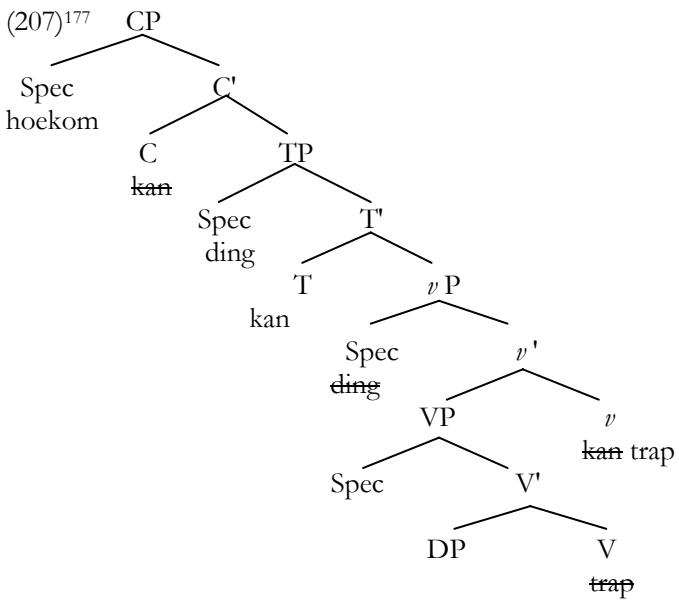
(205)



(206)
hoekom ding kan nie trap nie?
why thing can not pedal not
'Why can the thing not pedal?'

Target:
hoekom kan die ding nie trap nie?
why can the thing not pedal not

(207)[177]



[177] For the sake of simplicity, the *nie*'s are not indicated in this derivation. For a proposal regarding derivations containing *nie*, see Oosthuizen (1998).

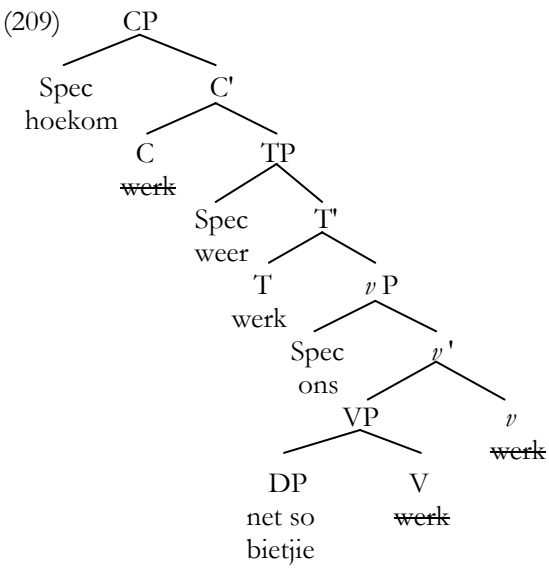
Another question construction produced by a child with SLI is presented in (208). Here, the verb *werk* does occur to the left of the subject *ons*, that is, an inverted order can be observed. However, in the surface form, the adverb *weer* occurs between the *wh*-element and the verb, which causes this main clause not to demonstrate the required verb-second word order. From (209), it appears that the finite verb moved to C (via T) (rightly so), and that the adverb *weer* was base-generated in the specifier postion of TP (acting as a type of sentential adverb), which means that the subject could not move into that position. What is at issue here, it that the intermediate copy of the finite verb (the one in T), instead of the left-most one, received sound form.

(208)
hoekom weer werk ons net so bietjie?

why again work we just such bit
'Why do we again just work a little bit?'

Target:
hoekom werk ons weer net so bietjie?
why work we again just such bit

(209)

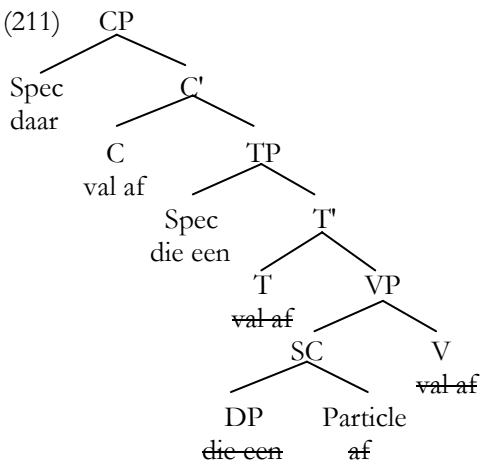


In the grammar of adult speakers of Afrikaans, particle-verbs have the linear order particle+verb (e.g., *houtkap* or *afval*),[178] but in the grammar of children, it appears that the compound can also be verb+particle (i.e., *kaphout* and *valaf*). When verb movement takes place to the T for feature checking purposes, the whole particle-verb (*kaphout* or *valaf*) is raised and not just the verbal stem (*kap* or *val*).[179] One could say that pied piping takes place here, whereas something similar to preposition stranding (say, "particle stranding") should have occurred. This would explain the word order in utterances such as (210). As can be seen from (211), it appears that unnecessary material has been copied and/or incorrect copies spelled out.

(210)
daar val af die een
there fall off the one
'There the one falls off'

Target:
daar val die een af
there fall the one off

(211)



[178] Compounds in Afrikaans are head-final. Consider, for example, *plakboek* 'scrap book' N = *plak* 'paste' V + *boek* 'book' N, and *mooimaak* 'beautify' V = *mooi* 'pretty' A + *maak* 'make' V.

[179] In constrast to the adult speaker of Afrikaans, the child with SLI moves the entire complex verb [V+Preposition] to T and subsequently to C. It is possible that the child is confused by the existence of other verbal forms consisting of a verb and a preposition (although in the order [Preposition+V]) which undergo movement as a unit to C. Two examples of sentences containing such verbal forms are given in (i) and (ii):

(i) Paul onderhandel met die smouse
'Paul negotiates with the hawkers'

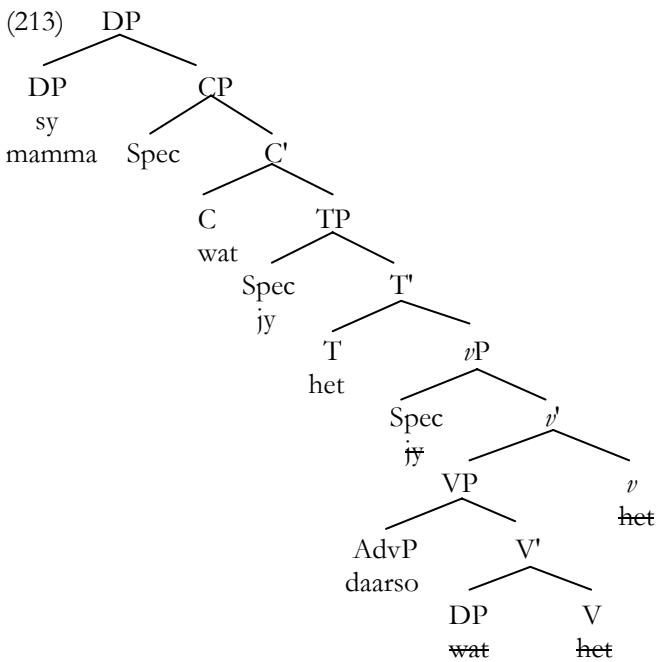
(ii) Susan oorskat haar vermoëns
'Susan overestimates her abilities'

In (212) and (214), *wat* and *dat* both receive sound form in the head position of the CP. *Dat* originates in this position, whereas *wat* is moved here. In these two constructions, it appears that the child moves the finite verb to T overtly, whereas this movement would not occur overtly in the grammar of adult speakers of Afrikaans. This movement of the finite verb to T renders an embedded verb-second word order,[180] because in these two cases, the left-most copy of the finite verb is indeed the one which is spelled out.

(212)	*Target:*
en hierdie is sy mamma wat jy het daarso	en hierdie is sy mamma wat jy daarso het
and this is his mommy that you have there	and this is his mommy that you there have

'And this is his mommy that you have there'

(213)

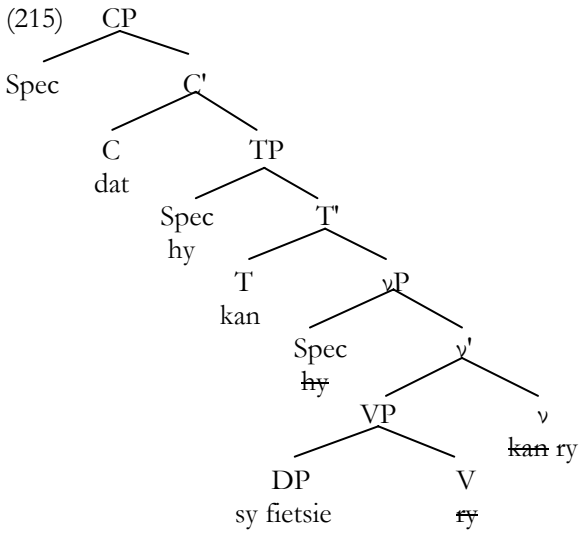


[180] Other utterances containing relative clauses also point to the movement of finite V to T by Afrikaans-speaking children with SLI; see the utterance in (174).

(214)
dat hy kan sy fietsie ry
that he can his bicycle-DIM ride
'That he can ride his bicycle'

Target:
dat hy sy fietsie kan ry
that he his bicycle-DIM can ride

(215)



It appears then that one can account for most of the word order errors in terms of Minimalist syntax: Movement operations (mostly) occur as they should, rendering a fully grammatical (i.e., adult-like) derivation before the point of Spell-Out. However, at Spell-Out, some copies which were supposed to receive sound form do not, and others which were supposed to be left phonologically empty are, in fact, spelled out. This leads to the proposal that Afrikaans-speaking children with SLI do not experience problems in the computational component, but in mapping grammatical features onto sound form.

It could, of course, be argued that the Afrikaans-speaking children with SLI indeed demonstrate problems with movement operations. In other words, it could be the case that there is not merely a problem spelling out a moved element, but that such element, in fact, does not undergo all the necessary movement operations. However, the former proposal – that the child copies the element and then fails to spell it out at PF – is more attractive, amongst other reasons because of the occurrence of the utterance in (118), repeated here as (216).

(216)	*Target:*
want hulle het al paar keer shock het	want hulle het al paar keer geshock
because they did already few time shock did	because they did already few time shock-PAST PART

'Because they have shocked themselves a few times already'

From this utterance, it can be seen that the temporal auxiliary *het* did, in fact, move to the required position, but that two copies of *het* were spelled out at PF, rendering an ungrammatical utterance. Similarly, responses containing two *het*s were given to some items of the sentence completion task assessing the production of tense – for example, *het eet het* 'did eat did' in response to *Hierdie beer kan elke dag heuning eet. Gister, net soos elke ander dag,* … 'This bear can eat honey every day. Yesterday, just like every other day, ...'. Other relevant responses to this task were *het sy alles staan het* 'did she everything (under)stand did' (instead of *het sy alles verstaan*) and *het sy 'n blom gepluk het* 'did she a flower pick did' (instead of *het sy 'n blom gepluk*).

Other examples of utterances (apart from those involving the temporal auxiliary *het*) in which both copies of a chain received sound form are (105), (110) and (111), repeated here as (217) to (219). In (217), a personal pronoun is spelled out twice (yielding doubling within the DP);[181] in (218) the first member of a hendiadys is spelled out twice; and in (219), it is a modal auxiliary which receives sound form in two positions in the utterance.

(217)	*Target:*
hierso is jou klere jou	hierso is jou klere
here are your-SGL clothes your-SGL /you-OBLIQUE-SGL	here are your-SGL clothes

'Here are your clothes'

(218)	
die's al die mense wat kom by ons kom kuier	die's al die mense wat by ons kom kuier
these-be-CONTR all the people who come at us come visit	these-be-CONTR all the people who at us come visit

'These are all the people who are coming to visit us'

[181] One could argue that the copy of *jou* to the right of *klere* is in the complement position of *klere*, as it would be in the construction *klere van jou*.

(219)
gaan hulle hamers gaan nou kry
will their hammers will now get
'Will now get their hammers'

Target:
gaan hulle hamers nou kry
will their hammers now get

9.6.5. The alternative account

As has been said in the previous two sections, it appears that most of the errors made by the Afrikaans-speaking children with SLI regarding grammatical morphemes and word order are indeed related to grammatical features: It is proposed here that the problem does not principally lie with the checking of grammatical features (i.e., with the movement operations required for feature checking), but with spelling out these features at PF. Stated differently, the computational component of Afrikaans-speaking children with SLI seems to be intact; the mapping of the syntactic information onto phonological form appears to be defective. Furthermore, the concept of 'competition between available (sound) forms' seems to play a role in the language problems demonstrated by these children.

In chapter 3, it was stated that, ideally, an account of SLI in Afrikaans should provide a comprehensive explanation for the observed characteristics of SLI in Afrikaans. It is possible to make use of the assumptions and devices of Minimalist syntax – specifically those related to Spell-Out – to account for (almost) every error made by the children with SLI in the present study, and the proposed account has a certain descriptive and explanatory power: It can describe the errors and relate them to a certain part of the grammar, viz. the mapping between abstract syntactic information and phonology.

Research question 6 asked if one can propose an alternative account[182] of SLI as it presents itself in Afrikaans. The answer to this question is "yes": One can propose that Afrikaans-speaking children with SLI have problems assigning the correct sound form to a constellation of grammatical features. Although no conclusive reasons can be provided for why the Afrikaans-speaking children with SLI have problems with Spell-Out at PF, it is not inconceivable that the PF component is

[182] That is, other than the ATOM, RDDR, or Feature Deficit Hypothesis.

involved in errors of this nature, seeing that it is the component in which variation is expected:

> It is not surprising … to find a degree of variation in the PF component, and in aspects of the lexicon: Saussurean arbitrariness (association of concepts with phonological matrices), properties of grammatical formatives (inflection, etc.), … . Variation in the overt syntax or LF component would be more problematic, since evidence could only be quite indirect. A narrow conjecture is that there is no such variation.
>
> (Chomsky 1995a:169-170)

Chomsky (1995a:7) furthermore states that variation of language is "essentially morphological in character, including the critical question of which parts of a computation are overtly realized". Also, if children with SLI are indeed seen to experience difficulties in organising alternative competing forms, one might expect that this would lead to errors in Spell-Out at PF.

On the proposed account, it appears to be possible to predict which errors will **not** occur in the language of Afrikaans-speaking children with SLI. It appears that the choice of which copy to spell out is at least in part based on the input. Copies are not spelled out if such spell-out leads to an utterance containing adjacent words which are not usually found adjacent to each other in the input. More specifically, the deviant word order patterns are typically those that are attested in the language of adult speakers of Afrikaans, although in different structural contexts. For example, in the language of Afrikaans-speaking children with SLI, an embedded word order (with the verb pronounced in the clause-final position) is used in a main clause, and main clause word order is found in embedded contexts. These children "select" a word order pattern out of the set of possible word order patterns that are found in the language.

Let us consider a few examples here to illustrate this point. The word order in (197), *hulle TV kyk*, is often heard in embedded clauses, such as *(hulle sê) dat hulle TV kyk*. Utterance (199), *vryf hy die been en 'n pappa* has the surface word order of a *yes/no*-question construction and is thus also often heard in the input. The *kan kies* in (201) is the modal-infinitive word order often heard in embedded clauses, such as *(Dit is) wat ons by*

hier(die) kan kies. In utterance (204), the *ek was by 'n ou plaas* of the *laas jaar ek was by 'n ou plaas* has the grammatical word order of a simple adverbless declarative sentence – a word order which occurs frequently in the input. A similar case could be made for *ding kan nie trap nie* in *hoekom ding kan nie trap nie?* (206); *weer werk ons net so bietjie* in *hoekom weer werk ons net so bietjie?* (208); *jy het daarso (sy mamma)* in *en hierdie is sy mamma wat jy het daarso* (212); and *hy kan sy fietsie ry* in *dat hy kan sy fietsie ry* (214).

Utterance (210), *daar val af die een*, contains a particle-verb which is often heard separated in the input, for example in *hy val af*. Lastly, parts of *het al paar keer shock het* (216) are heard in *hulle het al paar keer (ge)shock* en *dat hulle al paar keer (ge)shock het*.

It is proposed that utterances such as *Ons waarom dit doen* do not and will not appear in the language of Afrikaans-speaking children with SLI due to the fact that *ons waarom* and *waarom dit doen* are not sequences often encountered in the input.[183] The same can be said for declarative utterances with an OSV word order, such as *Hom hulle sien*.

In conclusion, the account of SLI as it presents itself in Afrikaans is the following: Afrikaans-speaking children with SLI

(i) (mostly) find movement operations unproblemic;
(ii) can render derivations up to the pre-Spell-Out level which resemble those found in the adult speaker's grammar;
(iii) at times spell out the incorrect copies, if this spelling out leads to "local" linearisations also found in the input;
(iv) at times spell-out an abstract feature ([singular], [tense], etc.) in a deviant (i.e., non-adult-like) manner.

[183] Both *ons waarom* and *waarom dit doen* are encountered in the input – in, for example, *Nou wonder ons waarom dt gebeur het* 'Now we are wondering why it happened' and *Waarom dit doen as jy iets anders kan doen?* 'Why do this if you can do something else?', respectively, but infrequently.

Chapter 10

Conclusion

10.1. SUMMARY OF THE PRESENT STUDY

From a theoretical point of view, SLI is an interesting phenomenon: The study of SLI – specifically, cross-linguistic data on the manner in which it presents itself in typologically diverse languages – may provide insight into the nature of the human language faculty, amongst other things. However, for persons with SLI, the phenomenon is probably far less interesting. Its longstanding nature and the reach of its influence – which stretches beyond the linguistic (cf. Brinton et al. 2005; Voci, Beitchman, Brownlie, and Wilson 2006) – has the potential to impact negatively on such people's quality of life.

It is in this context that another study on SLI was undertaken:

(i) Afrikaans, the language in which SLI was studied here, has properties which are interesting for testing the predictions of existing theoretical account of SLI.

(ii) No relevant data on SLI in Afrikaans had previously been gathered. This lack of information limits the effectiveness of the diagnosis and remediation of SLI in Afrikaans-speaking children.

The general aim of the study was to provide an adequate account of SLI as it presents itself in Afrikaans. To this end, the language of Afrikaans-speaking 6-year-olds with SLI was compared to that of typically developing 4- and 6-year-olds. Specifically, the comprehension and production of grammatical morphemes related to the grammatical features number, person, case, and tense were evaluated, both with experimental tasks and in spontaneous language samples. Furthermore, errors of word order in spontaneously produced utterances were studied. In brief, the first research questions asked how Afrikaans-speaking children with SLI present in terms of their comprehension and production of grammatical morphemes related to number, person, case, and tense. Do these children differ from typically developing Afrikaans-

speaking children? If so, do Afrikaans-speaking children with SLI present with a delay, a deviance, or both in terms of their comprehension and production of grammatical morphemes?

The data of this study revealed that Afrikaans-speaking children with SLI present like younger typically developing ones on the experimental tasks. By contrast, in terms of the spontaneous production of morphemes pertaining to these grammatical features, the Afrikaans-speaking children with SLI fared worse than both typically developing groups. The children with SLI mostly made the same types of errors as the younger ones on morphemes related to these grammatical features. In general, these errors included the omission, inappropriate insertion, and substitution of grammatical morphemes. However, some errors were unique to the children with SLI. For instance, only the children with SLI omitted the main verb *het* and doubled the temporal auxiliary *het*. Regarding word order errors, some were made by all three groups of children (such as producing relative clauses with a surface SVO word order), others only by the children with SLI and the younger typically developing ones (such as moving particle-verbs as a whole), and yet others only by the children with SLI (such as using a surface SOV or VSO word order in main clauses). Therefore, it appears that the language of Afrikaans-speaking children with SLI is not merely delayed, but also somewhat deviant.

Another research question was whether or not predictions (in terms of the comprehension and production of grammatical morphemes) made for Afrikaans by some current theoretical accounts of SLI are borne out by the Afrikaans data obtained in this study. Support was found neither for the three predictions of the ATOM nor for the four of the RDDR. Of the five made by the Feature Deficit Hypothesis, one was partly borne out. The answer to this research question thus appears to be "no".

The last research question concerned the possibility of proposing an alternative, comprehensive account of SLI as it presents itself in Afrikaans. Here, the answer is "yes". The account proposed here is that the problems that Afrikaans-speaking children experience with grammatical morphemes and word order are related to problems at Spell-Out at PF: Either certain grammatical features are given a sound form different to that found in the adult speaker's language, or certain

copies of a movement chain in the pre-Spell-Out derivation receive no sound form at all at Spell-Out, whereas other copies are spelled out twice. It was shown that the language problems that children with SLI have could be seen to be localised (principally) in that part of the grammar which concerns the mapping between syntax and phonology. Furthermore, for these children, difficulties seem to arise specifically in contexts where there is more than one potential Spell-Out candidate available (i.e., where there is competition between sound forms that may realise a functional category, or competition between various copies for Spell-Out). As such, the proposed account has a measure of predictive force: Errors are expected to occur in the formal realisation of morphosyntactic information, especially in those contexts where two or more potential sound forms (or Spell-Out positions) are in competition with each other.

10.2. LIMITATIONS OF THE PRESENT STUDY

The account which has been proposed does not have very strong predictive power, in the sense that it will not be able to predict exactly what errors any particular Afrikaans-speaking child with SLI will make. As stated in chapter 2, children with SLI are known to constitute a heterogeneous group (Aram 1991:84-85). That was the case for the Afrikaans-speaking children with SLI who participated in this study as well: Not all of them found the same morphemes problematic, and, where two or more children did find one type of morpheme problematic, not all of them necessarily made the same type of error. The diversity of errors made by the children with SLI in this study was such that it could potentially have a negative effect on the predictive power of any account proposed for SLI in Afrikaans.

The diversity of errors can partly be attributed to the fact that only 15 children with SLI were included in this study. Had it been possible to gather a larger corpus of impaired language, generalisation and error prediction might have been improved. As mentioned in chapter 4, these 15 children were identified over a period of 21 months. Speech therapists were contacted on a continual basis, and they thoroughly examined their case loads for possible participants. Many Afrikaans-speaking 6-year-olds with language problems were identified by the therapists. However, very few of them had SLI: Many, in addition to

having language problems, had apraxia, were mentally challenged, and/or came from bilingual homes. It thus proved more difficult than expected to obtain Afrikaans-speaking participants with SLI.

A related reason for not all children with SLI making errors on the same aspects of language could have to do with the lack of an agreed-upon protocol for the identification of SLI in Afrikaans-speaking children and the limited standardised instruments available for diagnostic purposes. The speech-language therapists were requested to refer only those children who demonstrated problems with grammatical morphology and/or syntax. However, the therapists had limited means with which to diagnose delay and/or deviance of a morphosyntactic nature. It could be that – despite their speech-language therapists diagnosing them with grammatical SLI – some of them could have had (minimal) symptoms of grammatical SLI while being more impaired as regards semantics or pragmatics. If the 15 participants with SLI did not have exactly the same type of SLI, then one would expect that which they find problematic and that which they find easy to differ across participants. However, given the heterogenity of SLI populations, it might have been difficult to detect clear error patterns for the group as a whole even if the children in this study did indeed all have grammatical SLI.

Another reason for the diverse error patterns across participants with SLI could be that some of the children with SLI had overcome at least some of their problems related to grammatical morphemes and word order by the time of this study. The children with SLI were all 6 years old, and all but one of them had been receiving speech-language therapy when they took part in this study. Had their language been studied when they were younger (and thus more impaired), a more uniform pattern of errors across participants might have been found. However, including younger children with SLI would have meant including even younger typically developing children as controls. The younger controls in this study were 4 years old. It is doubtful whether reliable data would have been obtained from 2- or 3-year-olds. Initally, the experimental tasks were indeed performed with some 3-year-olds. This proved to be a very trying experience for researcher and participant alike: Despite frequent rewards, the experimental tasks were not sufficiently captivating to hold the attention of the 3-year-olds for the required length of time. This resulted in frequent and long rest periods (sometimes as little as five

items were responded to between rest periods). While most of them wanted to participate, the stop-start manner in which their data were gathered (sometimes with frequent repetition of both instructions and individual items before responses were given) led to the quality of the responses of the 3-year-olds being questionable. Because it seemed reasonable that 4-year-olds were the youngest children from which data for this study could be gathered reliably, the participants with SLI had to be 6-year-olds.[184]

10.3. SUGGESTIONS FOR SUBSEQUENT STUDIES OF SLI IN AFRIKAANS

In a sense, this study is "pioneering work": Apart from the data collected in this study, no relevant data on SLI in Afrikaans-speaking children exist. This means that there are obviously many areas of SLI in Afrikaans which still require examination. One could, amongst many other things, study the narrative ability, the use of figurative language, the possible omission of functional categories, the verb system, etc. of Afrikaans-speaking children with SLI. However, the discussion here will be limited to future studies on the morphosyntactic aspects which were the focus of the present study.

One suggestion is that data be gathered from the full age range of preschool children with SLI (from 2 to 6 years), in an attempt to gain insight into the development of grammatical morphemes in the language of Afrikaans-speaking children with SLI. Because of the problems in executing experimental tasks with very young children, spontaneous language samples may be gathered, especially considering the relative success with which typically developing children were identified as such in the present study by means of discriminant analysis performed with various measures of the spontaneous language samples. Note that developmental data do not yet exist for typically developing Afrikaans-speaking children. Therefore, the proposed study would have to include typically developing children as well, in order to enable comparison between impaired and non-impaired language development in Afrikaans.

[184] Recall from chapter 4 that the language-matched controls in some other studies were on average 2 years younger than the experimental group with SLI (cf. De Jong 2003:154; Johnston et al. 1993:974; Oetting and Rice 1993:1239; Rice 2003:72).

Such data should then allow for a systematic search for a clinical marker of SLI in Afrikaans. The language samples of the impaired and non-impaired children can be examined for the percentage of correct use in obligatory contexts of grammatical morphemes related to number, person, case, and tense, as well as to functional categories.

With a larger corpus, more systematic error patterns across the language-impaired children may well occur. In this case, it might be possible to propose an account of SLI which has the power to predict which errors are likely to occur in the language of any particular Afrikaans-speaking child with SLI.

10.4. CONCLUSION

Throughout this dissertation, it was argued that two well-documented characteristics of SLI, namely problems with grammatical morphology and problems with constituent movement, can both be related to problem(s) with grammatical features, also in Afrikaans. This was shown to be the case: The errors made by the Afrikaans-speaking children with SLI could indeed be explained in terms of Spell-Out of grammatical features at PF. The study made a contribution to localising the problem children with SLI experience: This problem appears not to lie in the computational system (i.e., not with Merge or Move), but with syntax-phonology mapping, where children with SLI have difficulties choosing the correct form for Spell-Out, which may be related to the fact that these Spell-Out forms are not (yet) stored in as organised a manner as they are in the adult lexicon.

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APPENDIX A: INFORMATION ON SLI PARTICIPANTS' LANGUAGE TEST RESULTS (AST, ARW, TMT)

SLI	CA[a]	AST								ARW	TMT
		Vocabulary [R][b]	Word definitions [E][bc]	Inclusion/Exclusion [R]	Comparative relations [R]	Pron[d] [R,E]	Multiple word meanings [R,E]	Synonymy [E]	Concept formation [R,E]		
1	67	-	-	-	-	-	-	-	-	83[e]	-
2	76	-	-	-	-	-	-	-	-	<68	-
3	62	-	-	-	-	-	-	-	-	-	-
4	80	60-65	-	-	-	-	-	-	-	-	-
5	76	54-59	48-56	-	60-62	36-47	51-71	-	-	-	-
6	72	-	-	-	-	-	-	-	-	-	-
7	72	54-59	<36	-	-	-	-	36-47	48-59	-	-
8	57	-	-	-	-	-	-	-	-	-	-
9	77	-	-	-	-	-	-	-	-	-	-
10	77	-	-	-	-	-	-	-	-	-	-
11	62	54-59	36-47	36-41	60-62	48-50	36-50	-	-	-	-
12	67	60-65	36-47		-	-	-	56-65	72-77	-	-
13	61	48-53	36-47		-	-	-	<36	60-68	-	-
14	75	-	-		-	-	-	-	-	-	-
15	77	-	-		-	-	-	-	-	-	-

[a]CA=chronological age at the time of testing, measured in months. [b]R=receptive. [c]E=expressive. [d]Pron=pronouns. [e]Test scores given as age equivalents, in months.

APPENDIX A (continued)

TESTS OTHER THAN AST, ARW, AND TMT

SLI	CA	TACL-R/III				Renfrew	Informal testing	Other
		Word Cl[a]	GrM[b]	EPS[c]	Only aggregate			
1	67	--	--	--		Age-ap-propriate sentence lenth	Word order anduse of grammatical morphemes deviant	--
2	76	--	--	--		--	E[d] use of plurals, pronouns problematic. R[e] lang[f] at least 8 months delayed; both R and E age-inappropriate. Over-use circumlocution.	--
3	62	51-54	41-44	53-55		--	--	--
4	80	--	--	--		39, Word finding problems	E[4] lang possibly at same level as R.	--
5	76	--	--	--		--	--	MLU=5.7
6	72	34	<36	<36		--	--	LARSP 24-30
7	72	--	--	--		--	--	--
8	57	--	--	--		--	--	PLS-3 R 58, E 48
9	77	--	--	--		--	--	TOLD-P R 72, E 54
10	77				66	--	E lang 60	--
11	62	--	--	--		--	--	MLU=4.4
12	67	--	--	--		--	--	--
13	61	--	--	--		--	--	--
14	75	57	48	48		--	E lang 57	--
15	77	102	66	78		--	E lang 57. Poor E vocab.[g] Over-use circumlocution. Omit plurals, diminutives. Confuse personal pron.[h]	--

[a]Word Cl=word classes. [b]Gr M=grammatical morphemes. [c]EPS=elaborated phrases and sentences. [d]E=expressive. [e]R=receptive. [f]Lang=language. [g]Vocab=vocabulary. [h]Pron=pronouns.

APPENDIX B: LETTER TO PARENTS: INFORMATION AND CONSENT

INFORMATION AND INFORMED CONSENT DOCUMENT

TITLE OF THE RESEARCH PROJECT: Specific language impairment in Afrikaans

MAIN RESEARCHER: Frenette Southwood

ADDRESS: Room 518, Arts Building, c/o Merriman Avenue and Van Ryneveld Street, Stellenbosch OR Department of General Linguistics, Stellenbosch University, Private Bag X1, Matieland, 7602

DECLARATION ON BEHALF OF PARTICIPANT:

I, THE UNDERSIGNED, ……..…….*(name)*

[ID No: ……..……] in my capacity of …….. of the participant [ID No: ……..] of ……..…

…….……..……..…… *(address)*

A. HEREWITH CONFIRM THE FOLLOWING:

1. The participant was invited to partake in the above-mentioned research project undertaken by the Department of General Linguistics, Arts Faculty, Stellenbosch University.
2. The following aspects were explained to me:

2.1 **Aim:** The aim of the project is to establish how language-impaired Afrikaans-speaking children understand and use the following: grammatical morphemes (such as the *–e* or *–s* which indicates plural), interrogative sentences (specifically those starting with *wh*-question words such as *wat*, *wie* or *wanneer*), passive sentences (such as *die baba word/is gebad* of *die koeldrank is deur die pa ingeskink*), and sentences in which so-called constituent movement took place, in other words sentences with word order changes (such as *gister het ons geswem* – where *het ons geswem* occurs instead of *ons het geswem*). A great deal of research has been done on these aspects with English-speaking children, but there is a serious lack of information on the language of Afrikaans-speaking children with language impairment. Without information on how the language of Afrikaans-speaking language-impaired children looks, it is very difficulat to evaluate and remediate the language of these children effectively.

2.2 **Procedures:** There are three main activities which will be performed with 15 language-impaired Afrikaans-speaking 6-year-olds, 15 typically developing Afrikaans-speaking 6-year-olds, and 15 younger typically developing Afrikaans-speaking children. The first main activity is to perform a hearing screening test in order to ensure that the child has normal hearing. This is a short, non-invasive and completely painless procedure during which soft sounds are played to the child through head phones and he/she has to indicate when he/she hears the sounds. This activity will take about 10 minutes. The second main

activity entails the collection of a language sample. This will be done by conversing with the child while playing with toys such as a broken doll's house, little figurines, Lego, puppets, etc. This activity will take about 30 minutes. The third main activity entails the performance of language tasks. These tasks are aimed at testing the comprehension and use of certain aspects of language. For the comprehension test, the following would be a typical task: The child is introduced to a puppet and told that the puppet is still in the process of acquiring Afrikaans. The child is then requested to correct the puppet each time he says something wrong. Then the child and the puppet jointly look at pictures which are sometimes labeled/described correctly and sometimes incorrectly by the puppet. For testing the use of specific aspects of language, the following would be a typical task: The researcher and the child look at pictures which the researcher starts to label/describe. The child then completes the sentence initiated by the researcher. The completion of these tasks requires a certain degree of concentration. To avoid fatigue, these tasks will be performed over two or more sessions of 30 minutes or longer.

The interaction during the second and third main activities will be audio-recorded. The child's utterances on the cassettes will then be transcribed so that the researcher has a written version of them. After completion of the study, the cassettes will be locked away in the researcher's office. Should you prefer that the cassettes of your child be destroyed or should you be interested in copies of the cassettes of your child, please inform the researcher accordingly.

2.3 **Risks:** Participation in this study does not pose any unusual risks for you or the child. The activities do not include physical activities associated with a high risk for injuries.

2.4 **Possible benefits:** The child's participation in the study will not benefit the child in any direct manner.

2.5 **Confidentiality:** Any information obtained about the child will be treated as strictly confidential. The results of the study will be written up in the form of articles and will be submitted for publication in a scientific journal (such as the South African Journal of Communication Disorders). The results will also be written up in the form of a doctoral dissertation. As is customary in scientific reporting, all results will be presented in such a manner that the child will by no means be identifiable.

2.6 **Access to findings:** Should you request it, you will receive a report on the results of the child's hearing screening test, language sample collection and language tests. Please note that the researcher will not proceed with the language sample collection and language tests if the child fails the hearing screening test. In such a case, you will still receive the results of the hearing screening test, together with the names of audiologists practising in the area, so that you can arrange for a diagnostic hearing test, should you wish to do so.

2.7 **Voluntary participation/refusal/withdrawal:** The child is under no obligation to participate in this study. Participation is voluntary. Refusal to participate will in no way influence your or the child's current or future

treatment at this institution. If you consent to participation, you and/or the child may still at any time indicate that participation will be terminated (reasons for the decision need not be provided); the request will be honoured, and all activities will be terminated immediately.

3. The above information was explained to me in Afrikaans by Frenette Southwood and I am proficient in this language. I was offered an opportunity to ask questions and all questions were answered satisfactorily.
4. Neither I nor the child has been coerced to consent to participation and I and the child understand that I and/or the child can withdraw consent at any stage, without penalisation.
5. Participation in the project will not lead to any additional costs for me.

B HEREWITH CONSENT VOLUNTARILY TO THE POTENTIAL PARTICIPANT TAKING PART IN THE ABOVE-MENTIONED PROJECT.

Signed/confirmed at ..... *(place)* on .....20..... *(date)*

.....	.....
Signature or right thumb print of representative of participant	*Signature of witness*

DECLARATION BY RESEARCHER:

I, Frenette Southwood, declare that

- I explained the information in this document to .... (*name of the representative of the participant)*;
- she/*he was encouraged and given sufficient time to ask me any questions;
- this conversation took place in Afrikaans and that no interpreter was used.

Signed at ..... on ..... 20.....
(place) *(date)*

.....	.....
Signature of researcher	*Signature of witness*

*** Delete if not relevant**

IMPORTANT MESSAGE TO THE REPRESENTATIVE OF THE PARTICIPANT:

Dear Representative of the participant

Thank you very much for your and the participant's involvement in this study. Should an emergency situation occur due to this research, or you need any further information about the project, at any stage during the duration of the project, please contact Frenette Southwood on telephone number 0826631132.

APPENDIX C: CASE-HISTORY FORM

INFORMATION FORM

PLEASE PROVIDE THE INFORMATION IN THE SPACES PROVIDED AND, WHERE APPLICABLE, CIRCLE THE APPROPRIATE ANSWER. PLEASE NOTE THAT IS FORM CONSISTS OF 4 PAGES AND THAT THE FORM NEEDS TO BE SIGNED ON PAGE 4. THANK YOU VERY MUCH FOR YOUR TROUBLE.

Date on which the form was completed:

Information about you (the person completing the form):
Name:
Relationship to the child (e.g., mother, custodian, grandfather):
Contact telephone number:
Mother-tongue:

Information about your household:
Number of adults in your household:
Number of children in your household:
Age, gender, and mother-tongue of all the children in your household
[including the child who is possibly going to participate in the study]

	Age	Gender	Mother-tongue
1.			
2.			
3.			
4.			
5.			
6.			

Age, gender, and mother-tongue of all the adults in your household
[Draw a cross next to the parent(s)/custodian(s) of the child who is possibly going to participate in the study]

	Age	Gender	Mother-tongue
1.			
2.			
3.			
4.			
5.			
6.			

Which of the following languages do the adults speak to each other?
Afrikaans English Other (specify):
Which of the following languages do the children speak to each other?
Afrikaans English Other (specify):
Which of the following languages do the adults speak to the children?
Afrikaans English Other (specify):
Which of the following languages do the children speak to the adults?
Afrikaans English Other (specify):

Information about the child who is possibly going to participate in the study:
Name:
Date of birth:
Number of older brothers: Number of younger brothers:
Number of older sisters: Number of younger sisters:
Mother-tongue:
Other languages which the child can speak relatively well:

Medical and developmental information about the child who is possibly going to participate in the study:
Is the child taking any medication at present? Yes No
If so, which medicine?
what for?

Has the child ever had ear infection/middle ear infection? Yes No
If so, how many times in the left ear?
how many times in the right ear?
how long did one episode last on average?
was the child treated for this? Yes No
If the child was treated,
when?
how?
by whom?
was the treatment succesful? Yes No

At what age did the child start to crawl?
At what age did the child start to walk?
Are you /the child's teacher concerned about the child's intellectual development? Yes No
If so, why?

Does the child have any of the following?

Epilepsy?	Yes	No
Cerebral palsy?	Yes	No
Any brain injury?	Yes	No
Any physical disability?	Yes	No
Any mental disability?	Yes	No
Any other chronic condition?	Yes	No

(If so, specify):

Information about the language and hearing of the child who is possibly going to participate in the study:

How well does the child hear according to the parent(s):

Good Adequately Poorly

Does the class teacher suspect that the child has a hearing problem? Yes No

Has the child ever had a hearing test? Yes No

If so, what was the result?

Is the child's hearing the same from day to day? Yes No

If not, describe:

Does the child experience problems locating the direction from which sounds come? Yes No

Does it appear that the child gives preference to one ear while listening? Yes No

If so, to which ear?

At what age did the child say his/her first word?

What was this first word?

Approximately what number of words did the child say at 18 months?

At what age did the child start using 2-word sentences (e.g., *Nog sap*; *Mamma weg*)?

Is the child's languae at all times comprehensible for non-family members? Yes No

If not, why not?

How does the child's language development compare to that of the child's older siblings when they were as old as the child is now?

Better The same Poorer

Why do you say so?

Is the child's parent(s) concerned about the child's language development? Yes No
If so, why?

Would you regard the child's language development as "normal" at this moment? Yes No
If not, why not?

Were the child's parent(s) at any stage concerned about his/her language development? Yes No
If so, when?
why?
Can the child read? Yes No
Is the child a library member? Yes No
If so, how regularly does the child visit the library?
what number of books does the child take home per visit?
Are story books read to the child? Yes No
If so, by whom?
how regularly?
does the child enjoy this?
Are stories told to the child? Yes No
If so, by whom?
how regularly?
does the child enjoy this?

Has the child ever been referred to or received treatment from any of the following? If so, when and what for?

Occupational therapist:	Yes	No
Physiotherapist:	Yes	No
Hearing therapist:	Yes	No
Child psychologist:	Yes	No
Ear, Nose and Throat specialist:	Yes	No
Neurologist:	Yes	No
Audiologist:	Yes	No
Paediatrician:	Yes	No
Remedial teacher:	Yes	No
Speech therapist:	Yes	No

Information about the child's main caregivers:

	Female caregiver	Male caregiver
Relation to the child (e.g., mother/grandfather/custodian)		
Does the person live in the same house as the child?		
Maritial status		
Highest school qualification		
Highest post-school qualification		
Does the person work at present?		
Occupation		

Any other information you regard as relevant:

I, ..., (full names and surname) [ID number: .....] in my capacity as parent/custodian (delete what is not applicable) of the participant .... (child's full names and surname) hereby declare (i) that I provided the information on this form out of my own free will, (ii) that I was informed in Afrikaans by Frenette Southwood that the information on this form will be treated as strictly confidential, (iii) that I was informed in Afrikaans by Frenette Southwood that I am under no obligation to answer any question which I deem to be inappropriate, too personal and/or offending, and (iv) that I was informed in Afrikaans by Frenette Southwood that I will receive a copy of this form.

....
Signature of the person who completed the form Date

APPENDIX D: ITEMS OF THE EXPERIMENTAL TASKS

For ease of reference, the items do not appear in random order (i.e., the order in which they were presented) in this appendix.

1. NUMBER

1.1. Number comprehension (Real words, regular plurals) – Picture selection

Target	Singular/plural form of target	Semantically related distrator	Phonologically related distrator
Practise items			
honde 'dogs'	hond 'dog'	katte 'cats'	hande 'hands'
arms 'arms'	arm 'arm'	vingers 'fingers'	wurms 'worms'
Test items			
flitse 'flash-lights'	flits 'flash-light'	ligte 'lights'	fietse 'bicycles'
skape 'sheep'	skaap 'sheep'	koeie 'cows'	skepe 'ships'
blomme 'flowers'	blom 'flower'	blare 'leaves'	dromme 'drums'
vurke 'forks'	vurk 'fork'	messe 'knives'	varke 'pigs'
boeke 'books'	boek 'book'	balle 'balls'	koeke 'cakes'
handsakke'handbags'	handsak 'handbag'	rugsakke 'backpacks'	handskoene 'gloves'
seesterre 'starfish-PL'	seester 'starfish-SGL'	dolfyne 'dolphins'	teestelle 'tea sets'
glyplanke 'slides'	glyplank 'slide'	sandbakke 'sand pits'	wipplanke 'see-saw'
wasbakke 'basins'	wasbak 'basin'	toilette 'toilets'	washlappe 'face cloths'
sambrele 'umbrellas'	sambreel 'umbrella'	reënjasse 'raincoats'	kastele 'castles'
leeus 'lions'	leeu 'lion'	voëls 'birds'	luis 'louse'
naels 'nails'	nael 'nail'	arms 'arms'	pels 'fur'
pa's 'dads'	pa 'dad'	seuns 'boys'	kaas 'cheese'
ma's 'moms'	ma 'mom'	meisies 'girls'	maan 'moon'
tjops 'chops'	tjop 'chop'	wors 'sausage'	chips 'chips'
borsels 'brushes'	Borsel 'brush'	rekkies 'elastics'	wortels 'carrots'
emmers 'buckets'	emmer 'bucket'	grafies '(little) spades'	swemmers 'swimmers'
mielies 'corn cobs'	mielie 'corn cob'	appels 'apples'	kieries 'canes'
ketels 'kettles'	ketel 'kettle'	koppies 'cups'	sleutels 'keys'
spykers 'nails'	spyker 'nail'	hamers 'hammers'	suiker 'sugar'
kat 'cat'	katte 'cats'	muis 'mouse'	skat 'treasure'
nes 'nest'	neste 'nests'	mes 'knife'	veer 'feather'
pen 'pen'	penne 'pens'	kwas 'paint brush'	pan 'pan'
oor 'ear'	ore 'ears'	neus 'nose'	boor 'drill'
voet 'foot'	voete 'feet'	been'leg'	hoed 'hat'
seekoei 'hippo'	seekoeie 'hippos'	walvis 'whale'	seekat 'octopus'
visbak 'fish bowl'	visbakke 'fish bowls'	voëlhok 'bird cage'	wasbak 'basin'
rusbank 'couch'	rusbanke 'couches'	wipplank 'see-saw'	TV 'TV'

badprop 'bath plug'	badproppe 'bath plugs'	waslap 'face cloth'	takbok 'reindeer'
aarbei 'strawberry'	aarbeie'strawberries'	roomys 'ice-cream'	pastei 'pie'
seun 'boy'	seuns 'boys'	man 'man'	been 'leg'
man 'man'	mans 'men'	vrou 'woman'	pan 'pan'
seël 'stamp'	seëls 'stamps'	brief 'letter'	teël 'tile'
teël 'tile'	teëls 'tiles'	plank 'plank'	tol 'top'
voël 'bird'	voëls 'birds'	vis 'fish'	kool 'cabbage'
lepel 'spoon'	lepels 'spoons'	klitser 'egg beater'	sleutel 'key'
uitveër 'eraser'	uitveërs 'erasers'	potlood 'pencil'	ruitveër 'wiper'
enkel 'ankle'	enkels 'ankles'	arm 'arm'	winkel 'shop'
baadjie 'jacket'	baadjies 'jackets'	kortbroek 'shorts'	paadjie 'narrow path'
dokter 'doctor'	dokters 'doctors'	verwer 'painter'	dogter 'girl'

1.2. Number comprehension (Real words, regular plurals) – Judgement

Practise items	
Een bank, twee banke	One couch, two couches
*Een tafel, baie tafele	One table, many tables
Test items	
Een das, baie dasse	One tie, many ties
Een plant, baie plante	One plant, many plants
Een foto, baie foto's	One photograph, many photographs
Een bessie, baie bessies	One berry, many berries
*Een kar, twee kars	One car, many cars
*Een rok, twee roks	One dress, two dresses
*Een hoender, twee hoendere	One chicken, two chickens
*Een appel, baie appele	One apple, many apples
*Een slak, baie slakkes	One snail, many snails
*Een tand, baie tandes	One tooth, many teeth
*Een sokkie, twee sokkiese	One sock, two socks
*Een beker, baie bekerse	One mug, many mugs
*Een hond ([hɔnt]), baie honte	One dog, many dogs
*Een brood ([bro:t]), baie brote	One loaf of bread, many loaves of bread

1.3. Number comprehension (Real words, irregular plurals) – Judgement

baddens 'baths'
sleepwaens 'trailers'
*kruiwas 'wheelbarrows'
lammers 'lambs'
*kalwe 'calves'
*hawes 'harbours'
gate 'holes'
skepe 'ships'
*stadde 'cities'
*glasse '(drinking) glasses'
berge 'mountains'

*Tafelber[x]e 'Table Mountains'
vlae 'flags'
*krage 'collars (of shirts)'
blaaie 'pages'
*padde 'roads'
brûe 'bridges'
mae 'tummies'
rûe 'backs'
*oge 'eyes'
*sage 'saws'
gesigte 'faces'
ligte 'lights'
nagte 'nights'
*vuise 'fists'
*bese 'oxen'
*hempe 'shirts'
briewe 'letters'
duiwe 'doves'
wolwe 'wolves'
*golfe 'waves'
*grafe 'spades'
*stofe 'stoves'

1.4. Number comprehension (Nonsense words) – Judgement

Een iepta, twee **ieptas**	[ipta] as in [ɐʊma] 'granny'
*Een sotta, twee **sotta**	[sɔta] as in [bɔla] '(hair) bun'
Een ou wat spal, so een spalaar, twee **spalaars**	[spalɑːr] as in [lerɑːr] 'reverend'
*Een ou wat oesel, so een oeselaar, twee **oeselaar**	[usəlɑːr] as in [ɐiənɑːr] 'owner'
Hierdie vrou is baie koen. So een koenaard, twee **koenaards**	[kunɑːrt] as in [ləiɑːrt] 'lazy person'
*Hierdie seun is baie sief. So een siefaard, twee **siefaard**	[sifɑːrt] as in [lafɑːrt] 'coward'
Een tonke, twee **tonkes**	[tɔŋkə] as in [lɛntə] 'spring'
Een fouke, twee **foukes**	[fɐʊkə] as in [dɑmə] 'lady'
Een seeu, twee **seeus**	[siʊ] as in [liʊ] 'lion'
*Een fleeu, twee **fleeu**	[fliʊ] as in [spriʊ] 'starling'
Een bokel, twee **bokels**	[bɑːkəl] as in [tɑːfəl] 'table'
*Een sietel, twee **sietele**	[sitəl] as in [bɔtəl] 'bottle'
Een korrem, twee **korrems**	[kɔrəm] as in [vərəm] 'worm'
*Een foutem, twee **foutemme**	[vɐʊtəm] as in [bʊɐdəm] 'bottom'
Een kuen, twee **kuens**	[kyɐn] as in [lyɐn] 'lie'
*Een sapen, twee **sapenne**	[sɑpən] as in [bɑkən] 'beacon'
Een tander, twee **tanders**	[tandər] as in [hʊndər] 'chicken'
*Een suupter, twee **suuptere**	[syptər] as in [slaxtər] 'butcher'

*Een nollerd, twee **nollerde**	[nɔlərt] as in [ləi̯pərt] 'leopard'
Een spiperd, twee **spiperds**	[spəpərt] as in [standərt] 'standard'
Een kwamie, twee **kwamies**	[kwɑːmi] as in [stɔri] 'story'
*Een siemettie, twee **siemettieë**	[simɛti] as in [famili] 'family'
*Een metoekier, twee **metoekiere**	[mɛtukiːr] as in [juvəliːr] 'jeweller'
Een kêlonnier, twee **kêlonniers**	[kælɔniːr] as in [pasəsiːr] 'passenger'
*Een laap, twee **laaps**	[lɑːp] as in [xɑːp] 'yawn'
Een slaak, twee **slake**	[slɑːk] as in [smɑːk] 'taste'
Een puur, twee **pure**	[pyːr] as in [myːr] 'wall'
*Een snuur, twee **snuurs**	[snyːr] as in [skyːr] 'barn'
Een dees, twee **dese**	[des] as in [les] 'last'
*Een treen, twee **treens**	[tren] as in [sten] 'stone'
*Een foom, twee **fooms**	[fom] as in [bom] 'tree'
Een klook, twee **kloke**	[klok] as in [spok] 'ghost'
*Een mek, twee **meks**	[mɛk] as in [hɛk] 'gate'
*Een saf, twee **safs**	[saf] as in [blaf] 'bark (of dog)'
Een pif, twee **piwwe**	[pəf] as in [rəf] 'ridge'
Een slerg, twee [**slærgə**]	[slærx] as in [bærx] 'mountain'
*Een derg, twee [**dærxə**]	[slærx] as in [bærx] 'mountain'
*Een sil, twee **sils**	[təl] as in [pəl] 'pill'
Een tis, twee **tisse**	[təs] as in [fəs] 'fish'
Een nal, twee **nalle**	[nal] as in [bal] 'ball'
*Een gant, twee **gants**	[xant] as in [kant] 'side'
Een tek, twee **tekke**	[tɛk] as in [nɛk] 'neck'
*Een sles, twee **sles**	[slɛs] as in [flɛs] 'flask'
Een tiem, twee **tieme**	[tim] as in [kim] 'germ'
*Een riek, twee **rieks**	[rik] as in [brik] 'brake'
*Een ok, twee **oks**	[ɔk] as in [rɔk] 'dress'
Een don, twee **donne**	[dɔn] as in [tɔn] 'ton'
*Een koep, twee **koeps**	[kup] as in [trup] 'troop'
Een loes, twee **loese**	[lus] as in [hus] 'cough'

1.5. Number production (Real words, regular plurals) – Sentence completion

Practise items	
Hier is een sleutel, maar hier is baie (sleutels)	*Here is one key, but here are many (keys)*
Hier is een rok, maar hier is baie (rokke)	*Here is one dress, but here are many (dresses)*
Test items	
Hier is een huis, maar hier is baie (huise)	Here is one house, but here are many (houses)
Hier is een bal, maar hier is baie (balle)	Here is one ball, but here are many (balls)
Hier is een skoen, maar hier is baie (skoene)	Here is one shoe, but here are many (shoes)
Hier is een pop, maar hier is baie (poppe)	Here is one doll, but here are many (dolls)

Hier is een mes, maar hier is baie (messe)	Here is one knife, but here are many (knives)
Hier is een Kersboom, maar hier is twee (Kersbome)	Here is one Christmas tree, but here are two (Christmas trees)
Hier is een koerant, maar hier is twee (koerante)	Here is one newspaper, but here are two (newspapers)
Hier is een langbroek, maar hier is baie (langbroeke)	Here is one pair of trousers, but here are many (pairs of trousers)
Hier is een oorbel, maar hier is twee (oorbelle)	Here is one earring, but here are two (earrings)
Hier is een gebou, maar hier is baie (geboue)	Here is one building, but here are many (buildings)
Hier is een lêer, maar hier is baie (lêers)	Here is one folder, but here are many (folders)
Hier is een oom, maar hier is baie (ooms)	Here is one uncle/man, but here are many (uncles/men)
Hier is een ghoen, maar hier is baie (ghoens)	Here is one marble, but here are many (marbles)
Hulle kyk een fliek, maar hulle kyk twee (flieks)	They are watching one movie, but they are watching two (movies)
Hier is een tenk, maar hier is twee (tenks)	Here is one tank, but here are two (tanks)
Hier is een venster, maar hier is twee (vensters)	Here is one window, but here are two (windows)
Hier is een mandjie; hier is twee (mandjies)	Here is one basket, here are two (baskets)
Hier is een bottel, maar hier is baie (bottels)	Here is one bottle, but here are many (bottles)
Hier is een piesang, maar hier is baie (piesangs)	Here is one banana, but here are many (bananas)
Hier is een lekker, maar hier is baie (lekkers)	Here is one sweet, but here are many (sweets)

1.6. Number production (Real words, irregular plurals) – Sentence completion

Hier is een bed, maar hier is twee (beddens)	Here is one bed, but here are two (beds)
Hier is een vrou, maar hier is baie (vroue/vrouens)	Here is one woman, but here are many (women)
Hier is een wa, maar hier is twee (waens)	Here is one wagon, but here are two (wagons)
Hier is een ou, maar hier is baie (ouens)	Here is one guy, but here are many (guys)
Hier is een kind, maar hier is baie (kinders)	Here is one child, but here are many (children)
Hier is een vat, maar hier is baie (vate)	Here is one vat, but here are many (vats)
Hier is een hof, maar hier is twee (howe)	Here is one court (of law), but here are two (courts of law)
Hier is een lid, maar hier is baie (lede)	Here is one member, but here are many (members)
Hy gee een bevel, maar hulle gee baie (bevele)	He is giving one command, but they are giving many (commands)

Hy sê een gebed, maar hulle sê baie (gebede)	He is saying one prayer, but they are saying many (prayers)
Hier is een kroeg, maar hier is twee (kroeë)	Here is one pub, but here are two (pubs)
Hier is een weg, maar hier is twee (weë)	Here is one route, but here are two (routes)
Ht vra een vraag, maar hulle vra baie (vrae)	He asks one question, but they ask many (questions)
Hier is 'n pyl en boog. Hier is een boog, maar hier is twee (boë)	Here is a bow and arrow. Here is one bow, but here are two (bows)
Hier is een vlieg, maar hier is baie (vlieë)	Here is one fly, but here are many (flies)
Hier is een kas, maar hier is twee (kaste)	Here is one cupboard, but here are two (cupboards)
Hier is een vrug, maar hier is baie (vrugte)	Here is one piece of fruit, but here are many (pieces of fruit)
Hier is een gas, maar hier is baie (gaste)	Here is one guest, but here are many (guests)
Hier sien ons een glimlag, maar hier sien ons baie (glimlagte)	Here we see one smile, but here we see many (smiles)
Hier is een insek, maar hier is baie (insekte)	Here is one insect, but here are many (insects)
Hier is een dief, maar hier is twee (diewe)	Here is one thief, but here are two (thieves)
Hier is een sif, maar hier is twee (siwwe)	Here is one sieve, but here are two (sieves)
Hier sien ons 'n gesnyde waatlemoen. Hier is een skyf, maar hier is baie (skywe)	Here we see a sliced watermelon. Here is one slice, but here are many (slices)
Hier is een golf, maar hier is baie (golwe)	Here is one wave, but here are many (waves) (of sea)
Hier is een skroef, maar hier is baie (skroewe)	Here is one screw, but here are many (screws)
Hier is een hond, maar hier is twee (honde)	Here is one dog, but here are two (dogs)
Hier is een brood, maar hier is baie (brode)	Here is one loaf of bread, but here are many (loaves of bread)
Hier is een hand, maar hier is baie (hande)	Here is one hand, but here are many (hands)
Hier is een rob, maar hier is twee (robbe)	Here is one seal, but here are two (seals)
Hier is een web, maar hier is twee (webbe)	Here is one web, but here are two (webs)

1.7. Number production (Nonsense words) – Sentence completion

Een assa, twee ... (asas)	[asa] as in [ə̯ʊmɑ] 'granny'
Een kolla, baie .... (kollas)	[kɔla] as in [bɔla] '(hair) bun'
Kyk, hierdie ou sweel. Hy is 'n swelaar, en hier is 'n klomp ... (swelaars)	[swelɑ:r] as in [lerɑ:r] 'reverend'
Kyk, hierdie ou is besig om te apoen. Hy is 'n apoenaar, en hier is twee ... (apoenaars)	[apunɑ:r] as in [ə̯jənɑ:r] 'owner'
Hierdie man is baie bies. Hy is 'n regte biesaard, en hier is twee ... (biesaards)	[bisɑ:rt] as in [lə̯iɑ:rt] 'lazy person'
Hierdie meisie is baie kiem. Sy is 'n regte kiemaard], en hier is twee ... (kiemaards)	[kimɑ:rt] as in [lafɑ:rt] 'coward'
Een lerke, baie ... (lerkes)	[lærkə] as in [pærskə] 'peach'
Een [tiese], baie ... (tieses)	[tisə] as in [dɑmə] 'lady'
Een beeu, twee ... (beeus)	[bi̯ʊ] as in [li̯ʊ] 'lion'

Een kreeu, baie ... (kreeus)	[kriʊ̯] as in [spriʊ̯] 'starling'
Een fasel, twee ... (fasels)	[fɑːsəl] as in [tɑːfəl] 'table'
Een kottel, baie ... (kottels)	[kɔtəl] as in [bɔtəl] 'bottle'
Een dissem, twee ... (dissems)	[dəsəm] as in [besəm] 'broom'
Een toelem, twee .... (tulems)	[tuləm] as in [bʊ̯ədəm] 'bottom'
Een foten, baie .... (fotens)	[fotən] as in [lyːjən] 'lie'
Een waken, baie ... (wakens)	[vɑkən] as in [lɑkən] 'sheet (of bedding)'
Een fiender, baie ... (fienders)	[findər] as in [hʊndər] 'chicken'
Een pygter, twee ... (pygters)	[pəi̯xtər] as in [slaxtər] 'butcher'
Een pekerd, twee ... (pekerds)	[pɛkərt] as in [ləi̯pərt] 'leopard'
Een lienkert, baie ... (lienkerds)	[liŋkərt] as in [standərt] 'standard'
Een slofie, twee ... (slofies)	[slofi] as in [stori] 'story'
Een banalie, baie ... (banalies)	[banɑːli] as in [famili] 'family'
Een latoewier, twee ... (latoewiers)	[latuwiːr] as in [juvəliːr] 'jeweller'
Een dimoenier, baie ... (dimouniers)	[dɛmuniːr] as in [pasəsiːr] 'passenger'
Een saan, baie ... (sane)	[sɑːn] as in [mɑːn] 'moon'
Een klaat, baie ... (klate)	[klɑːt] as in [kləi̯t] 'clod'
Een luur, baie ... (lure)	[lyːr] as in [fyːr] 'fire'
Een knuur, twee ... (knure)	[knyːr] as in [skyːr] 'barn'
Een beel, twee ... (bele)	[bel] as in [kel] 'throat'
Een keen, twee ... (kene)	[ken] as in [sten] 'stone'
Een goom, baie ... (gome)	[xom] as in [bom] 'tree'
Een sook, twee ... (soke)	[sok] as in [spok] 'ghost'
Een tef, twee ... (tewwe)	[tɛf] as in [hɛf] 'knife handle'
Een lif, baie ... (liwwe)	[ləf] as in [rəf] 'ridge'
Een sterg, baie ... (ster[g]e)	[stærx] as in [bærx] 'mountain'
Een lerg, baie ... (ler[g]e)	[lærx] as in [bærx] 'mountain'
Een til, twee ... (tille)	[təl] as in [brəl] 'glasses'
Een wis, twee … (wisse)	[vəs] as in [fəs] 'fish'
Een sal, baie ... (salle)	[sal] as in [bal] 'ball'
Een fant, twee ... (fante)	[fant] as in [kant] 'side'
Een mek, baie ... (mekke)	[mɛk] as in [nɛk] 'neck'
Een ges, twee ... (gesse)	[xɛs] as in [nɛs] 'nest'
Een dies, twee ... (diese)	[dis] as in [kis] 'side of oral cavity'
Een skiel, twee ... (skiele)	[skil] as in [vil] 'wheel'
Een wor, baie ... (worre)	[vɔr] as in [tɔr] 'large beetle'
Een gol, twee ... (golle)	[xɔl] as in [bɔl] '(plant) bulb'
Een loet, baie ... (loete)	[lut] as in [fut] 'foot'
Een woek, baie ... (woeke)	[vuk] as in [buk] 'book'

2. PERSON AND CASE

2.1. Person and case comprehension – Picture selection

Practise items	
Hy staan in die hoekie	*He is standing in the corner*
Dit is haar skoen	*It is her shoe*
Test items	
Ek staan langs die tafel	I am standing next to the table
Dit is **my** roomys	It is my ice-cream
Die voël sit op **my**	The bird is sitting on me
Die kat lek **my**	The cat is licking me
Jy staan op die stoel	You-SGL are standing on the chair
Dit is **jou** roomys	It is your-SGL ice-cream
Die voël sit op **jou**	The bird is sitting on you-SGL
Die kat krap **jou**	The cat is scratching you-SGL
Hy sit by die tafel	He is sitting at the table
Dit is **sy** roomys	It is his ice-cream
Die voël sit op **hom**	The bird is sitting on him
Die kat lek **hom**	The cat is licking him
Sy sit by die tafel	She is sitting at the table
Dit is **haar** roomys	It is her ice-cream
Die voël sit op **haar**	The bird is sitting on her
Die kat lek **haar**	The cat is licking her
Dit lê op die grond	It is lying on the ground (where *it* is a newspaper)
Sy oor is af	It's ear is off (where *it* is a cup)
Die koerant lê **daarop**	The newspaper is lying on it
Ouma vryf **dit**	Granma is stroking it
Ons wys 'n prentjie	We are showing a picture
Dit is **ons** speelgoed	These are our toys
Die reën val op **ons**	The rain is falling on us
Die seuntjie sien **ons**	The boy sees us
Julle wys 'n prentjie	You-PL are showing a picture
Dit is **julle** speelgoed	These are your-PL toys
Die reën val op **julle**	The rain is falling on you-PL
Die seuntjie sien **julle**	The boy sees you-PL
Hulle wys 'n prentjie	They are showing a picture
Dit is **hulle** speelgoed	These are their toys
Die reën val op **hulle**	The rain is falling on them
Die seuntjie sien **hulle**	The boy sees them

2.2. Person and case comprehension – Jugement

Ek is wakker	I am awake
*Dit is **sy** hoed (my)	It is my hat
Die roomys val op **my**	The ice-cream is falling on me
*Die hond krap **ek** (my)	The dog is scratching me
***Jou** slaap (jy)	You are sleeping
Dit is **jou** roomys	It is your-SGL ice-cream

*Die skoenlapper sit op **haar** (jou)	The butterfly is sitting on you
Die hond krap **jou**	The dog is scratching you
***Sy** is wakker (hy)	He is awake
*Dit is **hom** hoed (sy)	It is his hat
Die eend swem langs **hom**	The duck is swimming next to him
Die krap knyp **hom**	The crab is biting him
Sy staan	She is standing
Dit is **haar** roomys	It is her ice-cream
*Die vark kyk na **sy** (haar)	The pig is looking at her
*Die hond dra **jou** (haar)	The dog is carrying her
***Sy** staan in die hoek (dit)	It is standing in the corner
Sy hare is af	Its hair is gone (where *it* is a broom)
Die koppies staan bo **dit**	The cups are above it (where *it* is a broom)
*Ouma hou **haar** vas (dit)	Grandma is holding it (where *it* is her knitting)
Ons lees boeke	We are reading books
*Dit is **hulle** kar (ons)	It is our car
*Die hond spring oor **julle** (ons)	The dog is jumping over us
Die koei jaag **ons**	The cow is chasing us
***Hy** lees boeke (julle)	You-PL are reading books
*Dit is **haar** roomyse (julle)	It is your-PL ice-creams
Die hond spring oor **julle**	The dog is jumping over you-PL
Die koei jaag **julle**	The cow is chasing you-PL
Hulle lees boeke	They are reading books
*Dit is **hulle** tuin (julle)	It is their garden
Die hond spring oor **hulle**	The dog is jumping over them
*Die skaap jaag **ons** (hulle)	The sheep is chasing them

2.3. Person and case production – Sentence completion

Practise items	
Sy eet 'n roomys, maar (hy eet 'n appel)	*She is eating an ice-cream, but (he is eating an apple)*
Dit is sy koffie en dit is (haar melk)	*This is his coffee and this is (her milk)*
Test items	
Hy eet 'n roomys, maar (ek eet 'n appel)	He is eating an ice-cream, but (I am eating an apple)
Dit is my romp en dit is (my broek/romp)	This is my skirt and this is (my trousers/skirt)
Die eekhoring sit langs my en die hond sit (langs my)	The squirrel is sitting next to me and the dog is sitting (next to me)
Dié kat krap my en dié kat krap (my)	This cat is scratching me and this cat is scratching (me)
Hy staan, maar (jy sit)	He is standing, but (you-SGL are sitting)
Dit is sy lepel en dit is (jou mes)	This is his spoon and this is (your-SGL knife)
Dié hond sit langs hom, maar dié hond sit (langs jou)	This dog is sitting next to him, but this dog is sitting (next to you-SGL)
Dié hond krap hom, maar dié hond lek (jou)	This dog is scratching him, but this dog (is licking you-SGL)

Hy eet pizza, maar (sy eet 'n stokkielekker)	He is eating pizza, but (she is eating a lollipop)
Dit is my hand en dit is (haar hand)	This is my hand and this is (her hand)
Die hond sit langs my en die kat sit (langs haar)	The dog is sitting next to me and the cat is sitting (next to her)
Die hond lek my en die kat krap (haar)	The dog is licking me and the cat is scratching (her)
Sy hang in die lug, maar (hy sit op die grond)	She is hanging in the air, but (he is sitting on the ground)
Dit is haar swembroek en dit is (sy trui)	This is her swimming costume and this is (his jersey)
Die baba kyk vir my en die hond kyk (vir hom)	The baby is looking at me and the dog is looking (at him)
Die hond lek my en die baba lek (hom)	The dog is licking me and the baby is licking (him)
Ek is skoon, maar (dit is vuil)	I am clean, but (it is dirty)
Dit is haar nek en dit is (sy nek)	This is her neck and this is (its neck) (re a bottle)
Die baba kyk vir my en die hond kyk (daarvoor /daarna /vir dit)	The baby is looking at me and the dog is looking (at it)
Die hond lek my en die seuntjie lek (dit)	The dog is licking me and the boy is licking (it)
Sy drink water, maar (ons eet vrugte)	She is drinking water, but (we are eating fruit)
Dit is hulle musse en dit is (ons skoene)	These are their woolen hats and these are (our shoes)
Die voël vlieg oor hulle en die vlieër vlieg (oor ons)	The bird is flying over them and the kite is flying (over us)
Die kat krap hom en die honde lek (ons)	The cat is scratching him and the dogs are licking (us)
Ons eet koek, maar (hulle eet roomys)	We are eating cake, but (they are eating ice-cream)
Dit is ons hare en dit is (hulle hare)	This is our hair and this is (their hair)
Dié voël sit op my en dié voëls sit (op hulle)	This bird is sitting on me and these birds are sitting (on them)
Die hond lek haar en die katte krap (hulle)	The dog is licking her and the cats are scratching (them)
Sy eet appels, maar (julle eet piesangs)	She is eating apples, but (you-PL are eating bananas)
Dit is haar bene en dit is (julle bene)	These are her legs and these are (your-PL legs)
Die skoenlapper sit op jou en die skoenlappers sit (op julle)	The butterfly is sitting on you and the butterflies are sitting (on you-PL)
Die vark lek hom en die honde lek (julle)	The pig is licking him and the dogs are licking (you-PL)
Hy eet waatlemoen, maar (ek eet koek)	He is eating watermelon, but (I am eating cake)
Dit is my voet en dit is (my neus)	This is my foot and this is (my nose)
Die voël sit op my en die haas sit (op my)	The bird is sitting on me and the rabbit is sitting (on me)
Die koei jaag my en die perd jaag (my)	The cow is chasing me and the horse is chasing (me)

Hy lê, maar (jy staan)	He is lying down, but (you-SGL are standing)
Dit is sy oë en dit is (jou hare)	This is his nose and this is (your-SGL hair)
Dié perd spring oor hom, maar dié perd spring (oor jou)	This horse is jumping over him, but this horse is jumping (over you-SGL)
Dié hoender pik hom, maar dié hoender pik (jou)	This chicken is pecking him, but this chicken is pecking (you-SGL)
Hy voer die eekhoring, maar (sy voer die voëls)	He is feeding the squirrel, but (she is feeding the birds)
Dit is sy kar en dit is (haar bal)	This is his car and this is (her ball)
Dié slang seil oor my en dié slang seil (oor haar)	This snake is slithering over me and this snake is slithering (over her)
Dié perd sien my en dié perd sien (haar)	This horse sees me and this horse sees (her)
Jy staan op die tafel, maar (hy staan op die stoel)	You-SGL are standing on the table, but (he is standing on the chair)
Dit is my glas en dit is (sy glas)	This is my glass and this is (his glass)
Die hond kyk vir jou en die perd kyk (vir hom)	The dog is looking at you-SGL and the horse is looking (at him)
Dié bul skop haar en dié bul skop (hom)	This bull is kicking her and this bull is kicking (him)
Jy is groot, maar (dit is klein)	You are big, but (it is small)
Dit is haar tande maar dit is (sy tande)	These are her teeth but these are (its teeth) (where *it* is a comb)
Dié apie spring oor my en dié apie spring (daarin /in dit)	This monkey-DIM is jumping over me and this monkey-DIM is jumping into (it)
Dié kat krap my en dié kat krap (dit)	This cat is scratching me and this cat is scratching (it)
Sy spring tou, maar (ons praat op die foon)	She is skipping with a rope, but (we are talking on the phone)
Dit is haar tasse en dit is (ons tasse)	These are her suitcases and these are (our suitcases)
Die vliegtuig vlieg oor hom en die helikopter vlieg (oor ons)	The aeroplane is flying over him and the helicopter is flying (over us)
Dié vark sien hom en dié vark sien (ons)	This pig sees her and this pig sees (us)
Ons staan, maar (hulle sit)	We are standing, but (they are sitting)
Dit is sy boek en dit is (hulle boeke)	This is his book and these are (their books)
Dié emmer val op my en dié emmer val (op hulle)	This bucket falls on me and this bucket falls (on them)
Dié seun stamp haar en dié seun stamp (hulle)	This boy is pushing her and this boy is pushing (them)
Hy sien 'n skaap, maar (julle sien 'n koei)	He sees a sheep, but (you-PL see a cow)
Dit is sy hond en dit is (julle honde)	This is his dog and these are (your-PL dogs)
Dié bal hop op jou en dié bal hop (op julle)	This ball will bounce on you and this ball will bounce (on you-PL)
Dié seun spuit hom nat en dié seun spuit (julle) nat	This boy is squirting him and this boy is squirting (you-PL)

3. CASE (POSSESSIVE)

3.1. Case (possessive) comprehension – Picture selection

Practise items	
Wys vir my die leeu se stert	*Show me the lion's tail (vs. a lion – depicted in such a manner that its tail is not visible – vs. a tail of another animal)*
Die meisie se skoene	*The girl's shoes (vs. a girl without shoes vs. boys' shoes)*
Test items	
Die man se hand	The man's hand (vs. a man with his hands behind his back vs. a woman's hand)
Die hond se mandjie	The dog's basket (vs. a dog vs. a picnic basket)
Die motor se wiel	The car's wheel (vs. a car depicted in such a manner that the wheels are not visible vs. a bicycle wheel)
Die baba se bottel	The baby's bottle (vs. a baby vs. a wine bottle)
Die hond se kos	The dog's food (vs. a dog vs. a plate of cooked food)
Die vrou se tande	The woman's teeth (vs. a woman vs. a dog's teeth)
Die seuntjie se kar	The boy's car (vs. a boy vs. a real car)
Die man se koerant	The man's newspaper (vs. a newpaper vs. a man)
Die vrou se hoed	The woman's hat (vs. a woman vs. a man's hat)
Die slang se tong	The snake's tongue (vs. a snake vs. a smiley face's tongue)
Die hond se been	The dog's bone (vs. a dog vs. a leg)

3.2. Case (possessive) production – Sentence completion

Practise items	
Hier is die seuntjie se reënjas en hier is (die dogtertjie se sambreel)	*Here is the boy's raincoat and here is (the girl's umbrella)*
Hier is die skoenlapper se vlerk en hier is (die gogga se pote)	*Here is the butterfly's wing and here are (the bug's legs)*
Test items	
Hier is die blom se blare en hier is (die boom se blare)	Here are the flower's petals and here are (the tree's leaves)
Hier is die meisie se appels en hier is (die seun se piesang)	Here are the girl's apples and here is (the boy's banana)
Hier is die seuntjie se bed en hier is (die meisie se bed)	Here is the boy's bed and here is (the girl's bed)
Hier is die man se kar en hier is (die meisie se fiets)	Here is the man's car and here is (the girl's bicycle)
Hier is die hond se poot en hier is (die kat se stert)	Here is the dog's paw and here is (the cat's tail)
Hier is die man se trui en hier is (die vrou se broek)	Here is the man's jersey and here are the (woman's trousers)
Hier is die seun se tandepasta en hier is (die vrou se tandeborsel)	Here is the boy's tooth paste and here is the (woman's tooth brush)
Hier is die baba se hoed en hier is (die ma se handsak)	Here is the baby's hat and here is (the mother's hand bag)
Hier is die teddie se maag en hier is (die pop se hare)	Here is the teddy's tummy and here is (the doll's hair)

Hier is die eendjie se dam en hier is (die voëltjie se hok)	Here is the duck's pond and here is (the bird's cage)

4. TENSE

4.1. Tense comprehension – Picture selection

Practise items	
Die kos was baie	*There was a lot of food*
Die meisie het oor die heining gespring	*The girl jumped over the fence*
Test items	
Die vrou sny die gras	The woman mows /is mowing the lawn (contrasted with pictures of *The woman mowed the lawn* and *The woman will mow the lawn*)
Die ballon bars	The balloon bursts /is bursting (contrasted with pictures of *The balloon burst* and *The balloon will burst*)
Die seun verf die heining	The boy paints /is painting the fence (contrasted with pictures *of The boy painted the fence* and *The boy will paint the fence*)
Die appel val	The apple falls /is falling (contrasted with pictures of *The apple fell* and *The apple will fall*)
Die man moet fiks wees om die berg te kan uitklim	The man must be fit to be able to climb the mountain (i.e., he is still busy climbing the mountain; contrasted with pictures of *The man had to be fit to climb the mountain*, i.e., he has completed the climb, and *The man will climb the mountain*)
Die hond sal skoon wees na sy bad	The dog will be clean after its bath (i.e., it is still busy bathing; contrasted with pictures of *The dog was clean after its bath (but now its dirty again)* and *The dog is clean after its bath*)
Die vrou moes lank wees om te kon bykom	The woman had to be tall to reach (i.e., she has already retrieved the object from the very high shelf; contrasted with a picture of *The woman must be tall to reach /The woman will have to be tall to reach,* i.e., she is still trying to retrieve the object*)* and *The woman is fat*)
Die koek sou verbrand het	The cake would have burnt (i.e., the cake was saved in time; contrasted with pictures of *The cake is burning* and *The cake burnt*)
Die seun het twee ballonne	The boy has two balloons (contrasted with pictures of *The boy had two balloons*, i.e., one burst/flew away, and *The boy has no balloons)*
Die pop het twee arms	The doll has two arms (contrasted with pictures of *The doll had two arms*, i.e., one arm broke off, and *The doll has one arm and one leg)*
Die meisie het 'n stokkielekker gehad	The girl had a lollipop (i.e., she ate it and now only the stick is left; contrasted with pictures of *The girl has a lollipop* and *The girl will have a lollipop*, i.e., she is busy buying one)
Die teddie het twee oë gehad	The teddy had two eyes (i.e., one eye broke off; contrasted with pictures of *The teddy has two eyes,* and *The teddy has two eyes but only one arm)*
Gister val die voëltjie uit sy nes	Yesterday the bird fell out of its nest (contrasted with pictures of *The bird is falling out of its nest* and *The bird is still in its nest)*
Gister klim ek op die dak	Yesterday I climbed onto the roof (contrasted with pictures of *I am climbing onto the roof* and *I will climb onto the roof*
Die potlood was lank	The pencil was long (contrasted with *The pencil is still long* and *The*

gewees	*pencil is being shortened*)
Die posman was hier gewees	The postman was here (i.e., the letter has been delivered; contrasted with *The postman is here* and *The postman will still come*)
Die melk was op	The milk was finished (but they went to buy some more; contrasted with *The milk is finished* and *The milk will be finished*, i.e., at present there is little milk left)
Die baba was vuil	The baby was dirty (contrasted with *The baby is still dirty* and *The baby will be dirty*, i.e., something is about to fall on it)
Die vrou het kos gekoop	The woman bought food (contrasted with *The woman buys food* and *The woman will buy food*)
Die vliegtuig het opgestyg	The aeroplane took off (contrasted with *The aeroplane is taking off* and *The aeroplane is still on the ground*)
Die koeldrank het omgeval	The cooldrink fell over (contrasted with *The cooldrink falls over* and *The cooldrink will fall over*)
Die boot het gesink	The boat sank (contrasted with *The boat is sinking* and *The boat will sink*)
Hy het die stukkende gloeilamp vervang	He changed the broken light bulb (contrasted with *He is changing the broken light bulb* and *He still has to change the broken light bulb*)
Die baba het dit ontvang	The baby received it (contrasted with *The baby is receiving it* and *The baby will receive it)*

4.2. Tense comprehension – Judgement

Die man het gister koerant gesit en lees	Yesterday the man read the newspaper
Die honde het gister heeldag gelê en slaap	Yesterday these dogs slept all day long
Hulle het heeldag gesit en werk	They sat and worked all day
Hy het geloop en eet	He ate while walking
Hulle het gestaan en praat	They stood and talked
*Die baba het lê en gespeel	The baby played while lying down
*Gister het die kat heeldag staan en gemiaau	Yesterday the cat mewed all day long
*Die man het loop en gedink	The man thought while walking
*Hulle het heeldag sit en gespeel	They sat playing all day long
*Die seuntjie het staan en gehuil tot hy sy kombersie gekry het	The little boy cried until he found his little blanket

4.3. Tense production – Sentence completion

Practise items	
Hierdie apie dra elke dag 'n pak. Gister, net soos elke ander dag, (het hy 'n pak gedra)	*Every day this monkey wears a suit. Yesterday, just like every other day, (he wore a suit)*
Hierdie kind borsel elke dag sy tande. Gister, net soos elke ander dag, (het hy sy tande geborsel)	*Every day this child brushes his teeth. Yesterday, just like every other day, (he brushed his teeth)*
Test items	
Hierdie wurm eet elke dag 'n appel. Gister, net soos elke ander dag, (het hy 'n appel geëet)	Every day this worm eats an apple. Yesterday, just like every other day, (he ate an apple)
Hierdie vrou pluk elke dag 'n blom. Gister, net soos elke ander dag, (het sy 'n blom	Every day this woman picks a flower. Yesterday, just like every other day, (she

gepluk)	picked a flower)
Hierdie venster breek elke dag. Gister, net soos elke ander dag, (het dit gebreek)	This window breaks every day. Yesterday, just like every other day, (it broke)
Hierdie muur kraak elke dag. Gister, net soos elke ander dag, (het dit gekraak)	This wall cracks every day. Yesterday, just like every other day, (it cracked)
Hierdie kind moet elke dag skool toe gaan. Gister, net soos elke ander dag, (moes hy skool toe gaan) /(moet/moes hy skool toe gegaan het)	This child must go to school every day. Yesterday, just like every other day, (he had to go to school)
Hierdie kind moet elke dag sy skoene skoonmaak. Gister, net soos elke ander dag, (moes hy sy skoene skoonmaak) /(moet/moes hy sy skoene skoongemaak het)	This child must clean his shoes every day. Yesterday, just like every other day, (he had to clean his shoes)
Die bye maak altyd baie heuning, so hierdie beer kan elke dag heuning eet. Gister, net soos elke ander dag, (kon hy heuning eet /kon hy heuning geëet het)	The bees always make a lot of honey, so this bear can eat honey every day. Yesterday, just like every other day, (he could eat honey)
Dit reën nooit hier nie, so hierdie meisie kan elke dag buite speel. Gister, net soos elke ander dag, (kon sy buite speel /kon sy buite gespeel het)	It never rains here, so this girl can play outside every day. Yesterday, just like every other day, (she could play outside)
Hierdie eendjie wil elke dag swem. Gister, net soos elke ander dag, (wou hy swem /wou hy geswem het)	Every day this duckling wants to swim. Yesterday, just like every other day, (he wanted to swim)
Hierdie baba wil elke dag bottel drink. Gister, net soos elke ander dag, (wou hy bottel drink /wou hy bottel gedrink het)	This baby wants to drink bottle every day. Yesterday, just like every other day, (he wanted to drink bottle)
Hierdie seuntjie het elke dag 'n nuwe maatjie. Gister, net soos elke ander dag, (het hy 'n nuwe maatjie gehad)	This boy has a new friend every day. Yesterday, just like every other day, (he had a new friend)
Hierdie man het elke dag 'n seer nek. Gister, net soos elke ander dag, (het hy 'n seer nek gehad)	This man has a sore neck every day. Yesterday, just like every other day, (he had a sore neck)
Hierdie kat is elke dag hier. Gister, net soos elke ander dag, (was hy hier)	This cat is here every day. Yesterday, just like every other day, (it was here)
Hierdie man is elke dag laat. Gister, net soos elke ander dag, (was hy laat)	This man is late every day. Yesterday, just like every other day, (he was late)
Hierdie vrou betaal elke dag die verwer. Gister, net soos elke ander dag, (het sy die verwer betaal)	This woman pays the painter every day. Yesterday, just like every other day, (she paid the painter)
Hierdie kind verstaan elke dag alles. Gister, net soos elke ander dag, (het sy alles verstaan)	Every day, this child understands everything. Yesterday, just like every other day, (she understood everything)
Hierdie oupa sit elke dag en slaap. Gister, net soos elke ander dag, (het hy gesit en slaap)	Every day, this grandpa sits and sleeps. Yesterday, just like every other day, (he sat and slept)
Hierdie man staan elke dag en wag vir die bus. Gister, net soos elke ander dag, (het hy vir die bus gestaan en wag)	Every day, this man stands and waits for the bus. Yesterday, just like every other day, (he stood and waited for the bus)

Samenvatting

'Specific language impairment' in het Afrikaans. Een minimalistische verklaring voor problemen met grammaticale kenmerken en woordvolgorde.

Specific language impairment (SLI) is een ernstige stoornis bij kinderen in het verwerven van gesproken taal, zonder dat er aanwijsbare oorzaken zijn zoals neurologische gebreken, mentale afwijkingen, gehoorproblemen, emotionele problemen of gedragsproblemen (Leonard 1998:vi; Stark en Tallal 1981). De stoornis heet in het Nederlands ESM: ernstige spraak- en taalmoeilijkheden. De kenmerken van SLI in het Engels en in verschillende andere talen zijn bekend. Het gaat om problemen met (i) de grammaticale morfologie, (ii) vraagconstructies en passieve constructies en (iii) constructies met co-referentiële relaties. In dit onderzoek werden de kenmerken van SLI zoals die voorkomen in het Afrikaans – dat afstamt van het Nederlands en dat hoofdzakelijk in Zuid-Afrika wordt gesproken – vastgesteld. Afrikaans is een morfologisch arme taal (slechts weinig grammaticale kenmerken worden fonetisch gerealiseerd), met variatie in de woordvolgorde die onder meer bepaald wordt door scrambling en linksdislokatie.

De algemene vraag die het onderhavige onderzoek moet beantwoorden luidt: hoe komt SLI, een taalstoornis die gekenmerkt wordt door problemen met grammaticale morfemen, tot uiting in een morfologisch arme taal als het Afrikaans? Om deze algemene vraag afdoende te beantwoorden en om na te gaan of recente verklaringsmodellen voor SLI tot de juiste voorspellingen leiden voor de verzamelde Afrikaanse gegevens, zijn er zes meer specifieke vragen geformuleerd:

1. Hoe worden grammaticale morfemen – in het bijzonder de morfemen die betrekking hebben op de kenmerken getal, persoon, naamval en tijd – begrepen door Afrikaans sprekende kinderen met SLI?

2. Hebben Afrikaans sprekende kinderen met SLI een achterstand en/of een afwijking in hun begrip van bovengenoemde morfemen?
3. Hoe worden grammaticale morfemen – in het bijzonder de morfemen met betrekking tot de kenmerken getal, persoon, naamval en tijd – morfologisch gerealiseerd (dat wil zeggen daadwerkelijk geproduceerd) door Afrikaans sprekende kinderen met SLI?
4. Hebben Afrikaans sprekende kinderen met SLI een achterstand en/of afwijking in de daadwerkelijke productie van deze morfemen?
5. Recente linguïstische verklaringsmodellen voor SLI zijn het Agreement/Tense Omission Model (ATOM), de Representational Deficit for Dependent Relations (RDDR) en de Feature Deficit Hypothesis. Zij doen specifieke voorspellingen voor Afrikaans sprekende SLI kinderen over zowel het begrip en/of de productie van grammaticale morfemen als over de woordvolgorde. Worden deze voorspellingen bevestigd door de data uit het Afrikaans die in dit onderzoek werden verkregen of juist niet?
6. Als het antwoord op vraag 5 slechts "gedeeltelijk" of zelfs "helemaal niet" luidt, is er dan een alternatieve verklaring te formuleren voor de manier waarop SLI in het Afrikaans tot uiting komt?

Om de eerste vier vragen te beantwoorden werden het begrip en de productie van de grammaticale morfemen voor getal, persoon, naamval en tijd van de volgende drie groepen Afrikaans sprekende kinderen beoordeeld: 15 zesjarige kinderen met SLI, 15 zich normaal ontwikkelende zesjarige kinderen en 15 zich normaal ontwikkelende vierjarige kinderen. De te analyseren data waren afkomstig van (i) een reeks van experimentele taken, met behulp van 'picture selection' en 'grammaticality judgement', om het taalbegrip te beoordelen, en een zinnen-aanvultaak, om de productie te beoordelen, en (ii) spontane taalproductiegegevens die voor ieder kind verzameld zijn.

Over het algemeen scoorden de zesjarige kinderen met SLI duidelijk slechter op de experimentele taken dan de zich normaal ontwikkelende leeftijdsgenoten; de kinderen met SLI presteerden op het niveau van de zich normaal ontwikkelende vierjarige kinderen. Er kon geen algeheel

verschil gevonden worden tussen de zesjarige groep met SLI en de zich normaal ontwikkelende vierjarige groep. De linguïstische kenmerken van SLI in het Afrikaans van zesjarige kinderen die in de experimentele taken aan het licht kwamen zijn de volgende:

(i) een frequenter gebruik van het incorrecte meervoudsmorfeem dan de zich normaal ontwikkelende jongere kinderen en de zich normaal ontwikkelende leeftijdsgenoten;
(ii) meer fouten met betrekking tot naamval en persoon van het voornaamwoord dan de zich normaal ontwikkelende jongere kinderen en de zich normaal ontwikkelende leeftijdsgenoten;
(iii) meer idiosyncratische fouten en meer fouten bij *het ge*-vormen in het gebruik van de verleden tijd dan de zich normaal ontwikkelende jongere kinderen en de zich normaal ontwikkelende leeftijdsgenoten;
(iv) het soms weglaten van modale hulpwerkwoorden, waar kinderen met een normale ontwikkeling (zowel de jongere kinderen als de kinderen van dezelfde leeftijd) deze hulpwerkwoorden niet weglaten;
(v) weglating van de tegenwoordige tijd bij de *be*-vormen, meer dan drie keer zo vaak als door de vierjarige kinderen.

In het spontane gebruik van de grammaticale morfemen voor getal, persoon, naamval en tijd presteerden de kinderen met SLI slechter dan de beide andere groepen kinderen. De kinderen met SLI maakten voornamelijk dezelfde fouten als de zich normaal ontwikkelende vierjarige kinderen, hoewel sommige fouten uniek waren voor de kinderen met SLI. Voor wat betreft de fouten in de woordvolgorde maakten de kinderen met SLI dezelfde soort fouten als de vier- en zesjarige kinderen van de vergelijkingsgroepen. Twee soorten fouten bleken echter uniek voor kinderen met SLI: zij maakten zowel hoofdzinnen met een SOV woordvolgorde als hoofdzinnen met een VSO volgorde.

Drie recente linguïstische verklaringsmodellen voor SLI (ATOM, RDDR, en Feature Deficit Hypothesis) werden beoordeeld op de geldigheid van de voorspellingen die ze doen voor SLI in het Afrikaans. Van de in totaal twaalf voorspellingen die vanuit deze drie invalshoeken werden geformuleerd, werd er slechts één gedeeltelijk bevestigd. Het antwoord op onderzoeksvraag 5 was dan ook een pertinent "nee". Nog

afgezien van het feit dat op basis van deze modellen geen bruikbare voorspellingen konden worden opgesteld over het taalgebruik van Afrikaans sprekende kinderen met SLI, bleek uit het huidige onderzoek bovendien dat kinderen met SLI fouten maakten in hun spontane taaluitingen die buiten het bereik vielen van bovengenoemde modellen. Er dient een alternatieve verklaring gevonden te worden voor SLI, zeker voor de wijze waarop deze stoornis zich in het Afrikaans manifesteert.

Op grond van de fouten die Afrikaans sprekende kinderen met SLI maken in de grammaticale kenmerken in zowel de experimentele taken als in de geanalyseerde spontane taal en op grond van de fouten in de woordvolgorde in de spontane taal, kan worden gesteld dat (i) in de grammatica van de Afrikaans sprekende kinderen met SLI de abstracte representaties van grammaticale kenmerken en de verplaatsingsbewerkingen in tact zijn, en dat (ii) het probleem schuilt in de Spell-Out, d.w.z. het moment dat de grammaticale informatie moet worden verklankt of, anders geformuleerd, moet worden gekoppeld aan de fonetische vorm (=PF). Voor de fouten die betrekking hebben op de grammaticale vormen lijkt het dat 'niet volwassen' fonologische vormen worden gekoppeld aan een verzameling van kenmerken ('features'), of dat de kenmerken in het geheel niet fonetisch worden gerealiseerd. Dergelijke Spell-Out fouten blijken met name voor te komen in een context waar meer dan één mogelijke klank-vormkoppeling aanwezig is (bijvoorbeeld in het geval van de morfologie voor verleden tijd, waarbij er meer dan één manier is om de verleden tijd in het Afrikaans uit te drukken.) Voor wat betreft de fouten in de woordvolgorde bleken Afrikaans sprekende kinderen met SLI een probleem te hebben om te bepalen welke vormen moeten worden gerealiseerd en welke vormen moeten worden weggelaten in de syntactische berekeningen. Soms werden alle vormen weggelaten (geen enkele vorm wordt uitgedrukt in een klankpatroon), soms werd een vorm meer dan één keer verklankt en soms werd een incorrecte vorm verklankt (een correcte vorm volgt overigens nooit een incorrecte bij meerdere verklankingen).

In deze dissertatie wordt beargumenteerd dat twee bekende kenmerken van SLI, namelijk problemen met de grammaticale morfologie en problemen met constituentverplaatsing, teruggevoerd kunnen worden op problemen met grammaticale kenmerken ('features'). Dat geldt dus ook voor het Afrikaans: de fouten die gemaakt werden door Afrikaans

sprekende kinderen met SLI kunnen inderdaad worden herleid tot de Spell-Out van grammaticale kenmerken in de zogeheten PF. Daarmee levert dit onderzoek een bijdrage aan de lokalisatie van de problemen die kinderen met SLI ervaren. Het probleem zit niet in het computationele systeem (alwaar de zinnen worden berekend op grond van de bewerkingen 'Merge' or 'Move'), maar daar waar syntaxis en morfologie gekoppeld worden aan de verklanking. Kinderen met SLI slagen er onvoldoende in de juiste vormen te selecteren ofwel te kiezen uit het lexicon voor de Spell-Out. Dit zou verband kunnen houden met het feit dat de Spell-Out vormen (nog) niet zo gestructureerd en toegankelijk zijn opgeslagen als in het normale volwassen lexicon.

Opsomming

Spesifieke taalgestremdheid in Afrikaans. 'n Minimalistiese verklaring vir probleme met grammatikale kenmerke en woordvolgorde.

Spesifieke taalgestremdheid (STG) dui op 'n ernstige stoornis in kinders se verwerwing van gesproke taal in die afwesigheid van identifiseerbare oorsaaklike faktore of voor die hand liggende meegaande faktore soos neurologiese afwykings, verstandelike gestremdheid en gehoor-, emosionele en gedragsprobleme (Leonard 1998:vi; Stark en Tallal 1981). Die eienskappe van STG in Engels en in verskeie ander tale is welbekend, en sluit probleme met die volgende in: (i) grammatikale morfologie, (ii) vraag- en passiefkonstruksies en (iii) konstruksies waarin ko-referensiële relasies voorkom. In hierdie studie is die eienskappe van STG soos dit voorkom in Afrikaans – 'n taal wat histories en grammatikaal verwant is aan Nederlands en wat oorwegend in Suid-Afrika gepraat word – bepaal. Afrikaans is 'n morfologies verarmde taal waarin min grammatikale kenmerke fonologies gerealiseer word; verder toon Afrikaans opvallende woordvolgorde-variasie, onder andere weens *scrambling* en links-dislokasie.

Die algemene vraag wat hierdie studie wou beantwoord, was: Hoe presenteer STG – wat gekenmerk word deur 'n probleem met grammatikale morfeme – in Afrikaans, 'n morfologies verarmde taal? Om hierdie algemene vraag afdoende te kan beantwoord – en om vas te stel of resente verklarings vir STG akkurate voorspellings maak oor die ingesamelde Afrikaanse data – is ses spesifieke vrae gestel:

1. Hoe word grammatikale morfeme – spesifiek dié wat verband hou met die kenmerke getal, persoon, kasus en tempus – begryp deur Afrikaanssprekende kinders met STG?
2. Presenteer Afrikaanssprekende kinders met STG in terme van hul begrip van hierdie morfeme met 'n agterstand en/of 'n afwyking?
3. Hoe word grammatikale morfeme – spesifiek dié wat verband hou met die kenmerke getal, persoon, kasus en tempus – morfologies

gerealiseer (d.i., geproduseer) deur Afrikaanssprekende kinders met STG?

4. Presenteer Afrikaanssprekende kinders met STG in terme van hul produksie van hierdie morfeme met 'n agterstand en/of 'n afwyking, of nie een van die twee nie?
5. Die Kongruensie/Tempus-weglatingsmodel (Agreement/Tense Omission Model; ATOM), die Selektiewe Gestremdheid in Konstituentverplasing (Representational Deficit for Dependent Relations; RDDR), en die Kenmerkagterstand-hipotese (Feature Deficit Hypothesis; FDH) maak spesifieke voorspellings oor die begrip en/of produksie van grammatikale morfeme deur Afrikaanssprekende kinders met STG. Word hierdie voorspellings ondersteun deur die Afrikaanse data wat in hierdie studie ingesamel is?
6. Indien die antwoord op vraag 5 "gedeeltelik" or "glad nie" is, kan 'n toereikende alternatiewe verklaring vir STG soos dit in Afrikaans presenteer, gegee word?

Om vrae 1 tot 4 te beantwoord is drie groepe Afrikaanssprekende kinders se begrip en produksie van grammatikale morfeme wat verband hou met die kenmerke getal, persoon, kasus en tempus getoets: 15 6-jariges met STG, 15 tipies-ontwikkelende 6-jariges, en 15 tipies-ontwikkelende 4-jariges. Die toetsing het die vorm aangeneem van (i) 'n reeks eksperimentele take (naamlik prentseleksie- en grammatikaliteitsoordeeltake om begrip te toets, en sinsvoltooiingstake om produksie te toets) en (ii) die versamel van 'n spontane taalmonster van elke deelnemer.

Oor die algemeen het die kinders met STG beduidend swakker gevaar as die tipies-ontwikkelende 6-jariges in die eksperimentele take; die kinders met STG het soos jonger tipies-ontwikkelendes gepresenteer. Geen algemene verskil kon gevind word tussen die kinders met STG en die 4-jariges se verskillende response op items nie. Die volgende linguistiese eienskappe van STG in 6-jarige Afrikaanssprekendes is deur die eksperimentele take aan die lig gebring:

(i) meer frekwente gebruik van 'n verkeerde meervoudsmorfeem as jonger en ouderdomsgepaarde tipies-ontwikkelende kinders;

(ii) meer foute rakende die begrip en produksie van kasus en persoon op voornaamwoorde as jonger en ouderdomsgepaarde tipies-ontwikkelende kinders;
(iii) meer idiosinkratiese foute en meer foute met *het ge*-vorme waar verledetydskonstruksies geproduseer is as jonger en ouderdomsgepaarde tipies-ontwikkelende kinders;
(iv) sporadiese weglating van modale hulpwerkwoorde in teenstelling met tipies-ontwikkelende kinders (jonger asook ouderdomsgepaard) waar sulke weglatings nie voorkom nie;
(v) weglating van teenwoordigetydsvorme van *wees*, meer as drie maal soveel as soortgelyke weglatings deur tipies-ontwikkelende 4-jariges.

In teenstelling met die bogenoemde bevindinge het die kinders met STG swakker gevaar as beide groepe tipies-ontwikkelende kinders in terme van hul spontane gebruik van die grammatikale morfeme wat verband hou met die kenmerke getal, persoon, kasus en tempus. Die kinders met STG het meestal dieselfde tipe foute gemaak as die tipies-ontwikkelende 4-jariges; sommige foute was egter uniek aan die kinders met STG. Wat woordvolgorde betref, het die kinders met STG meestal dieselfde tipe foute as óf die 4-jariges óf die 6-jariges óf beide groepe gemaak. Twee tipe foute was egter uniek aan die kinders met STG: die produksie van hoofsinne met 'n SOV-woordvolgorde asook hoofsinne met 'n VSO-woordvolgorde.

Drie resente linguistiese verklarings vir STG (die ATOM, RDDR, en FDH) is krities ondersoek aan die hand van die voorspellings wat uit elkeen volg in verband met STG in Afrikaans. Uit die 12 voorspellings wat in totaal deur hierdie drie verklarings gemaak word, is slegs een deur die data ondersteun, en ook net gedeeltelik. Die kort antwoord op navorsingsvraag 5 was dus "nee". Afgesien daarvan dat hierdie verklarings nie bruikbare voorspellings vir die taalgebruik van Afrikaanssprekende kinders met STG maak nie, het hierdie kinders ook foute in hul spontane taalproduksie gemaak wat buite die bestek van hierdie verklarings val. Daar is dus duidelik 'n behoefte aan 'n alternatiewe verklaring vir STG soos dit in Afrikaans presenteer.

Op grond van die foute met die realisering van grammatikale kenmerke wat in sowel die eksperimentele take as die spontane taalmonsters

voorgekom het, asook die woordvolgordefoute in die spontane taalmonsters, is daar twee voorstelle gemaak: (i) die abstrakte kenmerkvoorstelling en skuifbewerkings in die grammatika van Afrikaanssprekende kinders met STG is intakt, maar (ii) hierdie kinders se probleem lê by Uitspel, dit wil sê, daar waar die grammatikale inligting verklank moet word of, anders gestel, gekoppel moet word aan die fonetiese vorm (=PF). Aangaande die foute wat verband hou met die betrokke grammatikale vorme blyk dit dat óf 'n "nie volwasse" klankvorm aan die kenmerkbundel gegee word óf die kenmerke geensins fonologies uitgespel word nie. Hierdie Uitspelfoute blyk veral voor te kom in kontekste waar meer as een kompeterende klankvorm teenwoordig is (byvoorbeeld in die geval van verledetydsmorfologie, waar daar meer as een manier is om verledetyd in Afrikaans uit te druk). Wat betref die woordvolgordefoute blyk dit dat Afrikaanssprekende kinders met STG probleme ervaar om te bepaal watter vorme om uit te spel en watter om weg te laat: soms word alle vorme weggelaat (met geeneen wat 'n klankvorm ontvang nie), soms word meer as een kopie verklank, en soms word 'n verkeerde kopie (nie die mees linkse een nie) uitgespel.

In hierdie proefskrif is daar geargumenteer dat twee goed gedokumenteerde eienskappe van STG, naamlik probleme met grammatikale morfeme en probleme met konstituentverplasing, albei teruggevoer kan word na probleme met grammatikale kenmerke, ook in Afrikaans. Daar is aangetoon dat dit wel die geval is: die foute wat die Afrikaanssprekende kinders met STG gemaak het, kan inderdaad verklaar word in terme van die uitspel van grammatikale kenmerke op die vlak van PF. Die studie lewer 'n bydrae tot die lokalisering van die probleme wat kinders met STG ervaar: die algemene probleem is klaarblyklik nie in die komputasie-sisteem gesetel nie (met ander woorde, betref nie die sintaktiese bewerkings Saamvoeg ("Merge") of Skuif nie); die probleem lê eerder by die sintaksis-fonologie-koppelvlak. Kinders met STG ervaar probleme om die korrekte klankvorm vir Uitspel te kies uit die leksikon, wat daarmee mag saamhang dat hierdie vorme (nog) nie so gestruktureerd en toeganklik gestoor is soos in die normale volwasse leksikon nie.

Curriculum Vitae

Frenette Southwood obtained an undergraduate degree in speech therapy and audiology in 1993 and a Masters degree in Linguistics (specialising in Clinical Linguistics) in 1995, both from Stellenbosch University (South Africa). She practised as a speech-language therapist and audiologist in South Africa and England before becoming a lecturer in the Department of General Linguistics at Stellenbosch University in 2000, where she teaches undergraduate and postgraduate courses in, amongst others, Clinical Linguistics, Second Language Acquisition, Phonology, and Intercultural Communication.