Tempus im Afrikaans

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1 Einleitung

Verbindung zu den Vorträgen von Frank Richter und Gerald Penn:

- Richter: konzeptuelle Motivation für LRS als Semanitkformalismus für die HPSG
- Penn: Implementierung von LRS
- Sailer: empirische Motivation für LRS und eine theorie-unabhängige Formulierung

1.1 Motivation

(1) Jan wou die boek gekoop het.
Jan wanted.IMP the book bought.PART AUX

(2) a. Jan wanted to have bought the book.
PAST(Jan wants ˆPAST(Jan buys the book))

b. Jan wants to have bought the book.
Jan wants ˆPAST(Jan buys the book)

c. Jan wanted to buy the book.
PAST(Jan wants ˆ(Jan buys the book))

1.2 Ziele

- Diskussion der Interpretation von (infiniten) Vergangenheitsverbformen im Afrikaans ...
- ... zur Motivation von Unterspezifikation und Mehrfachmarkierung temporaler Operatoren.
- Einschränkungen:
  - Daten sind aus der Literatur oder dem Internet zusammengetragen. Leider standen mir bislang keine Informanten zur Verfügung.
  - Wir betrachten nur "einfache" Sätze. Consecutio-Effekte in eingebetteten Sätzen werden ignoriert.
  - Es geht um den Aufbau logischer Formen, nicht um die genaue Definition der Interpretation der logischen Formen. Die logischen Formen orientieren sich an Stechow (2002).

1.3 Struktur

1. Einleitung
2. Verbformen des Afrikaans
3. Einfache Tempusformen
4. Temporale Interpretation im Verbkomplex

5. Lexical Resource Semantics (LRS)
6. Analyse
7. Zusammenfassung und Ausblick

2 Verbformen des Afrikaans

2.1 *om te wees* (*sein*)

(3) *wees*: Infinitiv Präsens
is: finites Präsens
was: finites Imperfekt
gewees: Partizip Perfekt

In gehobenen Registern hat das Verb *hê* (*haben*) ebenfalls dies vier Formen (*hê, het, had, gehad*), wobei *had* am Verschwinden ist.

(4) Finite Formen:

a. Publisiteit **is** belangrijk.
publicity is.PRES important

b. Publisiteit **was** toe al belangrijk.
publicity was.IMP then already important

c. Publisiteit het toe al belangrijk **gewees**.
publicity AUX then already important been.PART

(5) Infinite Formen:

a. Publisiteit kan belangrijk **wees**.
publicity can.PRES important be.INF

b. En inflasie . . . sou sekerlik laer kon **gewees** het, as . . .
and inflation would.IMP surely lower could.IMP been.PART AUX if
'and inflation could certainly have been lower if . . . '

2.2 *om te skryf* (*schreiben*)

(6) *skryf*: infinite und finite Präsensform
geskryf: Partizip Perfekt

(7) Finite Formen:

a. Jan **skryf** 'n boek oor sy pa.
Jan writes.PRES a book about his father

b. Jan het 'n boek oor sy pa **geskryf**.
Jan AUX a book about his father written.PART

(8) Infinite Formen:

a. Jan wil 'n boek oor sy pa **skryf**.
Jan wants.PRES a book about his father write

b. En deur dit te **gedoen** het, maak hy dit vir ieder en elk van sy kinders moontlik om te volhard
and by this to done.PART AUX makes he it for each and every of his children possible to continue

2.3 *om te wil* (*wollen*)

(9) *wil*: finite und infinite Präsensform
wou: finite und infinite Imperfektform

Diese Gruppe umfasst außerdem die Verben *kan/kon* (*können*), *moet/moes* (*müssen*), *sal/sou* (Auxiliar zur Futurbildung), *mag/mog* (*dürfen*).

(10) Finite Formen:

a. Jan **wil** 'n boek oor sy pa skryf.
Jan wants.PRES a book about his father write

b. Jan **wou** 'n boek oor sy pa skryf.
Jan wanted.IMP a book about his father write

(11) Infinite Formen:

a. Jan sal a boek oor sy pa **wil** skryf.
Jan will.PRES a book about his father want write 'Jan will want to write a book about his father.'

b. Ek het niks oorgehad om te **kon** deel nie
I AUX nothing left-over.PART for to could.IMP share NEG
'I didn't have anything left over to be able to share.'

2.4 *het* (*AUX*)

Das Auxiliar *het* ist unveränderlich. Es kann sowohl finit als auch infinit gebraucht werden.

(12) Finite Form:

Jan **het** 'n boek oor sy pa geskryf.
Jan AUX a book about his father written.PART

(13) Infinite Form:

En deur dit te gedoen **het**, ...
and by this to done.PART AUX

(14) a. Yiddish: ikh hob aykh gehat gevarnt ir zolt nit geyn.
I have you.PL had.PART warned.PART you.PL ought not go.INF
'I had warned you (formal) not to go.' (Katz, 1987, p.,138)

b. Afrikaans: ek het u gewaarsku *het/ *gehad
I AUX you (formal) warned.PART AUX/ have.PART

2.5 Syntaktische Analyse

Mit Ausnahme von *wees* und *hê* unterscheidet das Afrikaans morphologisch nicht zwischen finiten und infiniten Formen.

(15) a. Sort hierarchy below *vform*:

- *vform*
  - *base*
    - *fin(ite)*
    - *inf(initive)*
  - *part(iciple)*

b. VFORM values of the verbal forms:

English	verb	VFORM value
call	*bel*	*base*
	gebel	*part*
have	*hê*	*inf*
	het	*fin*
	gehad	*part*
AUX	*het*	*base*

English	verb	VFORM value
be	*wees*	*inf*
	is	*fin*
	was	*fin*
	gewees	*part*
want	*wil*	*vform*
	wou	*vform*

3 Einfache Tempusformen

3.1 *Presens*

skryf-Verben

(16) a. Hy het dadelik huis toe gestap.
he AUX really house towards stepped.PART 'He really stepped towards his house.'

b. Toe stap hy dadelik huis toe.
Then goes he really house towards 'Then, he really stepped towards his house.'

c. Verlede week stap hy huis toe, en daar sien hy sy buurman voor die hekkie.
last week steps.PRES he house towards and there sees.PRES he his neighbor in front of the hedge
'Last week, he stepped towards his house and there he saw his neighbor in front of the hedge.'

(17) a. Jan bel.
Jan calls.PRES 'Jan calls.'

b. $\exists e(\tau(e) \odot s^* \wedge \mathsf{call}'(e, j))$

c. s^* Sprechzeit
$\tau(e)$ Zeit des Ereignisses e
$\odot$ zeitliche Überlappung

wees

(18) a. Hy was dadelik tuis.
he was.IMP really home

b. Toe was/ is hy dadelik tuis.
then was.IMP/ is.PRES he really home

c. Verlede week was/ is hy dadelik tuis en daar kom sy maat op besoek.
last week was.IMP/ is.PRES he really home and his friend comes to see him.

(19) a. Jan is tuis.
Jan is.PRES at home 'Jan is at home.'

b. $\exists s(s \odot s^* \wedge \mathsf{at\text{-}home}'(s, j))$

wil-Verben

(20) a. Hy wou huis toe stap.
he wanted.IMP house towards step

b. Toe wou/ wil hy huis toe stap.
then wanted.IMP/ wants.PRES he house towards step

c. Verlede week wou/ wil hy huis toe stap en daar sien hy sy buurman ...
last week wanted.IMP/ wants.PRES he house towards step ...

(21) a. Jan wil bel.
Jan want call 'Jan wants to call.'

b. $\exists s(s \odot s^* \wedge \mathsf{want}'(s, j, {}^\wedge\exists s^*(s^* \approx s \wedge \exists e(\tau(e) \odot s^* \wedge \mathsf{call}'(e, j)))))$

3.2 *Perfek*

Kleij (1999) zeigt für uneingebettete Sätze, dass das *perfek* als Präteritum interpretiert wird.

(22) a. Môre sien ek hom.
tomorrow see.PRES I him 'I'll see him tomorrow.'

b. * Môre het ek hom gesien (en dan sal ek alles vir jou vertel).
tomorrow AUX I him seen.PART and then will I everything to you tell

c. Môre sal ek hom gesien het ...
tomorrow will I him seen.PART AUX ...

(23) a. Jan het gebel.
Jan AUX called.PART 'Jan called.'

b. $\exists t(t < s^* \wedge \exists e(\tau(e) \odot t \wedge \mathsf{call}'(e, j)))$

3.3 *Imperfek*

(24) a. Môre is Jan tuis.
tomorrow is.PRES Jan home 'Jan will be home tomorrow.'

b. * Môre was Jan tuis.
tomorrow was.IMP Jan home

c. Môre sal Jan tuis gewees het.
tomorrow will Jan home been.PART AUX
'Jan will have been home tomorrow.'

(25) a. Jan was tuis.
Jan was.IMP home 'Jan was home.'

b. $\exists t(t < s^* \wedge \exists s(s \odot t \wedge \mathsf{be\text{-}home}'(s, j)))$

3.4 Aspektuelle Interpretation?

Kleij (1999) nimmt an, dass das *perfek* ambig ist zwischen einer Präteritumslesart und einer Perfektlesart.

(26) a. Nadat hy sy eksamen geskryf het, het hy koffie gedrink.
after he his exam written.PART AUX AUX he coffee drunk.PART
'After he had written his exam, he drank a coffee.'

b. Nadat ek hom môre gesien het, sal ek alles vir jou vertel.
after I him tomorrow seen.PART AUX will I everything to you tell
'After I have seen him tomorrow, I will tell you everything.'

4 Temporale Interpretation im Verbkomplex

4.1 Daten

G1 Jedes Verb im *perfek* oder *imperfek* steuert einen Vergangenheitsoperator bei.

G2 Der Skopus eines Vergangenheitsoperators ist nicht vollständig durch das Verb festgelegt, das ihn beisteuert.

G3 Die Zahl der Verben eines Satzes im *perfek* und *imperfek* legen eine Obergrenze der Anzahl der Vergangenheitsoperatoren in der logischen Form fest, aber nicht ihre genaue Zahl.

G1 Siehe Satz (1).

G2

(27) Jan wou die boek lees.
Jan wanted.IMP the book read

a. Jan wanted to read the book.
PAST(Jan wants(Jan reads the book))

b. Jan wants to have read the book.
Jan wants(PAST(Jan reads the book))

(28) Jan wil die boek gelees het.
Jan wants.PRES the book read.PART AUX

a. Jan wants to have read the book.

b. Jan wanted to read the book.

(29) a. Ek moet los kon rondgeloop het.
I must.PRES freely can.IMP around.walked.PART AUX

'I had to be able to run around freely.' (Kleij, 1999)

b. PAST($\mathsf{must}'(\hat{}\,\mathsf{can}'(i, \hat{}\,\mathsf{run\text{-}around\text{-}freely}'(i))))$

G3 Siehe Satz (1) und (29)

4.2 Die traditionelle Analyse

(30) Operational account of the ambiguity (Ponelis, 1979; Kleij, 1999)

a. *preterite assimilation* (PA):

modal in *presens*	+	verb in *perfek*	⇒	modal in *imperfek* + verb in *perfek*
wil		geskryf het		wou geskryf het

b. *preterite movement* (PM):

modal in *imperfek*	+	verb in infinitive	⇒	modal in *imperfek* + verb in *perfek*
wou		skryf		wou geskryf het
1st modal in *imperfek*	+	2nd modal in *presens*	⇒	both modals in *imperfek*
wou		kan skryf		wou kon skryf

Probleme der Analyse:

- Wo kommen diese Operationen her?
- Wie sollte man sie in der HPSG ausdrücken?
- Empirisch ungenügend: die Bedeutung von (29) kan nicht hergeleitet werden.

5 Lexical Resource Semantics (LRS)

5.1 HPSG-basierte Präsentation (Richter and Sailer, 2003)

(31) The sort *lrs*:

lrs	EX(TERNAL-)CONT(ENT)	*me*
	IN(TERNAL-)CONT(ENT)	*me*
	PARTS	*list(me)*

(32) The INCONT PRINCIPLE (IContP):
In each *lrs*, the INCONT value is an element of the PARTS list and a component of the EXCONT value.

(33) The EXCONT PRINCIPLE (EContP):

1. In every phrase, the EXCONT value of the non-head daughter is an element of the non-head daughter's PARTS list.
2. In every utterance, every subexpression of the EXCONT value of the utterance is an element of its PARTS list, and every element of the utterance's PARTS list is a subexpression of the EXCONT value.

(34) SEMANTICS PRINCIPLE

In each *headed-phrase*,

1. the EXCONT value of the head and the mother are identical,
2. the INCONT value of the head and the mother are identical,[1]
3. the PARTS value contains all and only the elements of the PARTS values of the daughters,
4. the following conditions hold:
   (a) if the nonhead is a quantifier then its INCONT value is of the form $Qx[\rho \circ \nu]$[2], the INCONT value of the head is a component of ρ, and the INCONT value of the non-head daughter is identical with the EXCONT value of the head daughter,
   (b) if the non-head is a quantified NP with an EXCONT value of the form $Qx[\rho \circ \nu]$, then the INCONT value of the head is a component of ν,
   (c) if the head combines with a nonhead whose arguments it raises, the INCONT values of the head an the nonhead are identical
   (d) ...

(35) Outline of the lexical entry of *Jan*:

$$\begin{bmatrix} \text{PHON} & \langle \textit{Jan} \rangle \\ \text{SYNS LOC} & \begin{bmatrix} \text{CAT} & \begin{bmatrix} \text{HEAD} & \textit{noun} \\ \text{VAL} & \begin{bmatrix} \text{COMPS} & \langle\rangle \end{bmatrix} \end{bmatrix} \\ \text{CONT} & \begin{bmatrix} \text{INDEX} & \begin{bmatrix} \text{PHI} & \begin{bmatrix} \text{NUM} & \textit{sg} \\ \text{PERS} & \textit{3rd} \\ \text{GEN} & \textit{masc} \end{bmatrix} \\ \text{VAR} & j \end{bmatrix} \\ \text{MAIN} & \boxed{1}\, j \end{bmatrix} \end{bmatrix} \\ \text{LF} & \begin{bmatrix} \text{EXCONT} & \textit{me} \\ \text{INCONT} & \boxed{1}\, j \\ \text{PARTS} & \langle j \rangle \end{bmatrix} \end{bmatrix}$$

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[1]We take the noun to be the head of a quantified NP.

[2]$Qx[\rho \circ \nu]$ is shorthand for the description $\begin{bmatrix} \textit{quantifier} & \\ \text{VAR} & \textit{var} \\ \text{SCOPE} & \begin{bmatrix} \textit{l-const} & \\ \text{ARG1} & \rho \\ \text{ARG2} & \nu \end{bmatrix} \end{bmatrix}$.

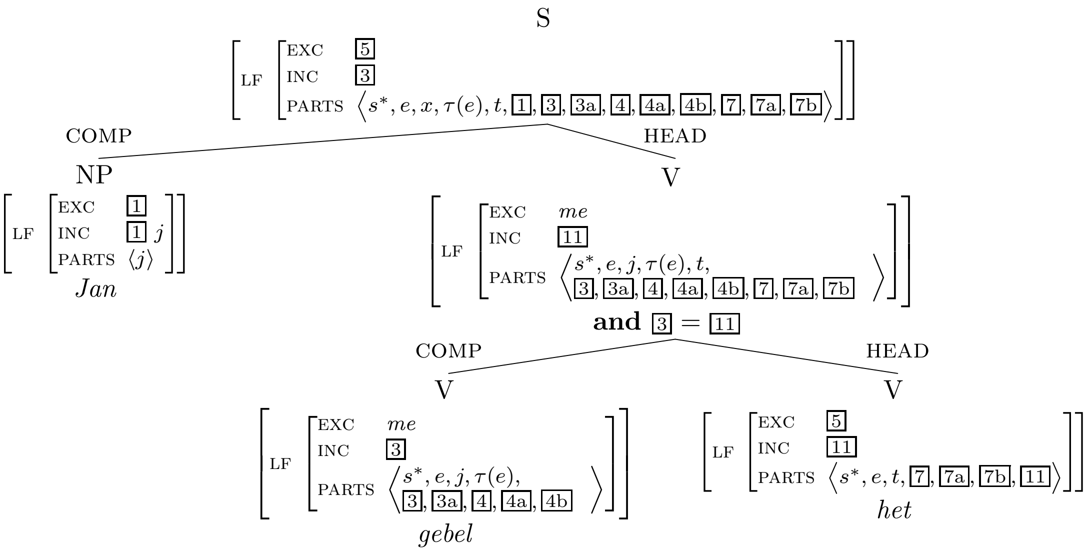

Figure 1: The structure of the sentence *(dat) iemand gebel het.*

(36) Outline of the lexical entry of *bel* (*call*):

$$\begin{bmatrix} \text{PHON} & \langle \textit{bel} \rangle \\ \text{SYNS LOC} & \begin{bmatrix} \text{CAT} & \begin{bmatrix} \text{HEAD} & \begin{bmatrix} \textit{verb} & \\ \text{VFORM} & \textit{base} \end{bmatrix} \\ \text{VAL} & \begin{bmatrix} \text{SUBJ} & \langle \boxed{1} [\ldots \text{INDEX VAR } x] \rangle \\ \text{COMPS} & \langle\rangle \end{bmatrix} \end{bmatrix} \\ \text{CONT} & \begin{bmatrix} \text{INDEX VAR } e \\ \text{MAIN } \boxed{3a}\ \mathsf{call}' \end{bmatrix} \end{bmatrix} \\ \text{LF} & \begin{bmatrix} \textit{lrs} & \\ \text{EXCONT} & me \\ \text{INCONT} & \boxed{3}\ \mathsf{call}'(e,x) \\ \text{PARTS} & \langle s^*, x, e, \tau(e), \boxed{3}\mathsf{call}'(e,x), \boxed{3a}\mathsf{call}' \boxed{4}\exists e(\tau(e) \odot T \wedge B), \boxed{4a}(\tau(e) \odot T \wedge B), \boxed{4b}\tau(e) \odot T \rangle \end{bmatrix} \end{bmatrix}$$

and $\boxed{3} \triangleleft B$ ($\mathsf{call}'(e,x)$ is in the scope of $\exists e[\ldots]$)

(37) Outline of the lexical entry of *het*:

$$\begin{bmatrix} \text{PHON} & \langle \textit{het} \rangle \\ \text{SYNS LOC} & \begin{bmatrix} \text{CAT} & \begin{bmatrix} \text{HEAD} & \begin{bmatrix} \textit{verb} & \\ \text{VFORM} & \textit{base} \end{bmatrix} \\ \text{VAL} & \begin{bmatrix} \text{SUBJ} & \boxed{8} \\ \text{COMPS} & \boxed{9} \oplus \langle \boxed{10} \rangle \end{bmatrix} \end{bmatrix} \\ \text{CONT} & \begin{bmatrix} \text{INDEX} & \boxed{6} [\text{VAR } e] \\ \text{MAIN} & \boxed{7b}\ t < s^* \end{bmatrix} \end{bmatrix} \\ \text{ARG-ST} & \left\langle \boxed{10} \begin{bmatrix} \text{LOC} & \begin{bmatrix} \text{CAT} & \begin{bmatrix} \text{HEAD} & \begin{bmatrix} \textit{verb} & \\ \text{VFORM} & \textit{part} \end{bmatrix} \\ \text{VAL} & \begin{bmatrix} \text{SUBJ} & \boxed{8} \\ \text{COMPS} & \boxed{9} \end{bmatrix} \end{bmatrix} \\ \text{CONT} & [\text{INDEX } \boxed{6}] \end{bmatrix} \end{bmatrix} \right\rangle \\ \text{LF} & \begin{bmatrix} \text{EXCONT} & me \\ \text{INCONT} & \boxed{11} \\ \text{PARTS} & \langle s^*, e, t, \boxed{7}\exists t(t < s^* \wedge D), \boxed{7a}(t < s^* \wedge D), \boxed{7b}t < s^*, \boxed{11}, \rangle \end{bmatrix} \end{bmatrix}$$

and $\boxed{11} \triangleleft D$ (the INC value is in the scope of PAST)
and there is a free occurrence of t in D

(38) $\exists x[\mathsf{person}'(x) \wedge \exists t[t < s^* \wedge \exists e[\tau(e) \odot t \wedge \mathsf{call}'(e,x)]]]$

5.2 HPSG-neutrale Präsentation (Sailer, 2004)

(39) Definition of the meta language $\mu(L)$;

If we assume a given semantic representation language L, then expressions of LRS are taken from a semantic meta language $\mu(L)$:

- Every expression of L is in $\mu(L)$.
- In addition, we assume a set VAR of meta variables (written as $A, B, \ldots$).
  For each $V \in VAR$ and for each n-tuple $\phi_1, \ldots, \phi_n$ of expressions of $\mu(L)$ which no not contain an occurrence of V,
  $V[\phi_1, \ldots \phi_n]$ is in $\mu(L)$.
- Furthermore, all logical connectors of L can be used to combine expressions of $\mu(L)$, but note that quantification and lambda abstraction are only possible over variables from L, not over meta variables.

For convenience we will write $\vec{\phi}$ for n-tuples of $\mu(L)$ expressions, and V for $V[\,]$.

(40) Denotation of expressions of $\mu(L)$:

Since $\mu(L)$ is a meta language, expressions of $\mu(L)$ denote expressions of L. This denotation is defined with respect to a meta variable assignment function ASS, which assigns an expression of L to each element of VAR . We will write $[\![\phi]\!]^{ASS}$ for this meta denotation.

- For each $\phi \in L$, $[\![\phi]\!]^{ASS} = \phi$.
- Expressions of the form $V[\phi_1, \ldots, \phi_n]$ are interpreted as $ASS(V)$ if for each ϕ_i, $[\![\phi_i]\!]^{ASS}$ is a subexpression of $ASS(V)$. Otherwise the denotation is undefined.
- The denotation of syntactically complex expressions is defined recursively. For example, the denotation of $\phi \wedge \psi$ is the L expression $[\![\phi]\!]^{ASS} \wedge [\![\psi]\!]^{ASS}$.

(41) Definition of a *reading*:

For each $\phi \in \mu(L)$, $\phi_{lf} \in L$, ϕ_{lf} *is a reading* of ϕ, iff there is a meta variable assignment function ASS such that

(i) $\phi_{lf} = [\![\phi]\!]^{ASS}$, and

(ii) for each ψ which is a subexpression of ϕ_{lf},
if ψ is a variable or a constant, then ψ is a subexpression of ϕ,
if ψ is of the form $\psi_1 \wedge \psi_2$, then there is a ψ' such that
ψ' is a subexpression of ϕ and has the form $\psi'_1 \wedge \psi'_2$,
where $[\![\psi'_1]\!]^{ASS} = \psi_1$ and $[\![\psi'_2]\!]^{ASS} = \psi_2$,
analogously for the other complex expressions of L.

(42) Definition of an *lrs*:

An lrs is a triple of $\mu(L)$ expressions $\langle \phi, \phi_{-}, \phi_{\#} \rangle$. We will call ϕ the *parts structure* of the lrs, ϕ_{-} the *internal content* and $\phi_{\#}$ the *external content*.

For each lrs, $\langle \phi, \phi_{-}, \phi_{\#} \rangle$.

- ϕ_{-} is a subexpression of ϕ, (vergleiche (32))
- there is a meta variable assignment ASS such that
  - $[\![\phi_{-}]\!]^{ASS}$ is a subexpression of $[\![\phi_{\#}]\!]^{ASS}$, and (vergleiche (32))
  - $[\![\phi_{\#}]\!]^{ASS}$ is a subexpression of $[\![\phi]\!]^{ASS}$. (vergleiche (33), Teil 1)

(43) a. $\langle A[s^*, \exists e(\tau(e) \odot T \wedge B[\mathsf{call}'(e,j)])]$, (parts structure)
$\mathsf{call}'(e,j)$, (internal content)
$A\rangle$ (external content)

b. ${}^{\#}A[s^*, \exists e(\tau(e) \odot T \wedge B[\underline{\mathsf{call}'(e,j)}])]$

(44) Reading of (43a):

a. $\exists e(\tau(e) \odot s^* \wedge \mathsf{call}'(e,j))$

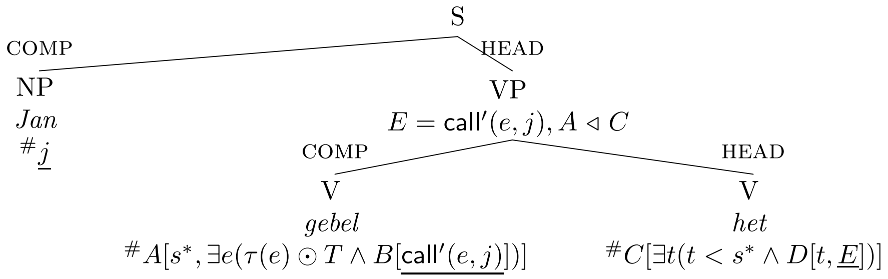

Figure 2: The structure of *(dat) Jan gebel het*

b. $T = s^*$
$A = \exists e(\tau(e) \odot s^* \wedge \mathsf{call}'(e,j))$
$B = \mathsf{call}'(e,j)$

(45) The External Content Principle:

Let $\langle \phi, \phi_-, \phi_\# \rangle$ be the *lrs* of an utterance, then $\phi_\#$ is a reading of ϕ. (vergleiche (33), Teil 2)

(46) a. Definition of a *constraint lrs*:

A *constraint lrs* is a pair $\langle \lambda, \kappa \rangle$, where λ is an *lrs* and κ is a finite set of constraints of one of the following two forms:

- $\phi \triangleleft V$, where $\phi \in \mu(L)$, and $V \in VAR$ both occurring in λ, or
- $\phi = \psi$, where ϕ, ψ both occur in λ.

b. Constraint elimination:

Every constraint *lrs* can be rewritten as a normal *lrs* applying the following algorithm:

- To eliminate a constraint of the form $\phi \triangleleft V$, replace each $V[\vec{\psi}]$ in λ with $V[\vec{\psi}, \phi]$.
- For constraints of the form $\phi = \psi$ we will take a meta variable W which does not occur in λ and replace each occurrence of ϕ and ψ with $W[\phi, \psi]$.

(47) The *Semantics Principle* (SP):

Let $\langle \phi, \phi_-, \phi_\# \rangle$ be the *lrs* of the head daughter, $\langle \psi, \psi_-, \psi_\# \rangle$ the *lrs* of the nonhead daughter, and V a meta variable which does not occur in either *lrs*,
then the *lrs* of the mother results from eliminating the constraints from

$$\langle \langle V[\phi, \psi], \phi_-, \phi_\# \rangle, \kappa \rangle,$$

where κ contains exactly the following constraints:

1. $\phi_\#$ is of the form $\beta[\vec{\phi}]$, and $\psi_\# \triangleleft \beta$ is in κ,
2. Specific Constraints:
   (a) ...
   (b) ...
   (c) if the non-head is a raised complement of the head, then $\phi_- = \psi_-$,
   (d) ...

(48) Lexikalische *lrs*-Spezifikationen:

a. *Jan*: $^{\#}\underline{j}$

b. *gebel*: $^{\#}A[s^*, \exists e(\tau(e) \odot T \wedge B[\underline{\mathsf{call}'(e,j)}])]$

c. *het*: $^{\#}C[\exists t(t < s^* \wedge D[t, \underline{E}])]$

(49) a.$\left\langle F[^{\#}C[\exists t(t < s^* \wedge D[t, \underline{E}])], A[s^*, \exists e(\tau(e) \odot T \wedge B[\mathsf{c}'(e,j)])]], \{A \triangleleft C, \mathsf{c}'(e,j) = E\} \right\rangle$

b. $F[{}^{\#}C[\exists t(t < s^* \wedge D[t, G[\underline{E}, \mathsf{call}'(e.j)]]]), A[s^*, \exists e(\tau(e) \odot T \wedge B[G[\underline{E}, \mathsf{call}'(e,j)]])]],$
$A[s^*, \exists e(\tau(e) \odot T \wedge B[G[\underline{E}, \mathsf{call}'(e,j)]])]]$

(50) a. $T = t$
$A = C = F = \exists t(t < s^* \wedge \exists e(\ldots))$
$B = E = G = \mathsf{call}'(e,j)$
$D = \exists e(\tau(e) \odot t \wedge \mathsf{call}'(e,j))$

b. $\exists t(t < s^* \wedge \exists e(\tau(e) \odot t \wedge \mathsf{call}'(e,j)))$

(51) a. (dat) Jan wil bel
that Jan want.PRES call

b. *wil*: ${}^{\#}F[s^*, \exists s(s \odot T' \wedge \mathsf{want}'(s, j, {}^\wedge\exists s^*(s^* \approx s \wedge G[s^*, \underline{H}])))]$

(52) a. $T = s^*$ $\quad T' = s^*$
$A = G = \exists e(\tau(e) \odot s^* \wedge \mathsf{call}'(e,j))$
$B = H = \mathsf{call}'(e,j))$
$F = \exists s(s \odot s^* \wedge \mathsf{want}'(s, j, {}^\wedge\exists s^*(s^* \approx s \wedge \exists e(\ldots))))$

b. $\exists s(s \odot s^* \wedge \mathsf{want}'(s, j, {}^\wedge\exists s^*(s^* \approx s \wedge \exists e(\tau(e) \odot s^* \wedge \mathsf{call}'(e,j)))$

6 Analyse

6.1 *wou* (*wanted.IMP*)

(53) Outline of the lexical entry of *wou* (*wanted.IMP*):

$$\begin{bmatrix}
\text{PHON} & \langle \textit{wou} \rangle \\
\text{SYNS} & \begin{bmatrix} \text{LOC} & \begin{bmatrix} \text{CAT} & \begin{bmatrix} \text{HEAD} & \begin{bmatrix} \textit{verb} \\ \text{VFORM}\ \ \textit{vform} \end{bmatrix} \\ \text{VAL} & \begin{bmatrix} \text{SUBJ} & \left\langle \begin{bmatrix}\text{LOC CONT INDEX}\ \boxed{8} \begin{bmatrix}\text{VAR}\ x\end{bmatrix}\end{bmatrix} \right\rangle \\ \text{COMPS} & \boxed{9} \oplus \left\langle \boxed{10} \right\rangle \end{bmatrix} \end{bmatrix} \\ \text{CONT} & \begin{bmatrix} \text{INDEX VAR}\ s \\ \text{MAIN}\ \boxed{15a}\ \mathsf{want}' \end{bmatrix} \end{bmatrix} \end{bmatrix} \\
\text{ARG-ST} & \left\langle \boxed{10} \begin{bmatrix} \text{LOC CAT VAL} & \begin{bmatrix} \text{SUBJ} & \left\langle \begin{bmatrix}\text{LOC CONT INDEX}\ \boxed{8}\end{bmatrix} \right\rangle \\ \text{COMPS} & \boxed{9} \end{bmatrix} \end{bmatrix} \right\rangle \\
\text{LF} & \begin{bmatrix} \text{EXCONT} & \textit{me} \\ \text{INCONT} & \boxed{17} \\ \text{PARTS} & \left\langle \begin{array}{l} t, \boxed{\mathbf{14}}\exists t(t < s^* \wedge J), \boxed{\mathbf{14a}}(t < s^* \wedge J), \boxed{\mathbf{14b}}t < s^*, \\ s^*, s, x, \boxed{12}\exists s(s \odot T' \wedge Z), \boxed{12a}(s \odot T‘ \wedge Z), \boxed{12b}s \odot T‘, \boxed{15}\mathsf{want}'(s, x, {}^\wedge Y), \boxed{15a}\mathsf{want}', \\ \boxed{13}\ {}^\wedge Y, \boxed{16}\exists s^*(s^* \approx s \wedge L), \boxed{16a}(s^* \approx s \wedge L), \boxed{16b}s^* \approx s, \boxed{17} \end{array} \right\rangle \end{bmatrix}
\end{bmatrix}$$

and $\boxed{\mathbf{17}} \lhd J$ (the INC value is in the scope of PAST)
and $\boxed{15} \lhd Z$ ($\mathsf{want}'(\ldots)$ is in the scope of $\exists s[\ldots]$)
and $\boxed{16} \lhd Y$ (the embedded speech time is in the scope of the modal)
and $\boxed{17} \lhd L$ (the INC value is in the scope of the embedded $\exists s^*[\ldots]$)
and there is a free occurrence of t' in J
and there is a free occurrence of s^* in L

(54) *wou*: ${}^{\#}I[\exists t(t < s^* \wedge J[t, \underline{K}]), \exists s(s \odot T' \wedge \mathsf{want}'(s, j, {}^\wedge\exists s^*(s^* \approx s \wedge L[s^*, \underline{K}])))]$

(55) (dat) Jan wou bel
that Jan want.IMP call

a. $\exists t(t < s^* \wedge \exists s(s \odot t \wedge \mathsf{want}'(s, j, {}^\wedge\exists s^*(s^* \approx s \wedge \exists e(\tau(e) \odot s^* \wedge \mathsf{call}'(e,j))))))$

b. $\exists s(s \odot s^* \wedge \mathsf{want}'(s, j, {}^\wedge\exists s^*(s^* \approx s \wedge \exists t(t < s^* \wedge \exists e(\tau(e) \odot s^* \wedge \mathsf{call}'(e,j))))))$

(56) a. $T = s^*$ $\quad T' = t$
$A = L = \exists e(\tau(e) \odot s^* \wedge \mathsf{call}'(e,j))$

- VP: $K = \mathsf{call}'(e,j), C \triangleleft I$
  - HEAD — V *wou*: $^{\#}I[\exists t(t < s^* \wedge J[t, \underline{K}]), \exists s(s \odot T' \wedge \mathsf{want}'(s,j, {}^\wedge\exists s^*(s^* \approx s \wedge L[s^*, \underline{K}])))]$
  - COMP — V: $E = \mathsf{call}'(e,j), A \triangleleft C$
    - COMP — V *gebel*: $^{\#}A[s^*, \exists e(\tau(e) \odot T \wedge B[\underline{\mathsf{c}'(e,j)}])]$
    - HEAD — V *het*: $^{\#}C[\exists t(t < s^* \wedge D[t, \underline{E}])]$

Figure 3: The structure of the verbal complex *wou gebel het*

$B = K = \mathsf{call}'(e,j)$
$I = \exists t(t < s^* \wedge \exists s(\ldots))$
$J = \exists s(s \odot t \wedge \mathsf{want}'(s,j, {}^\wedge\exists s^*(\ldots)))$

b. $T = s^* \qquad T' = s^*$
$A = I = \exists s(s \odot s^* \wedge \mathsf{want}'(s,j, {}^\wedge\exists s^*(s^* \approx s \wedge \exists t(\ldots))))$
$B = K = \mathsf{call}'(e,j)$
$J = \exists e(\tau(e) \odot t \wedge \mathsf{call}'(e.j))$
$L = \exists t(t < s^* \wedge \exists e(\ldots)$

(57) (dat) Jan wou gebel het
that Jan want.IMP call.PART AUX

a. $\exists t(t < s^* \wedge \exists s(s \odot t \wedge \mathsf{w}'(s,j, {}^\wedge\exists s^*(s^* \approx s \wedge \exists t(t < s^* \wedge \exists e(\tau(e) \odot t \wedge \mathsf{c}'(e,j)))))))$

b. $\exists s(s \odot s^* \wedge \mathsf{w}'(s,j, {}^\wedge\exists s^*(s^* \approx s \wedge \exists t(t < s^* \wedge \exists e(\tau(e) \odot t \wedge \mathsf{c}'(e,j))))))$

c. $\exists t(t < s^* \wedge \exists s(s \odot t \wedge \mathsf{w}'(s,j, {}^\wedge\exists s^*(s^* \approx s \wedge \exists e(\tau(e) \odot t \wedge \mathsf{c}'(e,j))))))$

(58) a. $T = t \qquad T' = t$
$A = C = L = \exists t(t < s^* \wedge \exists e(\ldots))$
$B = E = K = \mathsf{call}'(e,j)$
$D = \exists e(\tau(e) \odot t \wedge \mathsf{call}'(e,j))$
$I = \exists t(t < s^* \wedge \exists s(\ldots))$
$J = \exists s(s \odot t \wedge \mathsf{want}'(s,j, {}^\wedge\exists s^*(\ldots)))$

b. $T = t \qquad T' = s^*$
$A = C = L = \exists t(t < s^* \wedge \exists e(\ldots))$
$B = E = K = \mathsf{call}'(e,j)$
$D = J = \exists e(\tau(e) \odot t \wedge \mathsf{call}'(e,j))$
$I = \exists s(s \odot s^* \wedge \mathsf{want}' s,j, {}^\wedge\exists s^*(\ldots))$

c. $T = s^* \qquad T' = t$
$A = L = \exists e(\tau(e) \odot s^* \wedge \mathsf{call}'(e,j))$
$B = E = K = \mathsf{call}'(e,j)$
$C = I = \exists t(t < s^* \wedge \exists s(s \odot t \wedge \mathsf{want}'(s,j, {}^\wedge\exists s^*(\ldots)))$
$D = J = \exists s(s \odot t \wedge \mathsf{want}'(s,j, {}^\wedge\exists s^*(\ldots)))$

6.2 Ausgeschlossene Interpretationen

***PAST(PAST(ϕ))**

(59) a. $\textsc{past}(\textsc{past}(\mathsf{want}'(j, {}^\wedge\mathsf{call}'(j))))$

b. $\mathsf{want}'(j, {}^\wedge\textsc{past}(\textsc{past}(\mathsf{call}'(j))))$

Satzgebundenheit

(60) a. Jan sê dat Marie gebel het.
Jan says.PRES that Marie called.PART AUX

b. says(Jan, PAST(Marie calls))

c. $ PAST(says(Jan, Marie calls))

(61) Lexikalische lrs-Spezifikation:

sê: $^{\#}M[\exists e'(\tau(e') \odot T' \wedge N[\underline{\mathsf{say}'(e', j, O)}])]$
gebel: $^{\#}A[s^*, \exists e(\tau(e) \odot T \wedge B[\underline{\mathsf{call}'(e, j)}])]$
het: $^{\#}C[\exists t(t < s^* \wedge D[t, \underline{E}])]$

(62) Erweiterung des SEMANTICS PRINCIPLE:

2. (d) If the non-head is a complement clause, then ϕ_{-} is of the form $\mathsf{constant}'(x_1, \ldots, x_n, \alpha)$, and $\psi_{\#} \triangleleft \alpha$ is in κ.

7 Zusammenfassung und Ausblick

- Mehrfachmarkierung

(63) a. Interrogativoperator (Richter and Sailer, 2001a):

German: **Wer** hat **welches** Buch gelesen?
who has which book read 'Who read which book?'

b. Negationsoperator (Richter and Sailer, 2001b, 2003):

Polish: **Nikt nie** pomaga **nikomu**.
nobody NEG helped nobody 'Nobody helped anybody.'

c. Tempus (Sailer, 2004)

- Ausweitung der Analyse auf Consecutio Temporum und Temporaladverbien im Afrikaans (de Villiers, 1971).
- Andere Probleme im Tempusbereich: "deplazierte Partizipien" (de Vos, 2002):

(64) Hy't aanhou **ge**rondloop tot hy gevang is.
he AUX keep on round-walk.PART until he caught.PART is
'He kept on walking around until he was caught.'

- Vergleich mit anderen germanischen Tempussystemen (z.B. Doppelperfekt im Jiddischen und Süddeutschen, Präteritale Assimilation im Schottischen Englisch).

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