Complement Clauses and Expletives *

Gosse Bouma
gosse@let.rug.nl

1 Introduction

Complement clauses in Dutch may appear in either extraposed or fronted position. An extraposed clause may cooccur with an expletive element *het* (*it*), but this element is never present if the complement clause is fronted. In this paper, I investigate how to account for this asymmetry in a non-transformational framework such as HPSG.

In Dutch subordinate clauses, complement clauses always appear in clause-final (or 'extraposed') position, following the finite verb (1a). If the complement is an object, the position where object complements normally appear (i.e. before the finite verb) may be occupied by the expletive NP *het* (*it*) (1b). The occurrence of an expletive is determined by the governing verb. There are many verbs (such as *beweren*) which select an *object clause*, but do not allow the expletive (1c), there are many verbs (such as *betreuren*) which optionally allow an expletive (1b,d), and there are some verbs (such as *haten*) for which the presence of an expletive is almost obligatory (1e,f) (Bennis, 1986, pp. 103 ff.).

(1) a. dat Arie beweert dat Bert niet komt
that Arie maintains that Bert not comes
'that Arie maintains that Bert isn't coming'

b. dat Arie het betreurt dat Bert niet komt
that Arie it regrets that Bert not comes
'that Arie regrets Bert isn't coming'

c. *dat Arie het beweert dat Bert niet komt

d. dat Arie betreurt dat Bert niet komt

e. dat Arie het haat dat Bert niet komt
that Arie it hates that Bert not comes
'that Arie hates it that Bert isn't coming'

*I would like to thank Frank van Eynde, Andreas Kathol, and two anonymous reviewers for helpful discussion and for providing comments on an earlier version of this paper.

f. *dat Arie haat dat Bert niet komt

Extraposed *subject clauses* are almost always obligatorily accompanied by *het* in subject position (i.e. the first position within the clause):

(2) a. dat het Arie verbaasde dat Bert niet komt
that it Arie surprised that Bert not comes
'that it surprised Arie that Bert isn't coming'

b. *dat Arie verbaasde dat Bert niet komt

There are some exceptional cases (involving passive constructions among others), however, in which there appears to be an extraposed subject clause, but where *het* may be absent:

(3) a. dat alleen vast staat dat Bert niet komt
that only certain stands that Bert not comes
'that the only thing that is certain, is that Bert isn't coming'

b. dat door niemand wordt betreurd dat Bert niet komt
that by nobody is regretted that Bert not comes
'that it is regretted by nobody that Bert doesn't come'

The distribution of complement clauses differs from that of ordinary (NP-) complements. This is clear in subordinate clauses, where clausal complements must always follow the finite verb. In main clauses, clausal complements may appear not only in clause-final, 'extraposed', position, but also in clause-initial, 'fronted', position. Fronted complement clauses can never be accompanied by an expletive:

(4) a. Dat Bert niet komt betreurt Arie
that Bert not comes regrets Arie
'Arie regrets that Bert isn't coming'

b. *Dat Bert niet komt betreurt Arie het.

c. Dat Bert komt heeft Arie niet verbaasd
that Bert comes has Arie not surprised
'It has not surprised Arie that Bert comes'

d. *Dat Bert komt heeft het Arie niet verbaasd.

In Section 2, I review the account of complement extraposition in English presented in (Pollard and Sag, 1994). Pollard and Sag treat extraposition as a local process. This is hard to maintain for English, as well as Dutch. Furthermore, a local account cannot easily account for the fact that expletive *het* may never cooccur with fronted complement clauses.

As an alternative, I present in Section 3 an analysis of extraposition in Dutch in which (i) all complement clauses in clause-final position are analysed as extraposed clauses, (ii) extraposition is treated as a nonlocal process, and (iii) expletives are introduced by means of a *complement extraposition* lexical rule. The nonlocal treatment of extraposition accounts immediately for the fact that *het* must be absent if the complement clause is fronted.

In Section 4, I briefly discuss extraposition in passives.

2 Extraposition in HPSG

In (Pollard and Sag, 1994, pp. 145 ff.), the lexical rule in (5) is proposed to account for extraposition of complement clauses in English, as illustrated in (6b,d) below.

(5) EXTRAPOSITION LEXICAL RULE:
The Extraposition Lexical Rule removes an S[*comp*] from a SUBCAT list replacing it by NP_{it} and appends the S[*comp*] to the end of the SUBCAT list, preserving role assignment.

(6) a. That Sandy snores bothers me.

b. It bothers me that Sandy snores.

c. I regret that we could not hire Mosconi.

d. I regret it that we could not hire Mosconi.

The LR in (5) treats extraposition as a local process (the extraposed clause is moved to the last position on SUBCAT) and obligatorily inserts *it*.

The local nature of extraposition is challenged by examples such as (7) (Pollard and Sag, 1994, p. 146) and (8) (Haider, 1994).

(7) I regret it very much that we could not hire Mosconi.

(8) a. It struck a grammarian last month, who analyzed it, that this clause is grammatical.

b. *It struck a grammarian last month, that this clause is grammatical, who analyzed it.

In (7), we find an extraposed clause to the right of the adjunct *very much*. If both *it* and the extraposed clause are to be combined with their head *regret* by means of the Head-Complement Schema proposed by Pollard and Sag (1994, p. 38), the position of the adjunct is completely unexpected. In (8a), we find an extraposed complement clause to the right of an extraposed relative clause. Extraposition of relatives separates a relative from the N or NP it modifies and thus is clearly a nonlocal process. Assuming that this process requires a nonlocal EXTRA feature and a corresponding Head-Extra Schema (Keller, 1995) for combining a (saturated) phrase with an extraposed element, the position of the clausal complement is unexpected. In fact, if extraposition of clauses is a local process, one would expect the order in (8b) to be grammatical, but this prediction is not correct.

A local account of extraposition of complement clauses is equally problematic for Dutch. At first blush, it may seem that examples such as (9), where an auxiliary intervenes between the extraposed complement and its governor (*betreuren*), provide evidence for the fact that extraposition must be nonlocal.

(9) dat Arie het betreuren zou als Bert niet komt
that Arie it regret would if Bert not comes
'that Arie would regret it if Bert didn't come'

However, as modal and auxiliary verbs in Dutch have been analyzed as 'argument-inheritors' (Rentier, 1994; van Noord and Bouma, 1996), it might be argued that *zou* inherits a clausal complement from *betreuren*, in which case a local account of extraposition would still be possible.

A problem for this kind of explanation is that 'argument-inheritance' must be assumed for a much wider class of verbs than those that are traditionally analysed as 'verb raisers'. Consider, for instance, clausal complements of prepositions. As with verbal governors, extraposition is obligatory. Furthermore, the co-occurrence of an expletive element *er* (*there*) is obligatory:

(10) dat Arie ervan gedroomd heeft dat Bert wint
that Arie there-of dreamt has that Bert wins
'that Arie has dreamt that Bert will win'

In order to account for the fact that *gedroomd heeft* can intervene between *van* and its clausal complement, we must assume that not only the auxiliary *heeft* but also the verb *dromen* is an 'argument-inheritor'. However, as *dromen* lacks all of the characteristics normally associated with 'argument-inheritance' verbs in Dutch (most notably, *dromen* does not trigger *infinitivus pro participio*), this assumption lacks independent motivation. Note furthermore that in examples such as (11), the PP *van dat Bert wint* is most likely selected by the adjectival predicate *zeker*, which implies that even nonverbal heads must be treated as 'argument-inheritors'.

(11) dat Arie er zeker van is dat Bert wint
that Arie there certain of is that Bert wins
'that Arie is certain of it that Bert will win'

Extraposition of clausal complements of prepositions is problematic for local accounts for yet another reason. If extraposition does not remove the clausal complement from SUBCAT (or COMPS), it is predicted that (*er*) *van dat Bert wint* can form a PP. This leaves the ungrammaticality of (12) unexplained.

(12) *dat Arie (er-)van dat Bert wint heeft gedroomd

Furthermore, whereas PPs in general can be extraposed and topicalized (13), P + S combinations (possibly including *er*) never can (14). This suggests that a preposition never forms a constituent with its clausal complement, a fact that is hard to account for under a local account of extraposition.

(13) a. Arie heeft van deze overwinning gedroomd
Arie has of this victory dreamt
'Arie has dreamt of this victory'

b. Arie heeft gedroomd van deze overwinning

c. Van deze overwinning heeft Arie gedroomd

(14) a. *Arie heeft gedroomd (er-)van dat Bert wint

b. *(Er-)van dat Bert wint heeft Arie gedroomd

Thus, there is evidence that at least the extraposition of clausal complements of prepositions in Dutch is nonlocal. Given the fact that any nonlocal account of complement extraposition is likely to subsume the effects of a local account, it seems therefore preferable to adopt a uniform, nonlocal, approach to complement extraposition.

A second argument against the local account of extraposition is based on the observation that, in Dutch, expletives may only occur if there is a corresponding extraposed complement clause, and that these may never occur if the complement clause has been fronted. If the fronted clause would be linked to its 'governor' by means of SLASH-feature passing, with a trace at the bottom of the dependency, it seems that there is no way for the local account to block fronting of clauses which are governed by a verb to which the Extraposition LR has applied. The problem is illustrated in Figure 1. The Extraposition LR in (5) has applied to the verb *betreurt*. The output of the rule can combine with an expletive, as well a trace of category S[*dat*]. This means that the ungrammatical example in (4b) is not ruled out.

A traceless analysis of extraction, as proposed by Pollard and Sag (1994, Chapter 9), can account for the data, but only if it assumes that the Complement Extraction LR always applies *before* the Extraposition LR. Thus, a non-intrinsic constraint on the order in which lexical rules are applied must be imposed to account for the data. Such rule-ordering appears to be unnecessary for other lexical rules in HPSG.

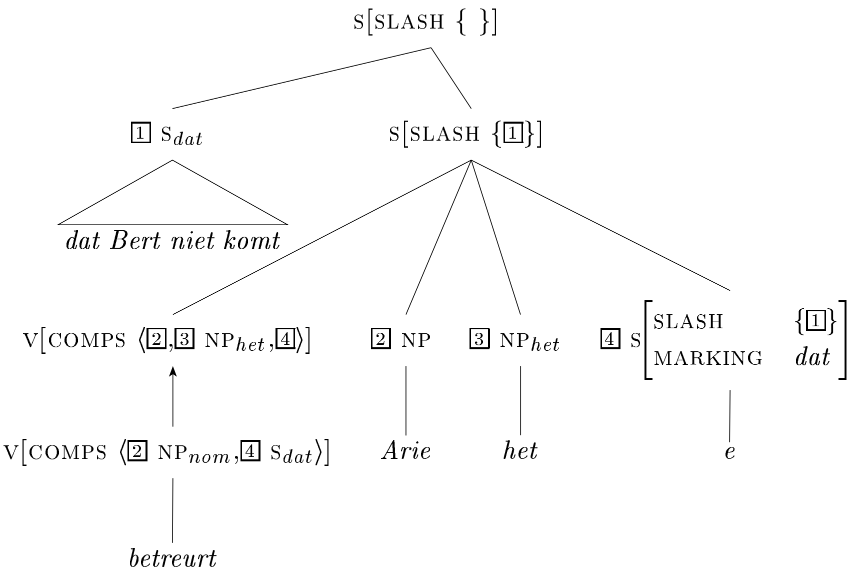


Figure 1: *dat Bert niet komt, betreurt Arie het

3 Extraposition as a Nonlocal Process

3.1 Head-driven Nonlocal Feature Passing

A nonlocal approach to extraposition requires the introduction of a nonlocal feature EXTRA (Keller, 1995). Following Sag (1995), I assume a canonical constraint requiring that the value of the nonlocal features of a word is the 'amalgamation' of the values of these features on the elements of ARG-S (argument-structure), where ARG-S is the concatenation of the elements on SUBJ and COMPS (Iida et al., 1994; Manning and Sag, 1995).[1]

Thus, the basic lexical entry for a verb such as *betreuren* can be depicted as follows (where $\cup!$ denotes non-vacuous set union):[2]Note that since the verb collects the nonlocal feature values of its complements and subject, the Nonlocal Feature Principle of (Pollard and Sag, 1994) (which, in the canonical case, assigns a value to each nonlocal feature of a phrasal sign which is equal to the union of the values for this local feature on all the daughters) becomes obsolete. Instead, a *head-driven* approach to nonlocal

[1]In Sag's proposal, only the nonlocal feature values of the elements on COMPS are taken into consideration. As I want to allow extraposition of subjects, and since ARG-S is (canonically) the concatenation of SUBJ and COMPS, I define the relevant constraint on ARG-S. Note also that this seems more appropriate for grammars using 'argument-inheritance' (Hinrichs and Nakazawa, 1994).

[2]Non-vacuous set union is like familiar set union except that if two sets have a nonempty intersection, then their non-vacuous set union is undefined (Sag, 1995, footnote 12). For the purposes of this paper, it suffices to think of SLASH and EXTRA as list-valued, and thus to think of $\cup!$ as list-concatenation.

feature passing is adopted: in the canonical case (i.e. in phrases without filler daughters), the value of each nonlocal feature on a phrasal sign equals that of its head daughter.

(15) *betreuren*

$$
\begin{bmatrix}
\textsc{loc} & \begin{bmatrix}
\textsc{head} & \textit{verb[inf]} \\
\textsc{subj} & \left\langle \boxed{1} \begin{bmatrix} \textsc{loc} \mid \textsc{head} & \textit{np} \\ \textsc{slash} & \boxed{2} \\ \textsc{extra} & \boxed{3} \end{bmatrix} \right\rangle \\
\textsc{comps} & \left\langle \boxed{4} \begin{bmatrix} \textsc{loc} \mid \textsc{head} & \textit{s[dat]} \\ \textsc{slash} & \boxed{5} \\ \textsc{extra} & \boxed{6} \end{bmatrix} \right\rangle
\end{bmatrix} \\
\textsc{arg-s} & \langle \boxed{1}, \boxed{4} \rangle \\
\textsc{slash} & \boxed{2} \cup! \; \boxed{5} \\
\textsc{extra} & \boxed{3} \cup! \; \boxed{6}
\end{bmatrix}
$$

Sag (1995) presents the following Complement Extraction lexical rule:

(16) Complement Extraction Rule:

$$
\begin{bmatrix}
\textsc{loc} \mid \textsc{comps} & \langle \ldots, \boxed{1}, \ldots \rangle \\
\textsc{arg-s} & \langle \ldots, \boxed{1}, \ldots \rangle
\end{bmatrix}
\Longrightarrow
\begin{bmatrix}
\textsc{loc} \mid \textsc{comps} & \langle \ldots\ldots \rangle \\
\textsc{arg-s} & \left\langle \ldots, \boxed{1} \begin{bmatrix} \textsc{loc} & \boxed{2} \\ \textsc{slash} & \{\boxed{2}\} \end{bmatrix}, \ldots \right\rangle
\end{bmatrix}
$$

This rule removes an element from COMPS and at the same time unifies this element with the information that its SLASH value is the singleton set consisting of its LOCAL value. Applying this rule to the lexical entry in (15) leads to the output in (17). Note that as nothing is removed from ARG-S, instantiating the SLASH-value of the removed element suffices to include this value in the SLASH-value of the verb itself as well.

(17) *betreuren*

$$
\begin{bmatrix}
\textsc{loc} & \begin{bmatrix}
\textsc{head} & \textsc{verb}[\textit{inf}] \\
\textsc{subj} & \left\langle \boxed{1} \begin{bmatrix} \textsc{loc} \mid \textsc{head} & \textit{np} \\ \textsc{slash} & \boxed{2} \\ \textsc{extra} & \boxed{3} \end{bmatrix} \right\rangle \\
\textsc{comps} & \langle \, \rangle
\end{bmatrix} \\
\textsc{arg-s} & \left\langle \boxed{1}, \boxed{4} \begin{bmatrix} \textsc{loc} & \boxed{5} \begin{bmatrix} \textsc{head} & \textit{s[dat]} \end{bmatrix} \\ \textsc{slash} & \{\boxed{5}\} \\ \textsc{extra} & \boxed{6} \end{bmatrix} \right\rangle \\
\textsc{slash} & \boxed{2} \cup! \; \{\boxed{5}\} \\
\textsc{extra} & \boxed{3} \cup! \; \boxed{6}
\end{bmatrix}
$$

3.2 Extraposition Rules

The introduction of complements on EXTRA is handled by means of a Complement Extraposition LR, which resembles the CELR in (16). This rule comes in two varieties:

(18) a. EXTRAPOS-LR:

$$\begin{bmatrix} \text{COMPS} & \langle \dots, \boxed{1}, \dots \rangle \\ \text{ARG-S} & \langle \dots, \boxed{1}, \dots \rangle \end{bmatrix} \Longrightarrow \begin{bmatrix} \text{COMPS} & \langle \dots\dots \rangle \\ \text{ARG-S} & \left\langle \dots, \boxed{1} \begin{bmatrix} \text{LOC} & \boxed{2} \\ \text{EXTRA} & \{\boxed{2}\} \\ \text{POS} & \textit{xtr-no-expl} \end{bmatrix}, \dots \right\rangle \end{bmatrix}$$

b. HET-EXTRAPOS-LR:

$$\begin{bmatrix} \text{COMPS} & \langle \dots, \boxed{1}, \dots \rangle \\ \text{ARG-S} & \langle \dots, \boxed{1}, \dots \rangle \end{bmatrix} \Longrightarrow \begin{bmatrix} \text{COMPS} & \langle \dots, \text{NP}_{het}, \dots \rangle \\ \text{ARG-S} & \left\langle \dots, \boxed{1} \begin{bmatrix} \text{LOC} & \boxed{2} \\ \text{EXTRA} & \{\boxed{2}\} \\ \text{POS} & \textit{xtr-expl} \end{bmatrix}, \dots \right\rangle \end{bmatrix}$$

The Extrapos-LR is identical to the CELR, except for the fact that a complement is shifted to EXTRA instead of SLASH. (The role of the feature POS is explained in Section 3.5 below.) The Het-Extrapos-LR is similar, except that it also inserts NP_{het}in COMPS on the position of the removed complement.

The rules in (18) will account for the extraposition of subjects as well, under the assumption that the subject of finite verbs is a member of COMPS. This can be achieved by adopting the LR in (19), which derives the finite form of a verb from its base form, and at the same time places the subject on COMPS ($\oplus$ denotes list-append, and *finite-form* is a function producing the finite form of a base verb):

(19) SUBJ-TO-COMPS-LR:

$$\begin{bmatrix} \text{PHON} & \boxed{3} \\ \text{LOC} & \begin{bmatrix} \text{HEAD} & \textit{verb[bse]} \\ \text{SUBJ} & \langle \boxed{1} \rangle \\ \text{COMPS} & \boxed{2} \end{bmatrix} \end{bmatrix} \Longrightarrow \begin{bmatrix} \text{PHON} & \textit{finite-form(}\ \boxed{3}\ \textit{)} \\ \text{LOC} & \begin{bmatrix} \text{HEAD} & \textit{verb[fin]} \\ \text{SUBJ} & \langle\ \rangle \\ \text{COMPS} & \langle \boxed{1} \rangle \oplus \boxed{2} \end{bmatrix} \end{bmatrix}$$

Extraposition of subject clauses can now be accounted for by assuming that these are first placed on COMPS by means of (19) and next moved to EXTRA by one of the rules in (18).[3]

[3] The introduction of subjects on COMPS suggests that a verb could amalgamate the nonlocal features of its COMPS-elements (as in Sag's proposal), instead of ARG-S. Note, however, that this will only work if the relevant constraint is imposed on the *output* of rules such as (19), instead of on the basic lexical entries. By defining amalgamation of nonlocal features in terms of ARG-S, such complications are avoided.

The introduction of a lexical rule which introduces subjects on COMPS has the advantage (over an account where subjects and other complements are all members of SUBCAT) that it respects the distinction between subjects and other complements argued for by Borsley (1989a; 1989b), while at the same time it does allow an analysis of Dutch finite clauses in which there is no VP (which, in turn, enables an account of finite subordinate clauses in which the subject is not the initial constituent and of main clauses in which the subject is not adjacent to the finite verb). Note also that Borsley (1989a) proposes a similar subject introduction to account for VSO word order in Welsh.

Clausal complements of prepositions can only occur in extraposed position. Instead of using a LR to derive the appropriate lexical entry for the preposition from a more basic entry, we can therefore assume that the relevant entries are given as such in the lexicon. Thus, the basic lexical entry for a preposition selecting a clausal complement is:

(20) *van*

$$\begin{bmatrix} \text{LOC} & \begin{bmatrix} \text{HEAD} & p \\ \text{COMPS} & \langle np_{er} \rangle \end{bmatrix} \\ \text{EXTRA} & \end{bmatrix}$$

The Head-Extra Schema (see also (Keller, 1995)) licences the combination of a sentential head with an extraposed phrase, under the condition that the EXTRA value of the head unifies with the local features of the extraposed element:

(21) HEAD-EXTRA SCHEMA:

$$\begin{bmatrix} \text{LOC} & \begin{bmatrix} \text{HEAD} & v \\ \text{COMPS} & \langle\ \rangle \\ \text{SUBJ} & \langle\ \rangle \\ \text{MARKING} & \textit{unmarked} \end{bmatrix} \\ \text{EXTRA} & \{\ \} \end{bmatrix}$$

$$\textit{head-dtr}\begin{bmatrix} \text{EXTRA} & \{\boxed{1}\} \end{bmatrix} \qquad \textit{filler-dtr}\begin{bmatrix} \text{LOC} & \boxed{1} \end{bmatrix}$$

3.3 Example Derivations

We are now in a position to consider some example derivations. The derivation of example (1a) (repeated below), for instance, which illustrates extraposition without expletive *het*, is given in Figure 2.

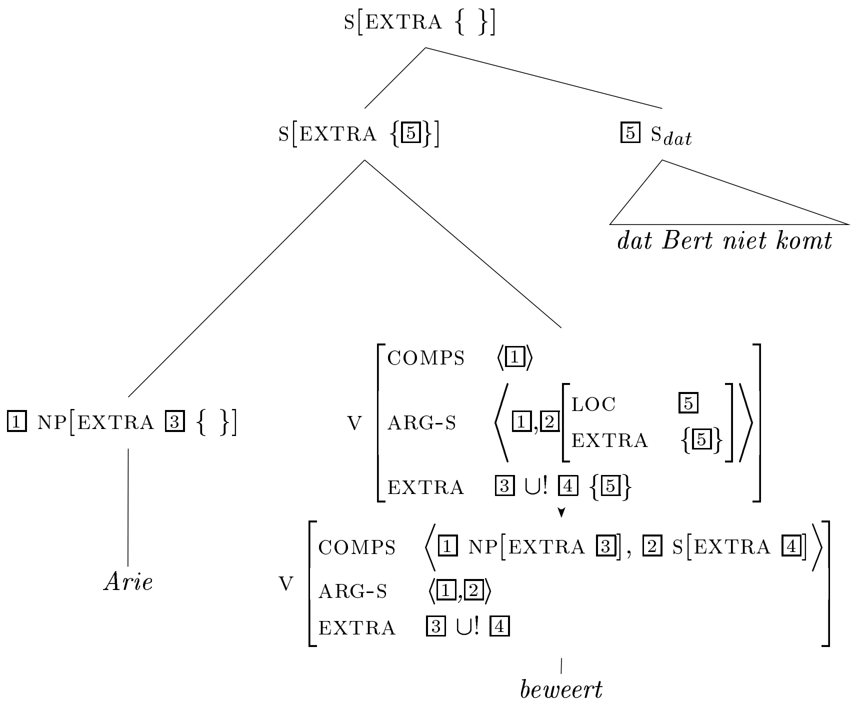


Figure 2: (dat) Arie beweert dat Bert niet komt

(1) a. dat Arie beweert dat Bert niet komt
that Arie maintains that Bert not comes
'that Arie maintains that Bert isn't coming'

Extraposition of subject complement clauses and insertion of expletive *het*, illustrated in (2a) (repeated below), gives rise to the derivation in Figure 3. Note that the initial feature structure shown for the finite verb is the result of applying the Subj-To-Comps LR to the basic lexical entry for *verbazen*.

(2) a. dat het Arie verbaasde dat Bert niet komt
that it Arie surprised that Bert not comes
'that it surprised Arie that Bert isn't coming'

The derivation of Example (22), given in Figure 4, illustrates extraposition of complement clauses selected by a preposition. Note that this example also involves 'amalgamation' of the EXTRA-value of the preposition by the governing verb.

(22) dat Arie ervan droomt dat Bert wint
that Arie there-of dreams that Bert wins
'that Arie dreams that Bert will win'

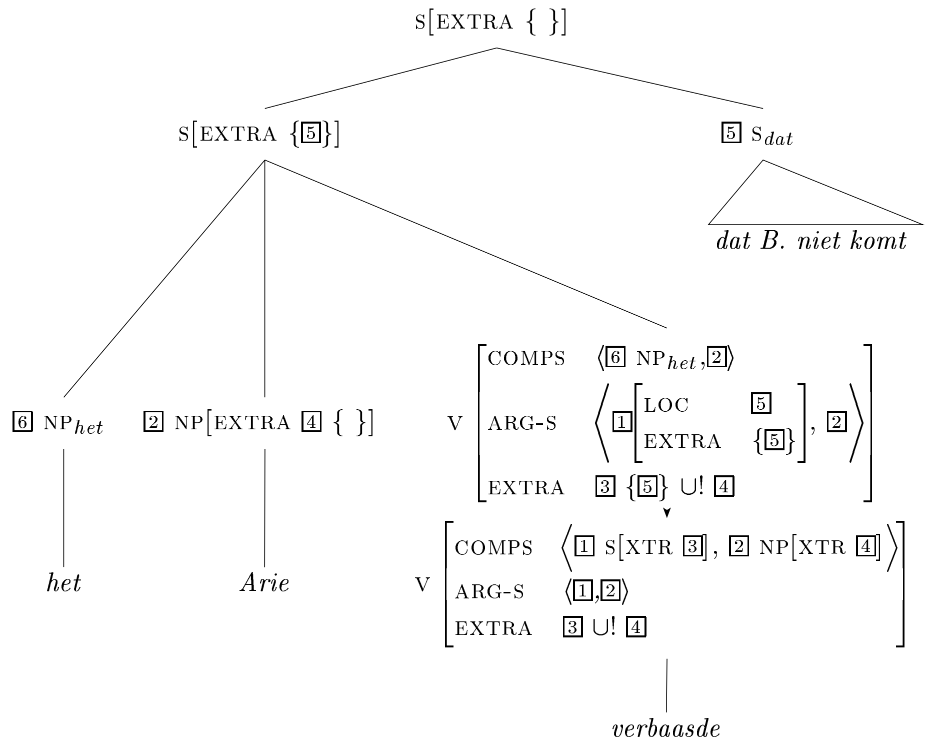


Figure 3: (dat) het Arie verbaasde dat Bert niet komt

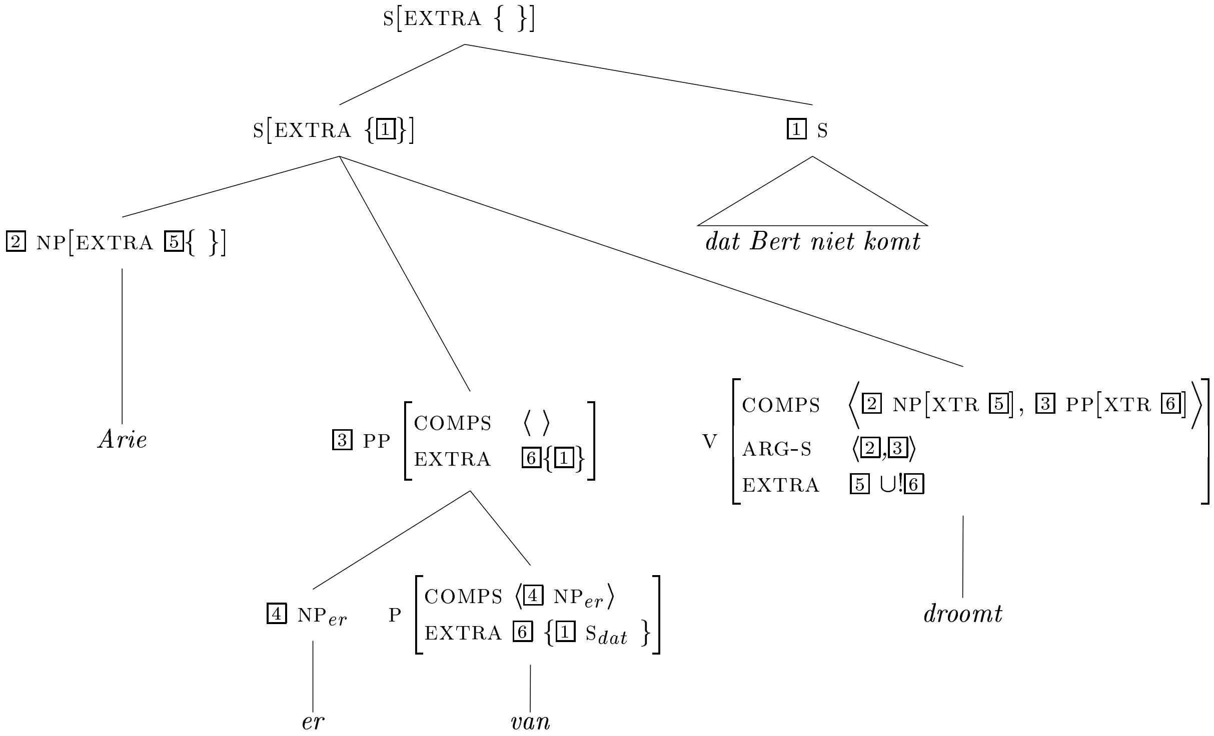


Figure 4: (dat) Arie er-van droomt dat Bert niet komt

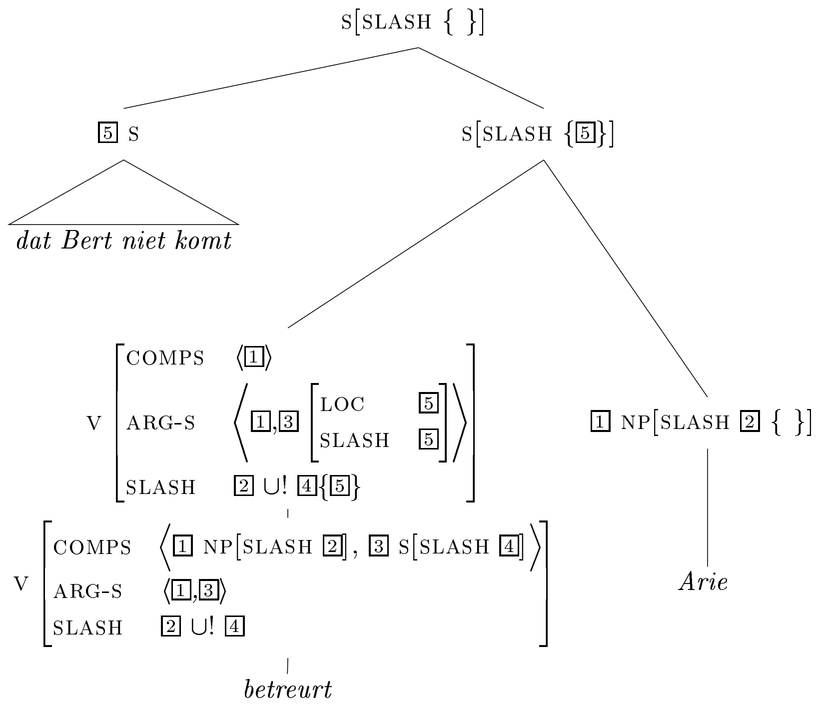


Figure 5: Dat Bert niet komt betreurt Arie

3.4 Extraposition vs. Fronting

The approach to extraposition outlined above not only accounts for non-local instances of extraposition, but in addition has the advantage that it accounts immediately for the fact that fronting of complement clauses and the presence of expletive *het* are mutually exclusive. We can account for fronting by assuming that the fronted element is a *filler*, linked to a head which selects for this element via percolation of SLASH. This implies that in an example such as (4a), repeated below, the Complement Extraction LR (16) must have applied to *betreurt*. This is illustrated in Figure 5.

(4) a. Dat Bert niet komt betreurt Arie.
that Bert not comes regrets Arie
'Arie regrets that Bert isn't coming'

Note that as soon as the CELR has applied to 'move' an element from COMPS to SLASH, application of the Extraposition LR to this lexical entry is blocked. Similarly, if the Extraposition LR applies to *betreuren*, its COMPS list will contain at most an expletive, and the CELR can no longer apply to front the corresponding complement clause. Thus, for each complement clause it is the case that it can be either fronted or extraposed, but expletive *het* can only be inserted if the complement clause will indeed appear in extraposed position.

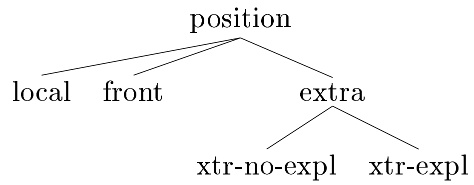
3.5 The Position Feature

There is one aspect of the Extraposition LR's which has been left unexplained so far. The rules in Section 3.2 refer to a feature POS(ITION). As should be clear from the rules, POS controls whether insertion of an expletive is possible. However, POS serves a slightly more general purpose.

Complement clauses must either occur in extraposed or fronted position. This implies that for any governor which selects a complement clause, either the CELR or one of the Extraposition LR's must apply. Implementing this constraint without the use of an auxiliary feature of some sort, seems to require at the very least that one of the rules is made obligatory. However, as I am not aware of examples of lexical rules in HPSG which are obligatory by stipulation, this seems a highly undesirable solution.

The alternative is to introduce an auxiliary feature POS, which takes a value of type POSITION, where POSITION has the subtypes given in (23).

(23)



Heads assign a value to POS for each complement they select. For instance, if a complement is marked [POS *local*], it must be selected locally. A complement marked [POS *local* ∨ *front*] may either be selected locally or may be fronted. If a complement is marked [POS *front* ∨ *extra*], it must be fronted or extraposed. This interpretation of the POS-feature requires that in the Head-Complement Schema (and other schemata which introduce complements locally) a constraint must be added that requires all complements to be [POS *local*]. Similarly, the CELR may only move complements to SLASH that are marked [POS *front*]. The Extraposition LRs, finally, must require that the complements moves onto EXTRA are [POS *extra*]. The two sub-cases of complement extraposition given in section (3.2) are handled by providing a specific subtype of *extra* (*xtr-no-expl* or *xtr-expl*) as value for POS.[4]

The introduction of POS provides a powerful tool for controlling the distribution of complements. For instance, the verbal complement of *beweren*, which can be fronted or extraposed, but never co-occurs with *het*, is marked [POS *front* ∨ *xtr-no-expl*]. The verb *betreuren* is similar, except that it optionally allows for insertion of *het*. Thus, it marks its complement as [POS *front* ∨ *extra*]. The verb *haten* obligatorily requires *het*-insertion, and thus selects a [POS *front* ∨ *xtr-expl*] complement.

[4]Note that the Extraposition LRs postulate a reentrancy between an element of COMPS on the input, and an element on ARG-S (which is present in the input as well as the output). Therefore, although the required value of POS is made explicit only in the output, the same requirement holds for the input. Thus, the value of POS only controls which elements can be 'moved' from COMPS to EXTRA, but POS is not 'assigned' a value by the rule.

Exceptional cases can be handled in a similar fashion. For instance, the verb *schijnen* (*to appear*), when taking only a clausal subject, requires this subject to be extraposed, and does not allow this subject to appear in initial (fronted) position:

(24) a. Het schijnt dat Bert niet komt
it seems that Bert not comes
'It seems that Bert isn't coming'

b. *Dat Bert niet komt schijnt

This follows from the assumption that *schijnen* selects a complement marked [POS *xtr-expl*].

4 Passives

Verbs selecting a clausal object may be passivized (25). The clausal complement may appear in either fronted (25a) or extraposed (25b,c) position. In the latter case, insertion of expletive *het* is optional.

(25) a. Dat Bert niet komt wordt door Arie betreurd.
that Bert not comes AUX by Arie regretted
'That Bert isn't coming, is regretted by Arie'

b. Het wordt door Arie betreurd dat Bert niet komt.

c. Door Arie wordt betreurd dat Bert niet komt.

The example in (25c) may seem exceptional, as extraposition of subject clauses normally leads to the insertion of *het*. Note, however, that it is not necessary to consider the extraposed complement in (25c) as the subject. Apart from the ordinary passive construction, in which an object NP is promoted to subject, Dutch also has an impersonal passive construction, in which the subject of an intransitive verb (i.e. a verb not selecting an NP object) is 'demoted' to an optional *door* (*by*) -phrase and the expletive element *er* (*there*) can optionally be inserted:

(26) a. Door Bert wordt gewerkt
by Bert AUX worked
'Work is being done by Bert'

b. Er wordt gewerkt
there AUX worked
'Work is being done'

An analysis of the data in (25) now suggests itself, in which example (25b) is taken to be a case of regular passive, whereas (25c) is treated as a case of impersonal passive. The complement Extraposition LR's that have been proposed in Section 3.2 can apply to *betreuren* to remove its clausal complement from COMPS. Insertion of *het* is optional. If *het* is inserted, the COMPS list of *betreuren* is $\langle \text{NP}_{it} \rangle$, and thus it can occur in an ordinary passive construction.[5] If *het* is not inserted, however, the output of the Extraposition LR will contain an empty COMPS-list, and thus, it can occur in an impersonal passive construction. The fact that (25c) is an impersonal passive is confirmed by the fact that expletive *er* may be inserted only if *het* is absent (Bennis, 1986, p. 108):

(27) a. *Er wordt het betreurd dat Bert niet komt

b. Er wordt betreurd dat Bert niet komt.

5 Conclusions

In this paper I have proposed to analyze complement extraposition as a nonlocal dependency. The distribution of expletives corresponding to an extraposed complement is handled by the lexical rules which introduce elements on EXTRA. This not only accounts for cases of extraposition that cannot be treated by the (local) complement selection schemata, but also immediately accounts for the impossibility of expletives if a complement clause is fronted.

References

Bennis, Hans. 1986. *Gaps and Dummies.* Ph.D. thesis, Katholieke Hogeschool Tilburg.

Borsley, Robert D. 1989a. An HPSG approach to Welsh. *Journal of Linguistics*, 25:333–354.

Borsley, Robert D. 1989b. Phrase Structure Grammar and the *Barriers* conception of clause structure. *Linguistics*, 27:843–863.

Haider, Hubert. 1994. Detached Clauses - the Later the Deeper. Technical Report 41, University of Stuttgart, Stuttgart. Working papers of the SFB 340.

Hinrichs, Erhard and Tsuneko Nakazawa. 1994. Linearizing AUXs in German verbal complexes. In John Nerbonne, Klaus Netter, and Carl Pollard, editors, *German in Head-driven Phrase Structure Grammar*, Lecture Note Series. CSLI, Stanford, pages 11–38.

[5]Passives can be accounted for either by introducing a lexical rule (Pollard and Sag, 1987) or by analyzing the passive auxiliary as an 'object-to-subject-raising' verb (Kathol, 1994).

Iida, Masayo, Christopher Manning, Patrick O'Neill, and Ivan Sag. 1994. The lexical integrity of Japanese causatives. Paper presented at the LSA 1994 Annual Meeting.

Kathol, Andreas. 1994. Passive without lexical rules. In John Nerbonne, Klaus Netter, and Carl Pollard, editors, *German in Head-driven Phrase Structure Grammar*, pages 237–272, Stanford. CSLI.

Keller, Frank. 1995. Towards an Account of Extraposition in HPSG. In *Proceedings of the EACL*, Dublin.

Manning, Christopher and Ivan Sag. 1995. Dissociations between argument structure and grammatical relations. draft.

Pollard, Carl and Ivan Sag. 1987. *Information Based Syntax and Semantics, Volume 1.* Center for the Study of Language and Information Stanford.

Pollard, Carl and Ivan Sag. 1994. *Head-driven Phrase Structure Grammar.* Center for the Study of Language and Information Stanford.

Rentier, Gerrit. 1994. Dutch cross serial dependencies in hpsg. In *Proceedings of the 15th International Conference on Computational Linguistics (COLING)*, Kyoto.

Sag, Ivan. 1995. Constraint-based Extraction (Without a Trace). Draft, Stanford University, November, 1995.

van Noord, Gertjan and Gosse Bouma. 1996. Dutch verb clustering without verb clusters. In Patrick Blackburn and Maarten de Rijke, editors, *Specifying Syntactic Structures.* CSLI Publications, Stanford, pages 123–153. In press.