

## Linguistic characteristics of SLI in Afrikaans

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Frenette Southwood

Department of General Linguistics, Stellenbosch University, 7600 Stellenbosch, South Africa  
E-mail: fs@sun.ac.za

Roeland van Hout

Centre for Language Studies, Radboud University Nijmegen, Erasmusplein 1, 6525 HT, Nijmegen,  
The Netherlands  
E-mail: hout@let.ru.nl

### 1. Introduction

Specific language impairment (SLI) has been defined as a significant impairment in the language ability of children in the absence of identifiable causal factors or obvious accompanying factors, such as neurological deficits, cognitive delay, hearing disabilities, and emotional or behavioral problems (Leonard 1998:vi; Stark & Tallal 1981). The characteristics of SLI as it presents itself in English and some other languages are comparatively well-known. These characteristics include problems with grammatical morphology and with surface word order. Some morphemes appear to be disproportionately difficult to master (Dromi, Leonard & Shteiman 1993), and, generally speaking, more verb-related than noun-related errors are made by children with SLI (Hansson & Nettelbladt 1995; Leonard 1989; Roberts & Rescorla 1995; Rom & Leonard 1990).

This paper gives an overview of the errors occurring in the language of three groups of Afrikaans-speaking children, namely typically developing 4- and 6-year olds as well as 6-

year-olds diagnosed with SLI. The paper is mostly descriptive in nature, as the aim is to describe the characteristics of SLI in Afrikaans, a language for which there is a dearth of information regarding SLI. The data presented here were gathered as part of a larger project on SLI in Afrikaans, of which the aim was to provide a (first) theoretical account for the way in which SLI presents itself in Afrikaans. In order to provide such an account, however, it was first necessary to ascertain exactly what the characteristics of SLI in Afrikaans entail, i.e., what it is that needs to be accounted for. In the larger project, the focus was on grammatical morphology relating to the features number, person, case and tense. In the present paper, by contrast, the general research question to be answered is whether SLI in Afrikaans, as in most other languages studied thus far, entails problems with word order and with grammatical morphology, and more so with verb-related than with noun-related morphology. In this regard, the validity of two main hypotheses will be investigated. The first hypothesis is that, unlike those of the two typically developing groups, some of the utterances of Afrikaans-speaking children with SLI will demonstrate an incorrect surface word order. In view of the problems that SLI child speakers of other languages demonstrate, the second hypothesis is that the Afrikaans-speaking children with SLI will experience more problems with the accurate comprehension and production of grammatical morphemes than the two typically developing groups. Moreover, as Afrikaans has limited verb-related as well as limited noun-related grammatical morphemes (Biberauer & Richards 2006), it is expected that these two types of the morphemes will pose comparable problems for the children with SLI.

The next section provides a description of the participants and procedures employed to obtain information about the linguistic characteristics of the Afrikaans-speaking children. In order to keep the discussion succinct, a detailed description of each of the experimental tasks (which included picture selection, acceptability judgements and sentence completion) and of the analytic procedures is not given here; see Southwood (2005, 2007) for full details on the exact nature of the procedures. The results of the analysis of the participants' performance on the experimental tasks and in the language samples are presented in four subsections. First, in section 3.1, the performance of the three groups of participants across experimental tasks is compared, and the performance of some of the individual children is discussed. Then, in section 3.2, those error types related to the grammatical features number, person, case and tense in the spontaneous language samples are compared across groups. This enables one to observe general response patterns by the three groups of participants. Next, additional

information on the analyses of the language samples is presented in section 3.3; error types not necessarily related to the grammatical features number, person, case and tense are also discussed here. Lastly, the types of word order errors made – as well as those not made – by the three groups of participants are considered in section 3.4. The results of discriminant analysis are discussed in section 4. The main finding is that performance on a selection of experimental tasks succeeds better in classifying the 45 participants correctly according to their group status (SLI, typically developing 4-year-old, typically developing 6-year-old) than does performance on a selection of measures from the language samples. The paper concludes with a discussion of a possible clinical marker of SLI in Afrikaans.

## **2. Methodology**

### **2.1 Participants**

Fifteen Afrikaans-speaking 6-year-olds with language problems (eight girls and seven boys) formed the experimental group. Their specific ages ranged from 6 years 0 months to 6 years 11 months ( $M = 6$  years 5.3 months). They had a mean length of utterance measured in words (MLUw) ranging from 3.54 to 5.79 ( $M = 4.35$ ). The hearing sensitivity of all 15 was within normal limits bilaterally. Their parents and classroom teachers reported age-appropriate socioemotional development and an absence of any visible neurological deficits. Their nonverbal IQ score was 85 (or the equivalent thereof) or above. Fourteen of the participants with SLI were receiving speech-language therapy at the time of the study. The language of the girl (participant SLI-12)<sup>1</sup> who did not receive therapy (and never has) was severely impaired. This worried her parents, who arranged for an evaluation by a speech-language therapist, which indicated that therapy was needed. The parents cited financial constraints for not commencing therapy. 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 was reported to have a language delay, but, as her language had not been evaluated formally, a diagnosis of SLI had not been made.

Fifteen Afrikaans-speaking children (nine girls and six boys) aged 6 years 2 months to 6 years 11 months ( $M = 6$  years 6.8 months) formed the age-matched (TD6) control group. Their MLUw ranged from 5.12 to 7.10 ( $M = 5.92$ ). The younger (TD4) control group comprised 15

4-year-old Afrikaans-speaking children, eight girls and seven boys. They were 4 years 0 months to 4 years 7 months old ( $M = 4$  years 2.3 months) and had an MLUw ranging from 3.91 to 5.00 ( $M = 4.56$ ). According to their parents and classroom teachers, the participants in the control groups were typically developing in all respects: Their language, intellectual, and socioemotional development were seen as being age-appropriate, and there was no evidence of any visible neurological deficits. All 30 children exhibited hearing sensitivity within normal limits bilaterally during hearing screening and had no previous referral to, or treatment by, a speech-language therapist.

## **2.2 Experimental tasks**

The aim of the experimental tasks was to establish whether or not Afrikaans-speaking children with SLI perform age-appropriately as regards their comprehension and production of various types of grammatical morphemes, specifically those relating to number, person, case and tense. In total, 15 experimental tasks were performed, each of them assessing either the comprehension or the production of the singular/plural distinction, pronouns, possessive *se*-construction, or tense. An overview of these tasks is presented in Table 1. In general, the tasks were of three kinds: (i) a comprehension task comprising picture selection, where the participant had to select the picture matching an utterance of the first author; (ii) an acceptability judgement task, where the participant had to indicate whether an utterance produced by the author was acceptable in Afrikaans or not; and (iii) a production task entailing sentence completion, where the participant had to complete a sentence initiated by the author. The procedures used in these tasks have previously been used with success to test the comprehension and production of grammatical morphemes by young children of different languages, by researchers such as Hansson & Leonard (2003); Jakubowicz (2003); Loeb & Leonard (1991); and Marchman, Saccuman & Wulfeck (2004). The tasks were all first performed 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 (see Southwood 2005, 2006).

## **2.3 Collection of spontaneous language**

As was the case for the experimental data, all spontaneous data were collected by the first author. During language sample elicitation, this author and the participant mostly 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. Three of the samples were collected with other children taking part in the conversation: One girl with SLI did not want to participate if her typically developing twin sister could not accompany her to all sessions, and two 4-year-old boys each insisted on having a friend present.

Language sample elicitation took the form of free play with toys that included (i) little figurines with accessories such as radios, hats, mugs, and brooms; (ii) wooden building blocks; and (iii) plastic kitchen furniture. The first author 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 author used a variety of techniques to encourage conversation, including parallel play, making statements, and asking questions (both *wh-* and *yes/no-*questions). These questions were asked about topics previously found to be suitable for discussion with preschool children, such as their families, pets, and birthday celebrations (see Southwood & Russell 2004). Following Crystal, Fletcher & Garman (1976), the language samples collected in this study were each 30 minutes long. An audio-cassette recording was made of each language sample collection session, using an observable recorder.

## **2.4 Data transcription and scoring**

### **2.4.1 Experimental tasks**

All responses on the experimental production tasks were recorded on a score sheet. Self-corrections were allowed; only the final response was scored.

### **2.4.2 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 nonclausal 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.

The following were not included in the 100 utterances (see Brown 1973; Johnston 2001; Unsworth 2005): (i) fillers such as *um* or *o* 'oh'; (ii) *ja* 'yes', *nee* 'no', and their equivalents (such as *jip*, *uh*, *uh-huh*, *huh-uh*, *OK*), whether occurring as an answer to a question, as an acknowledgement of the adult's previous utterance, or during self-talk; (iii) formulaic utterances, such as *wat's dit?* 'what's this?', *ek weet nie* 'I don't know', or *kyk hier* 'look here'; (iv) exact self-repetitions; (v) exact repetitions of the author's previous utterance; (vi) proper names in response to *wh*-questions where the response contained only the so-called queried constituent; (vii) utterances containing unidentifiable material; and (viii) utterances which trailed off.

The words in the first 100 complete and fully intelligible utterances were then counted and the mean determined, in order to calculate the MLUw. Several researchers have found a high correlation between MLUw and MLU measured in morphemes (MLUm; see, e.g., Arlman-Rupp, Van Niekerk de Haan & Van der Sandt-Koenderman 1976; Hickey 1991; Oetting & Rice 1993; Thordardottir & 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 (see Hickey 1991). Also, following the caution stated by Miller & Deevy (2003: 1157-1158), care had to be taken not to create a confound: Morphemes were being examined (in both the experimental task and the language samples); therefore, employing MLU measured in morphemes seemed inappropriate.

Verbs taking the form of noun+verb compounds, such as *fietsry* 'cycle' (literally 'bicycle+ride'); adjective+verb compounds, such as *mooimaak* 'beautify' (literally 'pretty+make'); and preposition+verb compounds, such as *opklim* 'climb up' (literally 'on/up+climb'), were counted as one word, unless the verb part of the compound occurred before the noun, adjective, or preposition, as in *Hy klim op* 'He is climbing up'.

In Afrikaans, *dit* 'it' and *wat* 'which/that' change their form when combined with a preposition: *dit* changes to *daar-* (e.g., *in dit* 'in it' changes to *daarin*) and *wat* changes to *waar-* (e.g., *op wat* 'on which' changes to *waarop*); see Oosthuizen (2000). During MLU calculation, mergers of *dit/wat/hier* 'it/what/here' with a preposition were counted as one word. However, if the preposition occurred before *dit*, as in *Ek sit hom in dit* 'I'm putting him in it/this', the preposition and *dit* were counted as separate words.

Also, for these first 100 complete and fully intelligible utterances, the number of occurrences of the following was tallied separately (examples taken from the corpus): (i) each of the various kinds of plural, present tense and past tense constructions produced correctly and produced incorrectly, (ii) use of historic present tense (e.g., *Toe sien ek hulle* – literally 'Then I see them', a typical Afrikaans rendering of 'Then I saw them'); (iii) passive constructions in the past tense form (e.g., *Dit was deur 'n hond gekrap* 'It had been scratched by a dog); (iv) each correct and each incorrect occurrence of personal and possessive pronouns, where incorrect occurrences included omissions; and (v) each correct and incorrect occurrence of a *se*-construction (as in *pa se hoed* or *\*ystervarks maag*).

Correct and erroneous occurrences of grammatical morphemes 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 database.

### 3. Results

#### 3.1 Linguistic characteristics of SLI in Afrikaans revealed by the experimental tasks

In Table 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. The statistical procedure used to ascertain whether or not differences between groups could be assumed was a one-way analysis of variance (ANOVA). Where ANOVA returned a significant outcome, post hoc comparisons were made using Tukey's HSD test to establish between which of the three groups (SLI, TD6, and TD4) the statistically significant differences in performance occurred. Levene's statistic of homogeneity of variance was used to determine whether the intragroup variability in performance differed significantly between the groups, i.e., whether the members of one group showed statistically significantly more

variability in their performance than another. Levels of significance were taken to be .05 or less throughout.

As can be seen from Table 1, the children with SLI obtained lower scores than their typically developing peers on 14 of the 26 aspects measured by the experimental tasks. For all of these 14 aspects, the children with SLI performed on a par with the typically developing 4-year-olds. In addition, the general pattern was that, where the variability differed between the three groups, the SLI group showed the most intragroup variability. This variance was statistically significant for nine of the 26 aspects measured by the experimental tasks.

**Table 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?				Difference in variance across groups?
		Overall	SLL, TD4	SLL, TD6	TD4, TD6	
1	Picture Selection: Singular/plural	Yes	No	Yes	Yes	Yes
2	Judgement: RW <sup>a</sup> , incorrect regular plural	Yes	No	Yes	Yes	No
3a	Judgement: RW, incorrect irregular plural	Yes	No	Yes	Yes	Yes
3b	Judgement: RW, correct irregular plural	No	-- <sup>b</sup>	--	--	No
4a	Judgement: NW <sup>c</sup> , incorrect irregular plural	No	--	--	--	No
4b	Judgement: NW, correct irregular plural	No	--	--	--	No
5	Sentence Completion: RW, regular plural	Yes	No	Yes	Yes	Yes
6	Sentence Completion: RW, irregular plural	Yes	No	Yes	Yes	Yes
7	Sentence Completion: NW, plural	Yes	No	Yes	Yes	No
8	Picture Selection: Pronouns	Yes	No	Yes	Yes	Yes
9	Judgement: Pronouns	Yes	No	Yes	Yes	No
10	Sentence Completion: Pronouns	Yes	No	Yes	Yes	No
11	Picture Selection: <i>se</i> -constructions	Excluded due to low reliability of items (Cronbach's alpha .327); see Southwood (2007)				
12	Sentence Completion: <i>se</i> -constructions	No	--	--	--	Yes
13a	Picture Selection: Past tense of <i>be</i> and <i>have</i>	No	--	--	--	No
13b	Picture Selection: Past tense forms with <i>het</i>	Yes	No	Yes	Yes	No
14	Judgement: Hendiadyses	No	--	--	--	No

Table 1 (continued)

Task no.	Experimental task	Difference between groups?				Difference in variance across groups?
		Overall	SLI, TD4	SLI, TD6	TD4, TD6	
15a	Sentence Completion: Targeted past tense constructions (unprompted)	Yes	No	Yes	Yes	No
15b	Sentence Completion: Total grammatical past tense constructions (unprompted)	Yes	No	Yes	Yes	No
15c	Sentence Completion: Targeted past tense constructions (prompted)	Yes	? <sup>d</sup>	?	?	No
15d	Sentence Completion: Total grammatical past tense constructions (prompted)	Yes	No	Yes	Yes	No
15e	Sentence Completion: Historic present constructions equivalent to target (unprompted)	No	--	--	--	No
15f	Sentence Completion: Total grammatical historic present constructions (unprompted)	No	--	--	--	No
15g	Sentence Completion: Highly idiosyncratic errors related to past tense constructions	Yes	No	Yes	Yes	Yes
15h	Sentence Completion: <i>Het</i> without <i>ge-</i>	No	--	--	--	Yes
15i	Sentence Completion: Total errors related to past tense constructions (before prompting)	No	--	--	--	Yes
15j	Sentence Completion: Total errors related to past tense constructions (after prompting)	Yes	No	Yes	No	No

<sup>a</sup>RW=real words

<sup>b</sup>Because there were no statistically significant differences between the three groups, post hoc analyses were not considered.

<sup>c</sup>NW=nonsense words

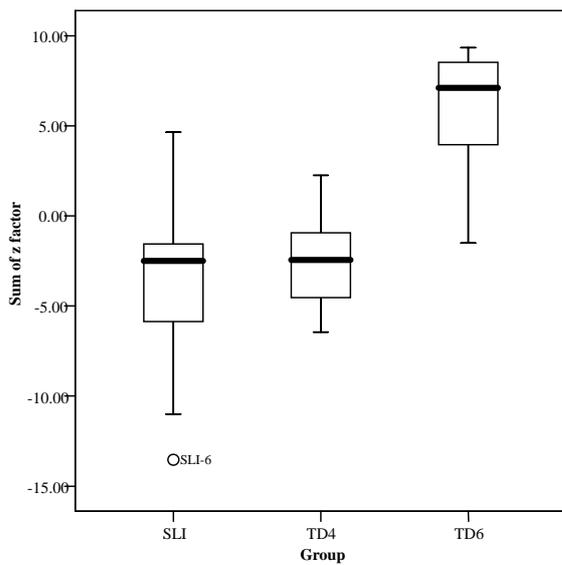
<sup>d</sup>Although there was a statistically significant difference between the three groups, this difference was not strong enough to show up in post hoc testing.

In an attempt to establish whether there was one (or more) general factor(s) 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 (i.e., the scores on Experimental Task 15) 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 tasks:

- (i) the picture selection task assessing comprehension of the singular/plural distinction (Task 1);
- (ii) the sentence completion task assessing production of regular plural forms of real words (Task 5);
- (iii) the sentence completion task assessing production of irregular plural forms of real words (Task 6);
- (iv) the sentence completion task assessing production of plural forms of nonsense words (Task 7);
- (v) the picture selection task assessing comprehension of pronouns (Task 8);
- (vi) the judgement task assessing comprehension of pronouns (Task 9); and
- (vii) the sentence completion task assessing production of pronouns (Task 10).

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 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 intragroup variance of the three groups was not significant (Levene's test;  $F_{2,42}=2.007$ ;  $p=.147$ ).



**Figure 1.** Box plot of performance per group – Composite score of seven experimental tasks

Table 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.

**Table 2.** Summary of performance per group – Composite index consisting of a selection of seven experimental tasks (Tasks 1, 5-10)

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 obtained markedly lower scores than the rest of their group: One was a boy, participant SLI-6, whose composite score was -13.54; the other was a girl, SLI-5, whose score was -11.00. These scores were noticeably lower than the lowest one in the TD4 group – -6.45

– which was obtained by a girl. Another two children with SLI obtained markedly higher scores than their group: Again, one was a boy, SLI-11, with a composite score of 4.64, and the other a girl, 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.

### **3.2 The linguistic characteristics of SLI in Afrikaans revealed by the errors in the first 100 utterances of the language samples**

As stated above, 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 this section. 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 the next section, together with an indication of the types of errors – specifically those related to word order – which did not occur.

The language samples were first examined for the correct occurrence and the substitution, incorrect insertion, and omission of those aspects assessed by the experimental tasks. Table 3 gives an overview of a selection of those measures which produced statistically significant 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 3.** Overview of the measures of the language sample analysis which produced statistically significant differences

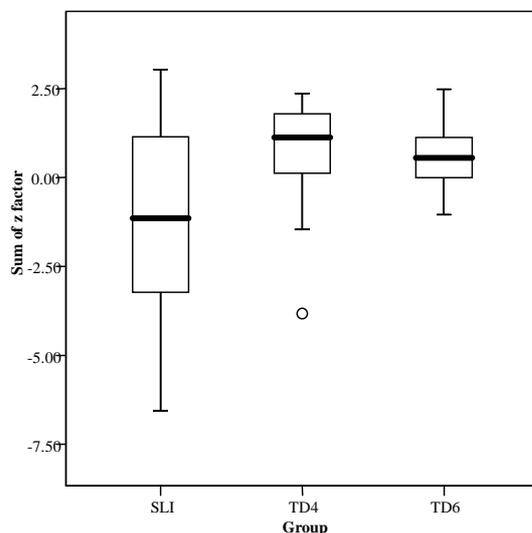
Measure	Difference between groups				Difference in variance across groups
	Overall	SLI, TD4	SLI, TD6	TD4, TD6	
Proportion correct plurals	Yes	No	Yes	No	Yes
Proportion correct pronouns	Yes	No	Yes	No	Yes
Proportion correct present tense	Yes	Yes	Yes	No	Yes
Number of present tense vs. past tense	Yes	No	Yes	Yes	No

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 even absence) of some of the measures, it was possible to establish that there were positive correlations between the four measures given in Table 3 in a consistent way. Three out of the six correlations were significant (2-tailed), as can be seen in Table 4.

**Table 4.** Pearson's correlation between the four statistically significant measures of the language sample analysis

Measure	Proportion correct plural	Proportion correct pronouns	Proportion correct present	Number of past vs. present
Proportion correct plural	--	.216 p=.154	.562 p=.000	.330 p=.027
Proportion correct pronouns		--	.426 p=.004	.215 p=.157
Proportion correct present			--	.236 p=.118

The positive correlations between the four measures of the language sample analysis means that it makes sense to obtain a composite score by summing their z scores. The difference between the three groups in terms of their composite scores on these four measures is portrayed in Figure 2. Unlike the case for the composite score of the experimental tasks, the SLI group seemed 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 2.** Box plot of performance per group – Composite score of four measures of the language sample analysis

In Table 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 children with SLI fared similarly to the 4-year-olds.

**Table 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

### 3.3 The linguistic characteristics of SLI in Afrikaans revealed by the full language samples – 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, some other errors made in the language sample are discussed. The first set of errors is verb-related. A summary of these errors and their frequency of occurrence in the first 30 minutes of the language samples is given in Table 6, with illustrative examples following the table.

**Table 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 <sup>a</sup>	[12] <sup>b</sup>	14	[10]	11	[6]
Omission/insertion of main verbs	15	[6]	6	[5]	1	[1]
Omission/insertion of main <i>het</i>	2	[2]	0	[0]	0	[0]
Omission of verb particle	12	[6]	2	[1]	2	[2]
Other verb-related errors (difficult to classify and/or idiosyncratic)	18	[7]	0	[0]	0	[0]

<sup>a</sup>This figure indicates the number of times the error occurred in the 30 minutes of language sample.

<sup>b</sup>The figure in square brackets indicates how many children in that group made the relevant error.

Errors on infinitives included the incorrect form of *het* 'have' and *wees* 'be'; the omission of the infinitival form of the main verb, as in example (1);<sup>2</sup> the omission of a part of the infinitival structure, as in (2), where the infinitival particle *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 (3), where *om* should not have occurred.

- |   |  |
|---|--|
| (1)   | <i>Target:</i>   |
| nou moet jy 'n motorbike  | nou moet jy 'n motorbike vat   |
| now must you a motor cycle  | now must you a motor cycle take  |
| 'Now you must take a motor cycle'   |  |
|   |  |
| (2)   | <i>Target:</i>   |
| ek het alles gedoen om probeer swem   | ek het alles gedoen om te probeer swem   |
| I have everything do-PAST PART <i>infinitive-</i><br><i>complementiser</i> try swim | I have everything do-PAST PART <i>infinitive-</i><br><i>complementiser</i> to try swim |
| 'I did everything to try and swim'  |  |
|   |  |
| (3)   | <i>Target:</i>   |
| mens hoef nie om te betaal nie  | mens hoef nie te betaal nie  |
| one have-to not <i>infinitive-complementiser</i>                                    | one have-to not to pay not   |
| to pay not  |  |
| 'One does not have to pay'  |  |

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 errors of this nature. Of the 10 children in the TD4 group who made this type of error, six made it only once and the remaining four made it twice each. By contrast, of the 12 children with SLI who made this type of error, only four made it only once; the others made it two to three times each, with two children – participants SLI-6 and SLI-14 – each making five such errors.

The second type of error concerned the inappropriate insertion (or, from the view point of copy theory, the inappropriate repetition) or the inappropriate omission of a main verb in

finite constructions. In example (4), the verb *gaan* 'go' is omitted, and, in (5), *reën* 'rain' occurs twice.

(4)	<i>Target:</i>
ek saam	ek gaan saam
I with	I go with
'I'm going with'	

(5)	<i>Target:</i>
nou reën hulle nat reën	nou reën hulle nat
now rain they wet rain	now rain they wet
'Now they are getting wet in the rain'	

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 SLI-6 – made it four times and one girl – 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 utterance in (6) serves as an example of the inappropriate omission of *het* as a main verb.

(6)	<i>Target:</i>
jy nog so 'n hondjie?	het jy nog so 'n hondjie?
you another such a dog-DIM	have you another such a dog-DIM
'Do you have another dog like this one?'	

The omission of part of a particle-verb is illustrated in example (7), where the *op* of the compound *opsit* 'put on' 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.

- |                                 |                               |
|---------------------------------|-------------------------------|
| (7)                             | <i>Target:</i>                |
| dan sit jy die ander een        | dan sit jy die ander een op   |
| then put you the other one      | then put you the other one on |
| 'Then you put on the other one' |                               |

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 (8) to (10) serve to illustrate this diversity. In (8), 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'.

- (8)
- ek word 'n volstruis het daar op my hand gepik  
 I be-PASS-PRESENT a ostrich have there on my hand peck-PAST PART /PASS PART

The intended meanings of (9) and (10) are not clear. For this reason, only a gloss, and not a target construction, is provided in each case.

- (9)
- dan vat hy 'n kinders maak  
 then take he a children make

- (10)
- hy wil net luister tog wat het hy gesticker vat  
 he want-to just listen just what have he sticker-PAST PART take

Half of the 18 idiosyncratic and/or difficult to classify errors were made by one boy, participant 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 7. Some illustrative examples of non-verb-related errors are provided below.

As regards 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 SLI-6 – produced 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 SLI-14 – did not omit the subject once.

Prepositions were incorrectly 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 10 children in the SLI group made this error almost twice as often as did the eight children in the TD6 group. One boy and one girl – participants SLI-11 and SLI-14 – were responsible for seven and nine of the 36 errors, respectively. Two boys – SLI-1 and SLI-6 – made five errors each, and the rest of the six children with SLI made one or two errors each.

**Table 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 <sup>a</sup>	29 <sup>b</sup>	[9] <sup>c</sup>	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 <i>nie</i>	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 and/or idiosyncratic)	33	[9]	9	[8]	3	[3]

<sup>a</sup>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 SLI-9 – who had a very strong preference for such subjectless utterances over ones containing a subject.

<sup>b</sup>This figure indicates the number of times the error occurred in the 30 minute language sample.

<sup>c</sup>The figure in square brackets indicates how many children in that group made the relevant error.

An example of the substitution of one preposition with another is *Ek slaan hom \*deur die kop* 'I hit him through the head' instead of *Ek slaan hom oor die kop* 'I hit him over the head'. An example of the inappropriate insertion of a preposition is given in (11).

(11)

waar ons na vakansie gehou het

where we to vacation hold-PAST PART have

'where we went on vacation'

*Target:*

waar ons vakansie gehou het

where we vacation hold-PAST PART have

As in the case of 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 SLI-6 – and another 11 by another boy – SLI-9. A girl – SLI-14 – made nine; two boys each made six – SLI-1 and 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'*, as well as the one in (12).

(12)	<i>Target:</i>
want hy speel met 'n ander honde	want hy speel met ander honde
because he play with a other dogs	because he play with other dogs
'Because he plays with other dogs'	

Although the children who omitted or inserted the negation element *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 in (13),<sup>3</sup> and one of inappropriate insertion is given in (14).

(13)	<i>Target:</i>
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'	

(14)	<i>Target:</i>
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 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 SLI-6 and SLI-14 – made three and two errors each, respectively. Examples of such omissions are given in (15) to (17) below.

- |   |  |
|---|--|
| (15)                                      | <i>Target:</i>                                   |
| *kom die kos                              | hier kom die kos                                 |
| come the food                             | here come the food                               |
| 'Here comes the food'                     |  |
|   |  |
| (16)                                      | <i>Target:</i>                                   |
| ons nie kan eet nie kan ons nie groot kan | as ons nie kan eet nie kan ons nie grootword nie |
| word nie                                  |  |
| we not can eat not can we not big can     | if we not can eat not can we not big-become not  |
| become not                                |  |
| 'If we cannot eat, we cannot grow up'     |  |
|   |  |
| (17)                                      | <i>Target:</i>                                   |
| 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 SLI-6. A girl and boy – SLI-9 and SLI-12 – made five errors each, another boy – SLI-1 – made three, and the other five children made one or two such errors each. As was noted for the verb-related errors, this category of errors is highly diverse by nature. The examples in (18) to (21) serve to illustrate the types of errors which were taken to be highly idiosyncratic and/or otherwise difficult to classify.

- (18) 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
- (19) 'n rooietjie hoedjie  
a red-DIM hat-DIM  
'A red hat'
- Target:*  
a rooi hoedjie  
a red hat-DIM
- (20) 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
- (21) 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 contains a summary of the errors made by the SLI group, other than those related to the grammatical features person, number, case or tense. In total, 13 of the 15 members of this group made the types of errors found in Table 8. The two girls who did not – participants SLI-2 and SLI-5 – did, however, make errors pertaining to person, number, case or tense in their spontaneous language production.

**Table 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													
	SLI-1	SLI-3	SLI-4	SLI-6	SLI-7	SLI-8	SLI-9	SLI-10	SLI-11	SLI-12	SLI-13	SLI-14	SLI-15	
Infinitive	1	2	3	5	2	3	1	2	3	1	1	5		
Main verb	1			4			2	1	1	7				
Main <i>het</i>	1								1					
Prepositional verb	1		4	2		1			3		1			
Other verb-related			1	9			2	1	1		3		1	
Omit subject	2	1	3	12	2		2	2	2	3				
Omit object				1			1	1	1	1		3		
Omit noun		1	1	2					1					
Omit complementiser								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	
<i>Nie</i>	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	

### 3.4 Word order errors occurring in the language samples

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 of errors 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 (22). However, no co-ordinate conjunctions were followed by a subordinate word order.

- (22) *Target:*  
 omdat my pa moet eers al die besluite doen omdat my pa eers al die besluite moet neem  
 because my dad must first all the because my dad first all the decisions must take  
 decisions do  
 'Because my dad must first make all the decisions'

Relative clauses with an incorrect (verb-second or Subject-Verb-Object) surface word order occurred in the language of all three groups of children; an example is provided in (23). The utterance in (24) shows the same incorrect word order.

- (23) *Target:*  
 seker maar daai wit hondjie wat.se naam seker maar daai wit hondjie wat.se naam  
 is Nuschka Nuschka is  
 probably just that white dog-DIM whose probably just that white dog-DIM whose name  
 name be Nuschka Nuschka be  
 'Probably that white doggie whose name is Nuschka'

- (24) *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 a Subject-Object-Verb surface word order (the order found in embedded clauses) also occurred – as shown in example (25) – but only in the language of two children with SLI. Only one instance of VSO occurred, in the language of participant SLI-6; this utterance is given in (26).

- (25) *Target:*  
 hulle TV kyk hulle kyk TV  
 they TV watch they watch TV  
 'They are watching TV'

(26)	<i>Target:</i>
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 (27) and (28).

(27)	<i>Target:</i>
hierdie al goed	al hierdie goed
this all stuff	all this stuff
'All this stuff'	

(28)	<i>Target:</i>
hy eet net hoendertjies ook	hy eet ook net hoendertjies
he eat just chicken-DIM-PL as well	he eat also just chicken-DIM-PL
'Amongst eating other things, he is also	'He is also only eating chicken'
simply eating chicken'	

Word order errors related to the order of adverbs also occurred, but not in the language of the 4-year-olds. Example (29) illustrates this type of error.

(29)	<i>Target:</i>
mens staan langs die poot anders miskien	mens staan langs die poot anders kan hy miskien
kan hy op jou voet trap	op jou voet trap
one stand next-to the paw otherwise	one stand next-to the paw otherwise can he
maybe can he on your foot step	maybe on your foot step
'One stands next to the paw, otherwise he might step on your foot'	

A third type of error occurring in utterances containing adverbs was related to the word order following fronted adverbs or adverbial phrases. Such errors were found in the language of all three groups and are illustrated in (30) and (31).

(30)

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 op 'n ou plaas  
 last year be-PAST I on a old farm

(31)

toe ons daar kom ek het nie eers geskrik  
 vir hulle nie  
 when we there come I have not even  
 get-a-fright-PAST PART for them not  
 'When we came there, I was not even frightened by them'

*Target:*

toe ons daar kom het ek nie eers geskrik vir hulle  
 nie  
 when we there come have I not even get-a-fright-  
 PAST PART for them not

The children with SLI and the 4-year-olds also made errors in the word order of *wh*-questions. Examples are given in (32) and (33). The *wh*-element was fronted, but subject-verb inversion did not take place. Utterances with a *SwhV* or *VwhS* 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 (34).

(32)

watte dit is?  
 what this is  
 'What is this?'

*Target:*

wat is dit?  
 what is this

(33)

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

(34)	<i>Target:</i>
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 are we again only working 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 (35) and (36).

(35)	<i>Target:</i>
en hulle meet om hulle op die lorry te gaan	en hulle meet hulle om op die lorry te gaan
and they measure <i>infinitive-complementiser</i>	and they measure them <i>infinitive-complementiser</i>
they on the truck to go	on the truck to go
'And they measure them to go onto the truck'	

(36)	<i>Target:</i>
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 (37) and (38) contain such utterances.

(37)	<i>Target:</i>
ek sal ry fiets	ek sal fietsry
I will ride bicycle	I will bicycle-ride
'I will cycle'	

(38)

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

It appears then that a range of word order errors were produced, but that not all three groups produced all types of errors. Table 9 contains a summary of the types of word order errors and the group(s) which made them. 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 Subject-Object-Verb or Verb-Subject-Object word order.

**Table 9.** Summary of word order errors made per group

Errors related to	Made by		
	SLI group	TD4 group	TD6 group
Treating <i>omdat</i> like <i>want</i>			Yes
Relative clauses with Subject-Verb-Object word order	Yes	Yes	Yes
Main clauses with Subject-Object-Verb word order	Yes		
Main clauses with Verb-Subject-Object word order	Yes, once		
Adverb placement in utterance	Yes	Yes	
Order of adverbs or Adverb Phrases	Yes		Yes
Word order after fronted adverbs or Adverb Phrases	Yes	Yes	Yes
<i>Wh</i> -questions	Yes	Yes	
Other, more difficult to classify	Yes		Yes
Verb-particle	Yes	Yes	

### 3.5 Summary of results

In terms of the comprehension and elicited production of grammatical morphemes related to number, person, case and tense, the Afrikaans-speaking 6-year-olds with SLI fared on a par with the younger typically developing ones, but worse than both groups of typically developing children in terms of correct spontaneous production of such morphemes.<sup>4</sup> Furthermore, as a group, the children with SLI also made more verb-related and non-verb-

related errors during spontaneous production of utterances than did either of the typically developing groups. The hypothesis that the children with SLI will experience more problems with the accurate comprehension and production of grammatical morphemes than the two typically developing groups was therefore borne out in part by the elicited data and in full by the spontaneous data.

It was also hypothesised that, unlike those of the two typically developing groups, some of the utterances of Afrikaans-speaking children with SLI will demonstrate an incorrect surface word order. The spontaneous data showed that the SLI groups did indeed produce utterances with ungrammatical word order, but so did the other two groups of participants. However, the number of different types of word order errors produced by the SLI group was larger than that produced by the two typically developing groups.

The third hypothesis was that verb-related and noun-related grammatical morphemes will pose comparable problems for the children with SLI. On the experimental tasks, the children with SLI were indeed outperformed by their typically developing peers in terms of plurals (i.e., noun-related morphemes) and tense (i.e., verb-related morphemes). The spontaneous data also showed that the children with SLI have problems of a comparable degree with the production of both types of morphemes. Although no statistical comparison was made between the two types of morphemes, it appears that Afrikaans verb-related and noun-related morphology both pose sizable problems for children with SLI.

#### **4. Do the errors reveal a possible clinical marker of SLI in Afrikaans?**

In order to compare the performance of the three groups of participants across experimental tasks, a different approach was taken, namely that of discriminant analysis. The aim was to ascertain which combination of experimental tasks would result in the most accurate classification of the 45 participants into their three groups (SLI, TD4, or TD6). 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 found to be the most successful in correctly placing participants into their respective groups (SLI, TD4, or TD6):

- (i) the picture selection task assessing comprehension of the singular/plural distinction (Task 1);
- (ii) the judgement task involving what should have been regular plural forms of real words (Task 2); and
- (iii) the number of errors after prompting by the researcher, on the sentence completion task assessing production of past tense forms – excluding highly idiosyncratic errors as well as past tense constructions containing *het* but in which the past participial (*ge-*) form was replaced by an infinitival one (Task 15j).

Table 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 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
<b>Total</b>	11	17	17	45

This analysis classified almost all TD6 group members as belonging to that group. Interestingly, the participant misclassified as a typically developing 4-year-old 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 obtained similar average scores but that the range of scores in the SLI group was 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 (i.e. the classification of SLI children as

typically developing children) 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 SLI-10, SLI-11, and 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 11 shows the results of the stepwise discriminant analysis. A combination of the following two measures was selected as the most successful in placing the participants correctly into one of the three groups (SLI, TD4, or TD6):

- (i) the proportion of correct present tense constructions out of all present tense constructions; and
- (ii) the number of past tense forms vs. present tense forms.

**Table 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
<b>Total</b>	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 underscores the importance of using a combination of spontaneous and elicited data when diagnosing SLI in Afrikaans-speaking children.

One of the two participants with SLI classified as a TD6 group member by the two measures of the language sample was participant 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 – 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). 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, Myszczyzyn & Jokel (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. This could be the case for participant SLI-2. 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 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: SLI-7, with a score of -6.13, and SLI-11, with a score of -5.08.

Because the average scores of the TD4 and TD6 groups on measures of the language sample analysis did not differ significantly, it is understandable that some of these groups' members were classified as belonging to the other group. What is of interest is that one typically developing 4-year-old was classified as language-impaired. The MLU of this participant 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, 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 & 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 five measures discussed in this section 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, Wexler & Herschberger (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 & Wexler (1996) identified finiteness, or tense marking, as a sensitive and specific clinical marker of SLI in English (see also Marchman, Wulfeck & Weismer 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 English-speaking participants with SLI. Rather, the practicalities of classifying errors as "difficult to classify" are the problem.

Bortolini, Caselli, Deevy & Leonard (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 & 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 & Hesketh 2003:252).

Based on the obtained Afrikaans data, it is recommended that 'clinical marker' should here be given the interpretation of Conti-Ramsden & 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.

## **5. Conclusion**

In order for one to provide a comprehensive theoretical account of SLI as it presents itself in Afrikaans (an endeavor which falls outside the scope of this article, but see Southwood 2007 in this regard), one needs to know what such an account has to account for. The study discussed in this paper aimed to establish exactly that, by ascertaining what the characteristics of SLI in Afrikaans entail. The general research question was whether SLI in Afrikaans entails problems with word order and with grammatical morphology, as has been shown to be the case for many other languages.

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. These results indicate that SLI in Afrikaans indeed entails problems with grammatical morphology. However, in contrast to the general trend that children with SLI find verb-related grammatical morphology more problematic than noun-related morphology, the Afrikaans-speaking children with SLI experienced problems of comparable size with noun-related and verb-related morphemes. In terms of word order errors, it was shown that, although the children with SLI and the two groups of typically developing children made such errors, some types of word order errors were only made by the children with SLI. This indicates that SLI in Afrikaans entails problems with word order, as has been shown to be the case for most of the other languages in which SLI has been studied.

Discriminant analysis and language sample analysis revealed that a combination of five (elicited and spontaneous) measures would probably differentiate 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, maybe to include only the tense-related measures, in line with the clinical marker proposed for SLI in English.

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## Notes

1. See Table 8 for some of the types of errors made by this girl and the other participants with SLI.
2. Example material is presented in the following format throughout:
 

(Transcript number)	
Transcript of utterance	Target utterance in Afrikaans
Literal English translation of actual utterance	Literal English translation of target
Grammatical/Idiomatic English version of utterance	

3. 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".
4. Even though Rice, Wexler & Redmond (1999) found that children as young as 3 are able to perform acceptability judgements of the type employed in this study, it is important to note that metalinguistic skills are often thought to be not yet developed by the age of 4 years (see, amongst others, Owens 2001:393; Nelson 1998:361). The spontaneous language production did not require metalinguistic skills, whereas the experimental tasks did. It could therefore be that the 4-year-olds in this study were merely too young to show an advantage over the 6-year-olds with SLI in terms of (meta)linguistic knowledge.

## References

- Arlman-Rupp, A.J.L., D. Van Niekerk de Haan & M. Van der Sandt-Koenderman. 1976. Brown's early stages: Some evidence from Dutch. *Journal of Child Language* 3: 267-274.
- Bedore, L.M. & L.B. Leonard. 1998. Specific language impairment and grammatical morphology: A discriminant function analysis. *Journal of Speech, Language and Hearing Research* 41: 1185-1192.
- Biberauer, T. & M. Richards. 2006. True optionality: When the grammar doesn't mind. In C. Boeckx (ed.) *Minimalist essays*. Amsterdam: John Benjamins. pp. 35-67.
- Blake, J., D. Myszczyzyn & A. Jokel. 2004. Spontaneous measures of morphosyntax in children with and without specific language impairment. *Applied Psycholinguistics* 25: 29-41.
- Bortolini, U., M.C. Caselli, P. Deevy & L.B. Leonard. 2002. Specific language impairment in Italian: The first steps in search for a clinical marker. *International Journal of Language and Communication Disorders* 37: 77-94.
- Brown, R. 1973. *A first language: The early stages*. Cambridge: Harvard University Press.
- Conti-Ramsden, G. & A. Hesketh. 2003. Risk markers for SLI: A study of young language-learning children. *International Journal of Language and Communication Disorders* 38: 251-63.

- Crystal, D., P. Fletcher & M. Garman. 1976. *The grammatical analysis of language disability*. London: Edward Arnold.
- Dromi, E., L.B. Leonard & M. Shteiman. 1993. The grammatical morphology of Hebrew-speaking children with specific language impairment: Some competing hypotheses. *Journal of Speech and Hearing Research* 36: 760-771.
- Hansson, K. & L.B. Leonard. 2003. The use and productivity of verb morphology in specific language impairment: An examination of Swedish. *Linguistics* 41: 351-379.
- Hansson, K. & U. Nettelbladt. 1995. Grammatical characteristics of Swedish children with SLI. *Journal of Speech and Hearing Research* 38: 589-598.
- Hickey, T. 1991. Mean length of utterance and the acquisition of Irish. *Journal of Child Language* 18: 553-569.
- Hunt, K.W. 1970. Syntactic maturity in school children and adults. *Monographs of the Society for Research in Child Language Development* (35)1. Serial no. 134.
- Jakubowicz, C. 2003. Computational complexity and the acquisition of functional categories by French-speaking children with SLI. *Linguistics* 41: 175-211.
- Johnston, J.R. 2001. An alternate MLU calculation: Magnitude and variability effects. *Journal of Speech, Language, and Hearing Research* 44: 156-164.
- Leonard, L. 1989. Language learnability and specific language impairment. *Applied Psycholinguistics* 10: 179-202.
- Leonard, L.B. 1998. *Children with specific language impairment*. Cambridge and London: MIT Press.
- Loeb, D.F. & L. Leonard. 1991. Subject case marking and verb morphology in normally developing and specifically language-impaired children. *Journal of Speech and Hearing Research* 34: 340-346.
- Marchman, V.A., C. Saccuman & B. Wulfeck. 2004. Productive use of the English past tense in children with focal brain injury and specific language impairment. *Brain and Language* 88: 202-214.
- Marchman, V.A., B. Wulfeck & S.E. Weismer. 1999. Morphological productivity in children with normal language and SLI: A study of the English past tense. *Journal of Speech, Language, and Hearing Research* 42: 206-219.
- Miller, C.A. & P. Deevy. 2003. A method for examining productivity of grammatical morphology in children with and without specific language impairment. *Journal of Speech, Language, and Hearing Research* 46: 1154-1166.

- Nelson, N.W. 1998. *Childhood language disorders in context* (2<sup>nd</sup> edition). Boston: Allyn & Bacon.
- Oetting, J.B. & M.L. Rice. 1993. Plural acquisition in children with specific language impairment. *Journal of Speech and Hearing Research* 36: 1236-1248.
- Oosthuizen, J. 2000. Prepositions left and right in Afrikaans. *Stellenbosch Papers in Linguistics* 33: 67-90.
- Owens, R.E. 2001. *Language development: An introduction* (5<sup>th</sup> edition). Boston: Allyn and Bacon.
- Rice, M. & K. Wexler. 1996. Towards tense as a clinical marker of specific language impairment in English-speaking children. *Journal of Speech and Hearing Research* 39: 1239-1257.
- Rice, M., K. Wexler & S. Herschberger. 1998. Tense over time: The longitudinal course of tense acquisition in children with specific language impairment. *Journal of Speech, Language, and Hearing Research* 41: 1412-1431.
- Rice, M.L., K. Wexler & S.M. Redmond. 1999. Grammaticality judgments of an extended optional infinitive grammar: Evidence from English-speaking children with specific language impairment. *Journal of Speech, Language and Hearing Research* 42: 943-961.
- Roberts, J. & L. Rescorla. 1995. Morphological acquisition and SLI: Evidence from children with expressive language delay. *Boston University Conference on Language Development Proceedings* 19: 475-486.
- Rom, A. & L.B. Leonard. 1990. Interpreting deficits in grammatical morphology in specifically language-impaired children: Preliminary evidence from Hebrew. *Clinical Linguistics and Phonetics* 4: 93-105.
- Southwood, F. 2005. A comparison of the responses to three comprehension and three production tasks assessing the morpho-syntactic abilities of Afrikaans-speaking preschoolers. *Per Linguam* 21: 36-59.
- Southwood, F. 2006. An investigation of the morpho-syntactic abilities of Afrikaans-speaking preschoolers. *South African Linguistic and Applied Language Studies* 24: 35-55.
- Southwood, F. 2007. *Specific language impairment in Afrikaans. Providing a Minimalist account for problems with grammatical features and word order*. LOT Dissertation Series 166. Utrecht: LOT.

- Southwood, F. & A.F. Russell. 2004. Comparison of conversation, freeplay, and story generation as methods of language sample elicitation. *Journal of Speech, Language, and Hearing Research* 47: 366-376.
- Stark, R.E. & P. Tallal. 1981. Selection of children with specific language deficits. *Journal of Speech and Hearing Disorders* 46: 114-122.
- Thordardottir, E.T. & S.E. Weismer. 1998. Mean length of utterance and other language sample measures in early Icelandic. *First Language* 18: 1-32.
- Unsworth, S. 2005. *Child L2, adult L2, child L1: Differences and similarities: A study on the acquisition of direct object scrambling in Dutch*. LOT Dissertation Series 119. Utrecht: LOT.