

**OMISSION AND DOUBLING OF THE TEMPORAL AUXILIARY *het*  
IN THE AFRIKAANS OF AN AGRAMMATIC APHASIC**

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**1. Introduction**

In this paper, I examine both the inconsistent omission and the doubling of the past tense auxiliary *het* 'have' observed in spontaneous data obtained from an Afrikaans-speaking agrammatic aphasic.<sup>1</sup>

Two types of grammatical errors most frequently characterize the language of agrammatic aphasics, viz. the omission of syntactic and morphological elements, and incorrect word order. These phenomena are well-documented in several languages (Lapointe 1983a,b; Caramazza and Berndt 1985; Miceli and Caramazza 1988; Miceli et al. 1989; Ouhalla 1993; Hagiwara 1995; Cahana-Amityay 1997; Friedmann and Grodzinsky 1997; Bastiaanse and Van Zonneveld 1998; De Roo 1999 *inter alia*). Data from the aphasic, PE, provide further evidence for both types of grammatical errors. Word order errors are not discussed in detail here. In this paper I focus specifically on irregularities in the production of *het* in past tense constructions.

Several hypotheses about the syntax of agrammatism have been proposed. Within the framework of generative grammar, agrammatism has been characterized as impairment of functional categories (FCs), for instance the impairment of Tense (T), Agreement (Agr) and Complementiser (C) systems (Ouhalla 1993; Hagiwara 1995; Friedmann and Grodzinsky 1997; Platzack in press<sup>2</sup>). It has been suggested that in agrammatism, functional heads are either missing because the grammatical knowledge is somehow lost, or that the grammatical knowledge is retained, but that the processes that use this knowledge are disrupted (Grodzinsky 1990; Ouhalla 1993). More recently, it has been suggested that FCs are not entirely missing in aphasic agrammatism, but rather that they are selectively impaired, a proposal known as the "Tree Pruning Hypothesis" (Hagiwara 1995; Friedmann and Grodzinsky 1997).

In this paper, I show that for the aphasic PE, impairment in the verbal domain in Afrikaans manifests in irregularities in the Tense rather than the Agreement system. More specifically, I show that there are irregularities in the production of auxiliaries, as evidenced by the omission and doubling of the temporal auxiliary *het* in past tense constructions. What is particularly interesting is that these irregularities in the agrammatic version of standard Afrikaans reflect grammatical constructions found in other varieties of Afrikaans, synchronic as well as diachronic. It would seem then that these irregularities do not constitute "abnormal" language outside of the constraints of Universal Grammar (UG).

Investigating the irregularities in the production of auxiliaries in the Afrikaans aphasic data may lead to interesting comparisons with aphasic studies in other Germanic languages. Further, it allows for speculation regarding the nature of syntactic problems observed in the language of aphasics. One such speculation is that these irregularities may reflect shifts in parameter settings rather than the selective deletion of or damage to FCs.

The analysis of the data in this study was conducted within the specific framework of the Minimalist Program (Chomsky 1995,1998,1999), the most recent version of the generative theory of Universal Grammar. In this framework, movement results from the need to license features that are interpretable at the logical form (LF) and the phonetic form (PF) interfaces, and to eliminate those features that are not interpretable at the relevant interface. The data presented here suggest that there is at least some form of impairment in the subject's FCs, although the evidence does not support the Tree Pruning Hypothesis. I explore the possibility that the FCs are neither destroyed nor selectively pruned, but rather, that problems arise in the spelling out of FCs at PF.

## **2. An analysis of the temporal auxiliary *het* in standard Afrikaans**

I assume that Afrikaans, like Dutch, is underlyingly an SOV language that exhibits the surface V2 phenomenon in main clauses<sup>3</sup>. Verbs in Afrikaans do not overtly inflect for person, number or gender. Past tense is primarily encoded in the auxiliary *het* 'have', as a separate lexical item, and there is morphological affixation of the past

participle prefix *ge-* to the main verb. Consider, for example, sentences (1)(a) to (c) below. Sentence (1)(a) illustrates the simple declarative, (1)(b) the simple past in a subordinate clause, and (1)(c) the past tense in a main clause where the auxiliary occurs in second position.

- (1) (a) *Hy lag*  
 he laugh  
 'He laughs'
- (b) *(dat) hy gelag het*  
 (that) he past+laugh has  
 'that he laughed'
- (c) *Hy het gelag*  
 he has past+laugh  
 'He laughed'

Within the framework of the Minimalist Program, my syntactic assumptions for the analysis of *het* in standard Afrikaans are:<sup>4</sup>

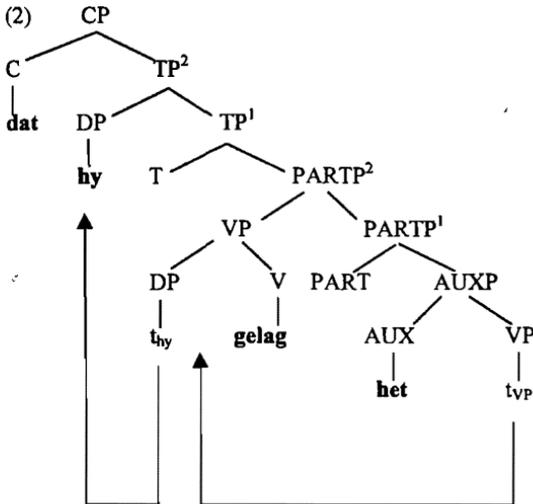
- A. in past tense constructions, AUXP is a functional projection, with the head AUX spelled out as *het*;
- B. AUXP takes the head-final VP as complement;
- C. feature-checking is strictly local in a spec(ifier)-head configuration;
- D. AUXP is merged with the functional head PARTICIPLE (PART) to form PARTP<sup>1</sup>;<sup>5</sup>
- E. the whole VP is moved to [Spec, PARTP<sup>1</sup>] to check the participle feature of PART via spec-head agreement.

On the basis of these assumptions, the derivation of the sentence in (1)(b), *dat hy gelag het*, is as follows:

- i. Merge the functional head AUX and the VP, *hy gelag*, to form AUXP. The DP *hy* is the external argument (or subject) of *gelag*.
- ii. Merge the functional head PART and the AUXP to form PARTP<sup>1</sup>.
- iii. Move the whole VP to [Spec, PARTP<sup>1</sup>]. The reason for this is to check the participle feature of PART via spec-head agreement. The result is PARTP<sup>2</sup>.

- iv. Merge the functional head Tense (T) and PARTP<sup>2</sup> to form TP<sup>1</sup>.
- v. Move the DP *hy* to [Spec, TP<sup>1</sup>] to form TP<sup>2</sup>.
- vi. Merge the functional head Complementiser (C) *dat* and TP<sup>2</sup>, to form CP.  
AUX is left in sentence-final position, and the relevant features associated with it are spelled out as *het* in Afrikaans.

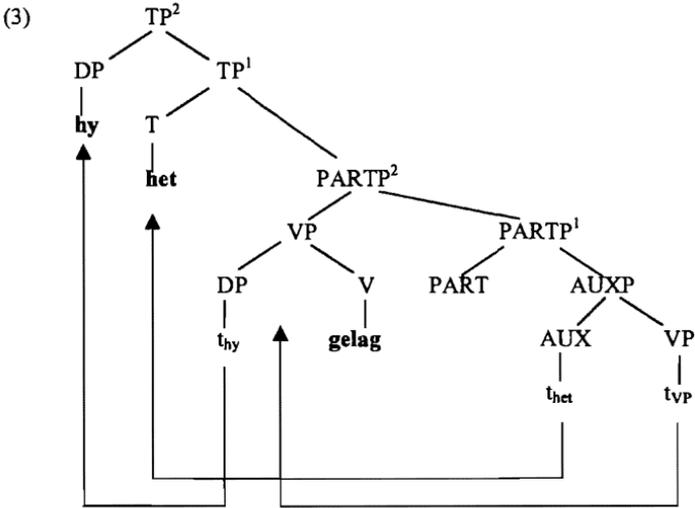
The resulting structure is represented in (2).



The derivation of the sentence in (1)(c), *Hy het gelag*, is as follows:

- i. Merge the functional head AUX and the VP, *hy gelag*, to form AUXP. The DP *hy* is the external argument of *gelag*.
- ii. Merge the functional head PART and the AUXP to form PARTP<sup>1</sup>.
- iii. Move the whole VP to [Spec, PARTP<sup>1</sup>]. The reason for this is to check the participle feature of PART via spec-head agreement. The result is PARTP<sup>2</sup>.
- iv. Merge the functional head Tense (T) and PARTP<sup>2</sup> to form TP<sup>1</sup>.
- v. Move the DP *hy* to [Spec, TP<sup>1</sup>] to form TP<sup>2</sup>.
- vi. Move the AUX to T where it is spelled out as *het*, leaving the trace under AUX.

The resulting structure is represented in (3) below.



### 3. The agrammatical data

Spontaneous samples were obtained from an agrammatical aphasic, PE, who suffered a stroke in 1994. His auditory comprehension is largely intact. Prior to the stroke, he spoke standard Afrikaans<sup>6</sup>, and was resident in Cape Town. The examples of the type in (1)(a) to (c) above occur in his speech. In addition, the following examples from the spontaneous data have been selected for analysis:

### Type I : Omission of *het*

APHASIC DATA	STANDARD AFRIKAANS
I.1 <i>Hy dit gerun</i> he it past+run 'He ran it'	<i>Hy het dit gerun</i> he has it past+run 'He ran it'
I.2 <i>Ek nog nie kans gehad hierdie jaar nie</i> I yet not chance past+have this year not 'I have not yet had a chance this year'	<i>Ek het nog nie kans gehad hierdie jaar nie</i> I have yet not chance past+have this year not 'I have not yet had a chance this year'
I.3 <i>Toe ek my huis op die mark gesit en alles</i> then I my house on the market past+put and all 'Then I put my house on the market and all'	<i>Toe het ek my huis op die mark gesit en alles</i> then have I my house on the market past+put and all 'Then I put my house on the market and all'
I.4 <i>Toe ek hulle uitgekry</i> then I them out+past+get 'Then I got them out'	<i>Toe het ek hulle uitgekry</i> then have I them out+past+get 'Then I got them out'

### Type II : Doubling of *het*

APHASIC DATA	STANDARD AFRIKAANS
II.1 <i>Hier het baie probleme het gebeur</i> here have many problems have past+happen 'Here many problems have happened'	<i>Hier het baie probleme gebeur</i> here have many problems past+happen 'Here many problems have happened'
II.2 <i>Want sulke goed soos wasmasjien het gebreek het</i> because such things as washing-machine have past+break have 'Because things such as washing machines have broken'	<i>Want sulke goed soos wasmasjiene het gebreek</i> because such things as washing-machines have past+break 'Because things such as washing machines have broken'

## 4. An analysis of Type I and Type II data

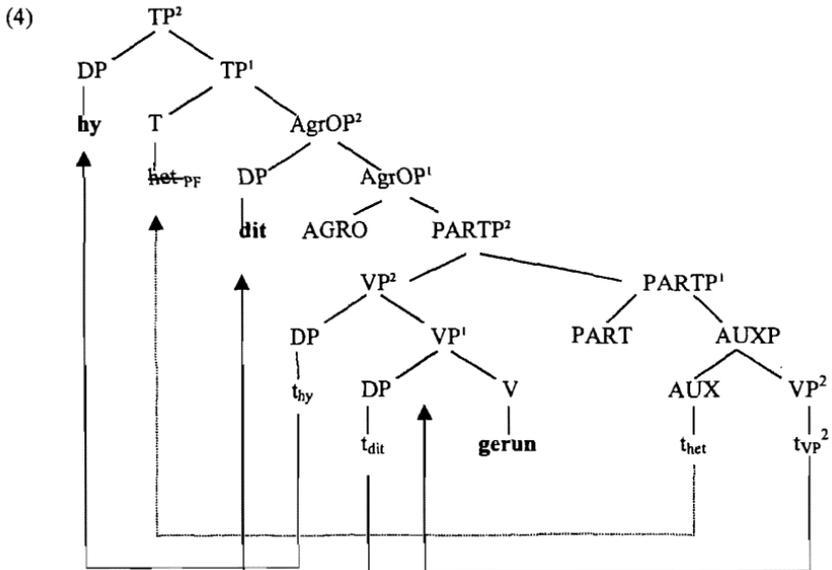
### 4.1 Type I : Omission of *het*

In (I.1) to (I.4) of the aphasic data above, the obligatory temporal auxiliary *het* is omitted. I assume that the past tense is interpreted because of the morphological inflection *ge-* on the main verb, and also from the discourse context in which the

spontaneous sample occurred. However, the *het* is not phonetically realised or spelled out. The derivation of example (1.1), *Hy dit gerun*, is as follows:

- i. Merge the functional head AUX and the VP, *dit gerun*, to form AUXP. The DP *hy* is the external argument (or subject) of *gerun*.
- ii. Merge the functional head PART and the AUXP to form PARTP<sup>1</sup>.
- iii. Move the whole VP to [Spec, PARTP<sup>1</sup>]. The reason for this is to check the participle feature of PART via spec-head agreement. The result is PARTP<sup>2</sup>.
- iv. Merge the functional head AgrO and PARTP<sup>2</sup> to form AgrOP<sup>1</sup>.
- v. Move the DP *dit* to [Spec, AgrOP<sup>1</sup>] to form AgrOP<sup>2</sup>.
- vi. Move the DP *hy* to [Spec, TP<sup>2</sup>].
- vii. Move the relevant tense features from AUX to T where they are interpreted; however, the *het* is not spelled out phonetically.

The resulting structure is represented in (4) below:



Thus, on the basis of the word order facts and the presence of *ge-*, I claim that past tense interpretation at LF has taken place, but that there is a problem at the PF interface resulting in *het* not being phonetically realised or spelled out<sup>7</sup>.

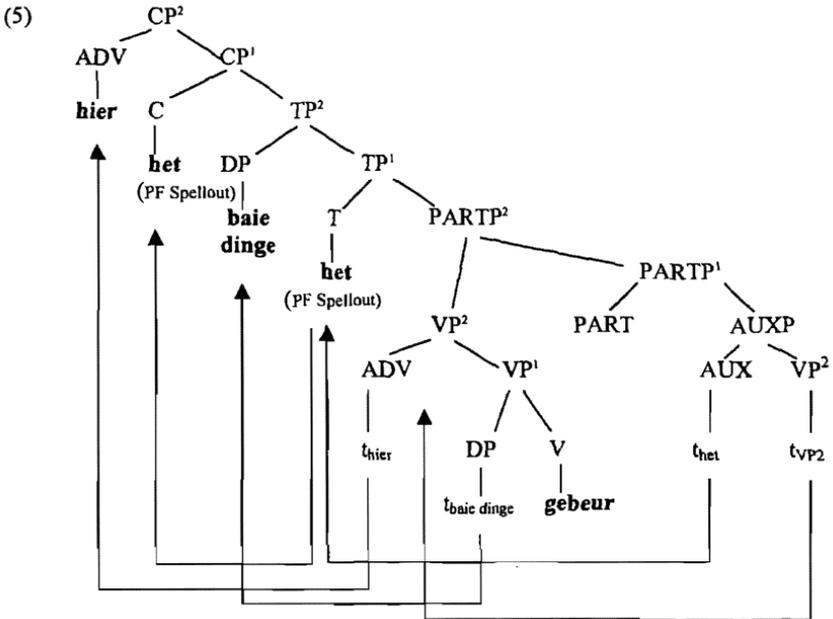
#### 4.2 Type II : Doubling of *het*

In example (II.1) of the aphasic data, *het* is spelled out twice. The double *het* does not occur in standard Afrikaans.

The derivation of example (II.1), *Hier het baie dinge het gebeur*, is as follows:

- i. Merge the functional head AUX and the VP, *baie dinge gebeur*, to form AUXP. The ADV *hier* is adjoined to form VP<sup>2</sup>.
- ii. Merge the functional head PART and the AUXP to form PARTP<sup>1</sup>.
- iii. Move the whole VP<sup>2</sup> to [Spec, PARTP<sup>1</sup>]. The reason for this is to check the participle feature of PART via spec-head agreement. The result is PARTP<sup>2</sup>.
- iv. Merge the functional head T and PARTP<sup>2</sup> to form TP<sup>1</sup>.
- v. Move the DP, *baie dinge*, to [Spec, TP<sup>1</sup>] to form TP<sup>2</sup>.
- vi. Move the ADV *hier* to [Spec, CP<sup>1</sup>] to form CP<sup>2</sup>.
- vii. Move the relevant tense features from AUX to T, and from T to C. The features are interpreted at both landing sites, and phonetically spelled out as *het* at T and at C.

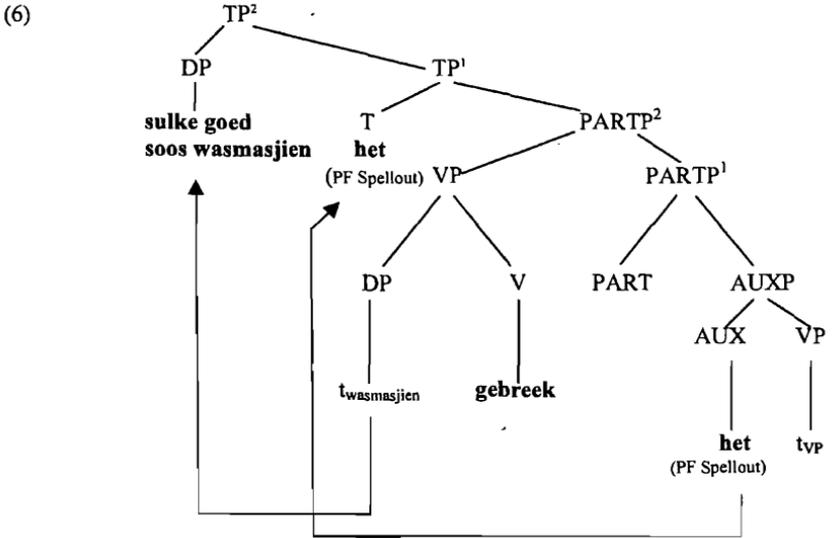
The resulting structure may be represented as in (5). The *het* is spelled out in the second structural position, as well as in one of the trace positions in the chain.<sup>8</sup>



The derivation of example (II.2) of the aphasic data, *Want sulke goed soos wasmasjien het gebreek het*, is as follows:<sup>9</sup>

- i. Merge the functional head AUX and the VP, *sulke dinge soos wasmasjien gebreek*, to form AUXP.
- ii. Merge the functional head PART and the AUXP to form PARTP<sup>1</sup>.
- iii. Move the whole VP to [Spec, PARTP<sup>1</sup>]. The reason for this is to check the participle feature of PART via spec-head agreement. The result is PARTP<sup>2</sup>.
- iv. Merge the functional head T and PARTP<sup>2</sup> to form TP<sup>1</sup>.
- v. Move the DP, *sulke dinge soos wasmasjien*, to [Spec, TP<sup>1</sup>] to form TP<sup>2</sup>.
- vi. Move *het* from its initial position under the AUX to T, where it is phonetically spelled out. In this example, the trace of *het* under the AUX is also spelled out, which results in the doubling of *het*.

The resulting structure is represented in (6).



In summary, then, in example (II.1) *het* is not spelled out in the initial position under AUX, but at both landing sites under T and C. In example (II.2) *het* is spelled out at T, and also at the foot of the chain in the initial position under AUX<sup>10</sup>.

One might speculate that the spelling out of *het* resulting in *het* doubling is an aphasic phenomenon. However, *het* doubling also occurs in other, non-standard varieties of Afrikaans, e.g. Cape Afrikaans as illustrated in examples (7) and (8).<sup>11</sup>

(7) *Maar ek het nog altyd gebid het*

But I have always past+pray have

'But I have always prayed' (Penn et al. in press)

(8) *God alleen weet wat het daar gebeur het*

God alone know what have there happened have

'God alone knows what happened there' (from a report on the SAFM radio news programme "AM live", 29/4/1998)

As far as could be ascertained, the phenomenon of auxiliary doubling has not been systematically described in the literature on generative syntax. It is unclear, for example, under which conditions *het* may/must be phonetically spelled out. It is also not clear whether or not this phenomenon is indicative of parametric variation. The phenomenon of doubling poses interesting questions for the copy theory of movement, and the spelling out of traces.

## 5. Doubling of other syntactic elements

Apparent doubling of syntactic elements that do not change the interpretation of a sentence is not restricted to the past tense auxiliary *het* in Afrikaans. For example, this phenomenon is found in negation constructions in standard Afrikaans, as illustrated in (9).<sup>12</sup> Other varieties of Afrikaans, among others Cape Afrikaans and Malay Afrikaans, show doubling of prepositions, as illustrated in (10) and (11), and doubling of the copular verb *is*, as illustrated in (12).<sup>13</sup>

(9) *Ek sal dit nie doen nie*

I will it not do not

'I will not do it'

(10) *Met wie het jy mee gesels?*

with whom have you with talked

'With whom did you talk?'

(11) *Hulle het teruggekom uit Holland uit.*

they have back+past+come from Holland from

'They came back from Holland' (Kotze 1985)

(12) *Ek hoor ook dat da veele ouwers is wat tevreede is met so e school is*

I hear also that there many parents are who satisfied are with such a school are

'I also hear that there are many parents who are satisfied with such a school'

(Adhikari (ed.) 1996: 96)

As illustrated below, doubling of syntactic elements other than the past tense auxiliary *het* is also found in PE's spontaneous language; these instances of doubling do not occur in standard Afrikaans. The first of these is the doubling of the auxiliary *is* in passive constructions, as in the following example:

### Type III : Doubling of *is*

APHASIC DATA	STANDARD AFRIKAANS
III.1 <i>Nou's my kombuis is nou updated</i> now is my kitchen is now updated 'Now my kitchen is updated'	<i>Nou's my kombuis updated</i> now is my kitchen updated 'Now my kitchen is updated'

The second of the doubling phenomena in the aphasic data involves adverbs, as in the following examples.

### Type IV : Doubling of adverbs

APHASIC DATA	STANDARD AFRIKAANS
IV.1 <i>Nou's my kombuis is nou updated</i> now is my kitchen is now updated 'Now my kitchen is updated'	<i>Nou's my kombuis updated</i> now is my kitchen updated 'Now my kitchen is updated'
IV.2 <i>Die vet kos nou R4000 nou vir 'n kat wat no</i> <i>personality het nie</i> the vet cost now R4000 now for a cat which no personality have not 'The vet now costs R4000 for a cat which has no personality'	<i>Die vet kos nou R4000 vir 'n kat wat no</i> <i>personality het nie</i> the vet cost now R4000 for a cat which no personality have not 'The vet now costs R4000 for a cat which has no personality'

## 6. Word order

As stated earlier, impairment in the verb phrase results in aberrant word orders. This has been shown in studies of agrammatic aphasia in other Germanic languages (Cahana-Amitay 1997; Bastiaanse and Van Zonneveld 1998; De Roo 1999 *inter alia*). Incorrect word order was also observed in the aphasic speech of PE.

Below are examples of aphasic utterances where there is V-to-I (or T) movement in a main clause, but not raising to C; the result is a construction in which the word order resembles that associated with an SVO language.

### Type V : SVO-like word order

APHASIC DATA		STANDARD AFRIKAANS
V.1	<i>Nou dit werk wonderlik</i> now it work wonderful 'Now it works wonderfully'	<i>Nou werk dit wonderlik</i> now work it wonderful 'Now it works wonderfully'
V.2	<i>Toe ek het 'n lawyer gekry</i> then I have a lawyer past+get 'Then I got a lawyer'	<i>Toe het ek 'n lawyer gekry</i> then have I a lawyer past+get 'Then I got a lawyer'
V.3	<i>Nou ons eet</i> now we eat 'Now we eat'	<i>Nou eet ons</i> now eat we 'Now we eat'

## 7. Summary

There are three patterns observed in the production of the temporal auxiliary *het* in past tense constructions in the Afrikaans produced by the aphasic PE, previously a speaker of standard Afrikaans. The first of these is the correct production of the auxiliary as illustrated in examples (1)(a) to (c). The second is the intermittent omission of the obligatory *het* where *het* is semantically interpreted, but not spelled out phonetically. The third is the doubling of *het* which is assumed to be the result of the spelling out of features at some or all of the landing sites, including the head and the tail of chains. The second and third of these patterns seem to indicate that the affected individual has problems with the spelling out at PF of temporal auxiliaries – there is either no spell-out or there is excessive spell-out at more than one position in the chain.

The aphasic data presented here provides independent evidence for verb movement that can be separated from the phonetic realisation of features. It appears as though interpretation and spell-out are two different processes. In the examples where *het* is

omitted in the aphasic speech of PE, spell-out at PF may be impaired although interpretation at LF occurs. This may provide support for the independence of the PF and LF interfaces and for the claim that interpretation at these interfaces are separate processes.

It is also clear that the theoretical framework can account for the aphasic data and that the language produced by the aphasic PE is constrained by the principles of UG. The patterns observed in the aphasic data are not random as regards the positions where spell-out is possible: the temporal auxiliary can only be spelled out in a possible head position, tail position or an intermediate landing site of a chain. What is unclear is under what conditions spell-out may/must occur in one or more of these positions.

*In conclusion, I argue that the term "agrammatic" is misleading since the language produced by the aphasic PE is not agrammatic although it is not standard Afrikaans. Sometimes the Afrikaans produced by this aphasic differs from standard Afrikaans, which was the pre-stroke language, but the "irregular" structures that it contains - specifically, the doubling of syntactic elements - are nevertheless found in other varieties of Afrikaans as well.<sup>14</sup>*

### **Acknowledgement**

I would like to thank my colleagues, Johan Oosthuizen, Debra Aarons and Johan Rooryck for their invaluable comments in the preparation of this paper.

## NOTES

1. The term "agrammatic" is generally used to describe the grammatical phenomena typical of the language output of Broca's aphasics. "Broca's aphasia" is the term traditionally used to describe the neurogenic condition that results from a cerebra-vascular insult in Broca's area of the brain (Grodzinsky 1990; Lesser and Milroy 1993). However, the involvement of Broca's area in Broca's aphasia is controversial, hence the use of the term "agrammatic aphasia" (Murdoch 1990).
2. Platzack argues that many irregularities in agrammatism can be accounted for in terms of irregularities in the C-domain. Rizzi's (1997) proposals for the structure of the CP underpin Platzack's arguments.
3. See e.g. Koster (1975), Lubbe (1983), Den Besten (1989), Barbiers (2000).
4. These assumptions are also based on arguments provided by Robbers (1997).
5.  $XP^1$  corresponds to what is generally referred to as  $X'$  (or X-bar) in the literature.
6. The term "standard Afrikaans" is used here to refer to the morphosyntactic and not the lexical aspects. This applies to all the aphasic data presented below.
7. I assume that the relevant tense features of *het* move to T but that its phonetic features stay behind in their initial position under the AUX.
8. Chomsky (1995: 200-212) has suggested that the notion 'trace' be replaced by the notion 'copy'. In this paper the term "trace" is used throughout to refer, like the term "copy", to a remnant of the category that has been moved.
9. The item *want* is omitted from the analysis since its status is unclear: *want* could be C or a connective.
10. Given the spelling out of traces illustrated in examples (II.1) and (II.2), it is conceivable that the following pattern could occur:
  - (i) *Hier het baie dinge het gebeur het*  
here has many things has happened has  
'Here many things have happened'

An example from Malay Afrikaans provided by Kotze (1985) shows precisely this phenomenon:

  - (ii) *Dan vertel die man nou wat het gebeur het nou daai dag het*  
then tell the man now what have happened have now that day have  
'Then the man told what happened that day'
11. See also the example from Malay Afrikaans in note 10. The phenomenon of past tense auxiliary doubling is also found in older varieties of Afrikaans, as in

the following example from a letter written in 1783 (Van Oordt, L.C. *Die Kaapse Taalargief*: Letter 65):

*dat my overleede man nooyt meer als van de een Plaats zo hy heeft op*  
 that my late husband never more than of the one farm that he has on  
*Ordinantie gehad heeft met zyn vee betrokken*  
 ordinance past-have with his cattle grazed  
 'that my late husband never had more than one farm on which he was  
 allowed by ordinance to graze cattle'

12. See e.g. Oosthuizen (1998) and Nienaber (1965).
13. See e.g. Waher (1994: 103) and the references in Nienaber (1965: 31) for other examples of syntactic doubling in older varieties of Afrikaans.
14. I was unable to find examples illustrating the omission of *het* in the works consulted for this paper. Interestingly, however, the omission of the past tense auxiliary is apparently found in some other Germanic languages, for example in embedded clauses in certain varieties of Swedish (Tarald Taraldsen, Anders Holmberg, Johan Rooryck - personal communications).

## REFERENCES

- Adhikari, M. (ed.). 1996. *Staatpraatjies. Language, politics and popular culture in Cape Town, 1909-1922*. Pretoria: Van Schaik.
- Barbiers, S. 2000. The right periphery in SOV languages: English and Dutch. In P. Svenonius (ed.). 2000. *The derivation of VO and OV*. *Linguistik Aktuell*, 31. Amsterdam: John Benjamins.
- Bastiaanse, R. and R. van Zonneveld. 1998. On the relation between verb inflection and verb position in Dutch agrammatic aphasics. *Brain and Language*, 64: 165-181.
- Cahana-Amitay, D. 1997. *Syntactic aspects of the production of verbal inflection in aphasia*. Doctoral dissertation. Boston University.
- Caramazza, A. and R.S. Berndt. 1985. A multicomponent deficit view of agrammatic aphasia. In Kean, M-L. (ed.). 1985. *Agrammatism*. Orlando: Academic Press.
- Chomsky, N. 1995. *The minimalist program*. Cambridge, MA: MIT Press.
- Chomsky, N. 1998. Minimalist inquiries: the framework. *MIT Occasional Papers in Linguistics*, 15. Cambridge, MA : MIT.
- Chomsky, N. 1999. Derivation by Phase. *MIT Occasional Papers in Linguistics*, 18. Cambridge, MA : MIT.
- Den Besten, H. 1989. *Studies in West-Germanic syntax*. Dissertation. University of Tilburg.
- De Roo, E. 1999. *Agrammatic grammar: functional categories in agrammatic speech*. Dissertation. Leiden University: HIL Manuscripts.
- Friedmann, N. and Y. Grodzinsky. 1994. Verb inflection in agrammatism: a dissociation between tense and agreement. *Brain and Language*, 47: 402-405.
- Friedmann, N. and Y. Grodzinsky. 1997. Tense and agreement in agrammatic production: pruning the syntactic tree. *Brain and Language*, 56: 397-425.
- Grodzinsky, Y. 1990. *Theoretical perspectives on language deficits*. Cambridge, MA: MIT Press.
- Hagiwara, H. 1995. The breakdown of functional categories and the economy of derivation. *Brain and Language*, 50: 92-116.
- Koster, J. 1975. Dutch as an SOV language. *Linguistic Analysis*, 1:111-136.
- Kotze, E.F. 1985. *Variasiepatrone in Maleier-Afrikaans*. Ongepubliseerde Doktorale Proefskrif, Universiteit van die Witwatersrand.
- Lapointe, S. 1983a. Some issues in the linguistic description of agrammatism. *Cognition*, 14: 1-39.
- Lapointe, S. 1983b. A theory of verb form use in the speech of agrammatic aphasics. *Brain and Language*, 24: 100-155.

- Lesser, R. and L. Milroy. 1993. *Linguistics and aphasia: psycholinguistic and pragmatic aspects of intervention*. London: Longman.
- Lubbe, H.J. 1983. *Woordvolgordeverandering in die diachroniese ontwikkeling van tale met besondere verwysing na Afrikaans*. Publikasiereeks C. Nommer 8. Bloemfontein: Universiteit van die Oranje-Vrystaat.
- Miceli, G. and A. Caramazza. 1988. Dissociation of inflectional and derivational morphology. *Brain and Language*, 35: 24-65.
- Miceli, G., C.S. Silveri, C. Romani, and A. Caramazza. 1989. Variation in the pattern of omissions and substitutions of grammatical morphemes in spontaneous speech of so-called agrammatic patients. *Brain and Language*, 36: 447-492.
- Murdoch, B.E. 1990. *Acquired speech and language disorders: A neuroanatomical and functional neurological approach*. London: Chapman and Hall.
- Nienaber, G.S. 1965. Iets naders oor die ontkenning in Afrikaans. In G.S. Nienaber (ed.). 1965. *Taalkundige opstelle*. Kaapstad & Amsterdam: A.A. Balkema.
- Oosthuizen, J. 1998. The final *nie* in Afrikaans negative sentences. *SPIL*, 31: 61-93. Department of General Linguistics, University of Stellenbosch.
- Ouhalla, J. 1993. Functional categories, agrammatism and language acquisition. *Linguistische Berichte*, 143: 3-36.
- Penn, C., A. Venter and D. Ogilvy. In press. *Aphasia in Afrikaans: A preliminary analysis*.
- Platzack, C. In press. The vulnerable C-domain. *Brain and Language*.
- Rizzi, L. 1997. The fine structure of the left periphery. In L. Haegeman (ed). 1997. *Elements of Grammar: Handbook in Generative Syntax*. Dordrecht: Kluwer.
- Robbers, K. 1997. *Non-finite verbal complements in Afrikaans: A comparative approach*. Dissertation. Leiden University: HIL Manuscripts.
- Waher, H. 1994. Die dialektiese ontkenning en Afrikaans. In G. Olivier & A. Coetzee (eds.). 1994. *Nuwe perspektiewe op die geskiedenis van Afrikaans*. Halfweghuis: Southern Boekuitgewers.