Abstract

Dutch is well-known for the formation of verb clusters. A characteristic aspect of such constructions is that the order of the verbs may differ from the order in which they are selected. Across the Dutch language area verb clusters show different types of word order variation.

This paper proposes a constructivist account of word order variation in Dutch verb clusters. Linearization is not modelled in terms of the GVOR feature, after Kathol (2000). Instead, it crucially relies on the bidimensional phrase hierarchy initiated by Ginzburg & Sag (2000), which is extended for the analysis of constructions with verb clusters. This proposal accounts for the most common instances of word order variation in Dutch verb clusters, and it can be easily adapted to model a specific variety or dialect.

1   Introduction

In Dutch, verbs form a cluster in verb-final clauses with two or more verbs, as in (1), and in verb-initial clauses with three or more verbs, as in (2).[1]

(1)   ... dat ze die wedstrijd $heeft_1$ $gewonnen_2$.
         that she that competition has   won

   '... that he has won that competition.'

(2)   Ze zal die wedstrijd $kunnen_1$ $winnen_2$.
      She will that competition can   win

   'She will be able to win that competition.'

The linear order of the verbs in a cluster canonically coincides with the order of selection, i.e. a verb selects its verbal complement to the right.[2] Alternative orders are possible though. In constructions with a past or passive participle, the participle may occupy any position in the cluster, but the order of the other verbs must be ascending:[3]

(3)   In de tussentijd zouden de twee belangrijkste   getuigen ... $moeten_1$
      in the meantime would the two most-important witnesses ... must
      $worden_2$ $gehoord_3$.
      be   heard

   'In the mean time the two most important witnesses would have to be heard.' [LASSY]

---

[1]Verb-initial clauses comprise verb-first and verb-second clauses.

[2]The order of selection is indicated by subscripts, the hierarchically highest verb being 1.

[3]The examples in (3)-(8) are taken from the CGN treebank for spoken Dutch (Oostdijk et al., 2002) and the LASSY treebank for written Dutch (van Noord et al., 2013).

(4) er   zijn toch   zo'n paar   boeken die ge   moet$_1$ gelezen$_3$ hebben$_2$
     there are actually such couple books that you must   read   have
     in uw   leven.
     in your life
     'actually there are a couple of books that you should have read in your life.'
     [CGN]

(5) Diversiteit in onze samenleving zou   nog veel   meer benadrukt$_3$
     diversity in our   society   should still much more focussed
     moeten$_1$ worden$_2$.
     must   be
     'Diversity in our society should be much more focussed on.' [LASSY]

A second set of constructions that show word order variation are constructions with a substitute infinitive or *Ersatzinfinitiv*. In (6) the verb *kunnen* 'can' appears as an infinitive and not as the past participle *gekund* 'could'. For most speakers of Dutch the verbs always appear in the canonical ascending order, but in Belgian Dutch some speakers also allow the order in (7), in which the auxiliary of the perfect appears at the end of the cluster in verb-final clauses. Such constructions are also known as *Oberfeldumstellung*. In German it is obligatory in a number of cases, but in Dutch the phenomenon is always optional and not grammatical for all speakers.

(6) Pas nu   hebben we dat ook kunnen zien in de hersenen.
     only now have   we that also can.IPP see in the brains
     'Only now we have been able to see that in the brains.' [LASSY]

(7) ... terwijl dat 'k ik naar buiten   gaan$_2$ kijken$_3$ ben$_1$.
        while that I I to   outside go.IPP look   am
     '... while I was going to look outside.' [CGN]

A third type of word order alternation includes two-verb clusters with a finite modal verb, such as (8).

(8) ... om ervoor   te zorgen   dat dit nooit meer gebeuren$_2$ zal$_1$.
        to there-for to make-sure that this never again happen   will
     '... in order to make sure that this will never happen again.' [LASSY]

This type of variation is only possible in verb-final clauses, as the finite verb needs to be part of the cluster. In longer verb clusters of this type, word order variation is not allowed (9), and also in constructions with non-modal finite verbs the descending order is ungrammatical (10):

(9) * ... om ervoor   te zorgen   dat dit nooit meer kunnen$_2$ gebeuren$_3$
         to   there-for to make-sure that this never again can   happen

     zal$_1$.
     will

     intended: '... in order to make sure that this will never be able to happen
     again.'

(10) * ... om ervoor   te zorgen   dat hij dit nooit meer gebeuren$_2$ laat$_1$.
         to   there-for to make-sure that he this never again happen   let

     intended: '... in order to make sure that he will never let this happen again.'

If the verbs in (9) and (10) are put in the canonical, ascending order, the sentences
are well-formed.

In sum, Dutch syntax is marked by verb cluster formation, which shows word
order variation that does not entail a change in meaning. There are different types
of word order variation, depending on the form of the verbs in the cluster (infiniti-
val, participial), and the type of the selecting verb (e.g. modal verb).

Section 2 discusses previous accounts of word order variation, while section 3
presents a new model. Section 4 concludes.

2   Previous models of word order variation

The literature on West Germanic verb clusters is vast. Some influential HPSG
analyses of verb clusters are Hinrichs & Nakazawa (1994), Bouma & van Noord
(1998), Kathol (2000), and Müller (2002).

In HPSG verb clusters are canonically treated as binary-branching structures
modelled in terms of *argument inheritance*, i.e. the non-subject arguments of un-
saturated verbal complements are treated in a similar way as raised subjects, cf the
lexical constraint in (11), after Hinrichs & Nakazawa (1994). If $\boxed{A}$ is an empty list,
the constraint is similar to the one for subject raising proposed in Ginzburg & Sag
(2000, 22).

(11)
$$
\left[\text{ARG-ST} \left\langle \boxed{1} \right\rangle \oplus \boxed{A} \oplus \left\langle \left[\text{LOCAL} \mid \text{CAT} \left[\begin{array}{l} \text{HEAD} \quad \textit{verb} \\ \text{SUBJ} \quad \left\langle \boxed{1} \right\rangle \\ \text{COMPS} \quad \boxed{A} \end{array} \right] \right] \right\rangle \right]
$$

The application of (11) to (1) is illustrated in Figure 1. The unsaturated comple-
ment of *gewonnen* 'won' ($\boxed{2}$) is shared with the selecting verb *heeft* 'has', before it
is propagated to the mother node. So both the verbal complement and the unsatu-
rated complement appear on the COMPS lists of the selecting verb.

In order to model word order variation in German verb clusters, Hinrichs &
Nakazawa (1994) employ the binary head feature FLIP. Kathol (2000) replaces
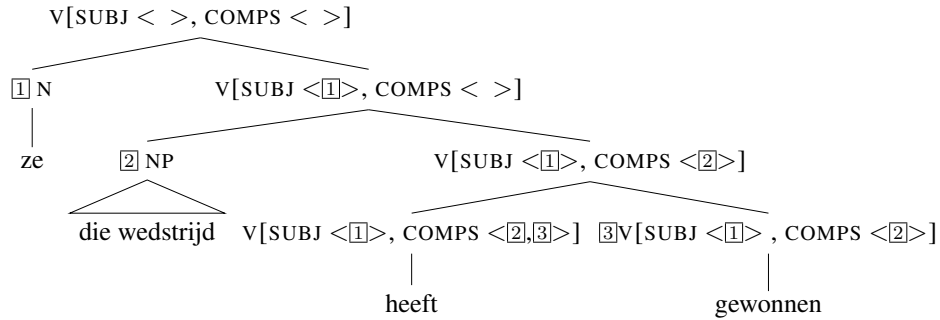
V[SUBJ < >, COMPS < >]
```
        V[SUBJ < >, COMPS < >]
       /                      \
  [1] N            V[SUBJ <[1]>, COMPS < >]
   |              /                        \
   ze        [2] NP             V[SUBJ <[1]>, COMPS <[2]>]
            /      \            /                         \
      die wedstrijd  V[SUBJ <[1]>, COMPS <[2],[3]>]  [3]V[SUBJ <[1]>, COMPS <[2]>]
                          |                               |
                        heeft                          gewonnen
```

Figure 1: Argument Inheritance

Hinrichs and Nakazawa's FLIP feature by the head feature G(O)V(ERN)OR in order to model the word order of the verbs in the cluster. If a verb has the feature [GVOR →], its governor should appear to its right, while the governor of verbs with the feature [GVOR ←] should appear to the left (e.g. in the case of German Oberfeldumstellung). Applied to the Dutch construction in (4) it yields the tree structure in Figure 2.
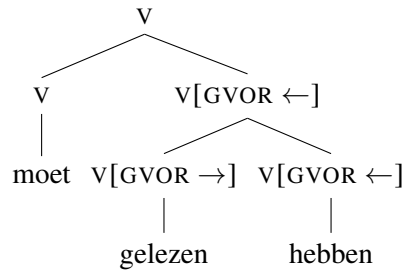
```
              V
            /   \
           V     V[GVOR ←]
           |    /         \
         moet V[GVOR →]  V[GVOR ←]
                |            |
             gelezen      hebben
```

Figure 2: The GVOR feature

Gelezen 'read' is selected by *hebben* 'have' on the right, which is why it has the feature [GVOR →]. *Hebben* on its turn is selected by the finite verb *moet* 'must' and has the feature [GVOR ←]. As GVOR is a head feature, [GVOR ←] is shared with the mother node following the head feature principle.

While constructions with auxiliary flip pose no problem for a binary-branching treatment of verb clusters, constructions such as (5), in which the selecting verb does not appear next to its complement, do. In order to account for all linearization possibilities, Bouma & van Noord (1998) analyse verb clusters as flat tree structures. The downside of their approach is that they need additional features and complex word order constraints in order to avoid overgeneration compared to binary-branching analyses.

Kathol (2000) tackles the problem in a different way. He employs an additional feature in order to model the linear order of verb clusters, i.e. the DOM(AIN) feature. The order of the elements in DOM may differ from the order of the elements of the tree structure. Also his approach overgenerates for Dutch. Kathol

assumes that the GVOR value of Dutch infinitival complements is underspecified as [GVOR *dir*]. In this way he deals with verbs that can select their complement to the left or to the right, e.g. Dutch *wil lezen* versus *lezen wil* 'wants to read' (Kathol, 2000, 199–200). For Dutch past participles, this is what you want, cf (2), but for infinitival complements, this assumption overgenerates. As mentioned in section 1, an infinitival complement may only precede its selector if it is selected by a finite modal. In clusters of more than two verbs, or if a non-modal verb selects the infinitive, the only grammatical order is the ascending one. An accurate model of word order variation in Dutch should take this into account.

In what follows, it will be illustrated that Dutch verb clusters can be modelled in a binary-branching analysis, in which the linear order of the verbs in the cluster is similar to the order in which they appear in the phrase structure tree.

3   A constructivist proposal

3.1   Complement raising

In the argument inheritance approach discussed in section 2, raised complements are treated in a similar way as raised subjects. In Van Eynde & Augustinus (2013) and Augustinus (2015) it is motivated that subject and complement raising are different phenomena.[4] While subject raising is modelled using the canonical lexical constraint, a phrasal constraint is employed for raised complements. The *Complement Raising Principle* (CRP) in (12) states that in a headed phrase, the COMPS list of the non-head daughter is added to the COMPS list of the mother.[5]

(12)
$$hd\text{-}ph \;\; \Rightarrow \;\; \begin{bmatrix} \text{SYNSEM} \,|\, \text{LOC} \,|\, \text{CAT} \,|\, \text{COMPS} \;\; \boxed{A} \;\; \oplus \;\; \boxed{B} \\ \text{HD-DTR} \,|\, \text{SS} \,|\, \text{LOC} \,|\, \text{CAT} \,|\, \text{COMPS} \;\; \boxed{A} \\ \text{NONHD-DTR} \,|\, \text{SS} \,|\, \text{LOC} \,|\, \text{CAT} \,|\, \text{COMPS} \;\; \boxed{B} \end{bmatrix}$$

Cancellation of elements from the COMPS list is modelled in the definition of phrases of type *head-complement*. The constraint is given in (13), after Sag et al. (2003, 96-97). As *head-complement phrase* is a subtype of *headed-phrase*, it follows that the COMPS list can expand and shrink at the same time.

The application of (12) and (13) to (1) is illustrated in Figure 3. In contrast to the argument inheritance approach Hinrichs-Nakazawa style in Figure 1, the unsaturated complement of *gewonnen* 'won' is not shared with the selecting verb *heeft* 'has', but it is directly propagated to the mother node. Only the verbal complement appears on the COMPS lists of the selecting verb.

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[4]Arguments against the lexical constraint in (11) include the occurrence of complement raising without subject raising, interaction with the binding principles and the passive lexical rule.

[5]The CRP is a phrasal constraint and is, hence, a very powerful mechanism. In order to avoid overgeneration, complement raising is blocked in CPs, V-initial VPs, and P-initial PPs. For a detailed discussion, see Augustinus (2015).

(13)

$$\textit{hd-comp-ph} \Rightarrow \begin{bmatrix} \text{SYNSEM} \mid \text{LOC} \mid \text{CAT} \mid \text{COMPS} \quad \boxed{A} \\ \text{HD-DTR} \mid \text{SYNSEM} \mid \text{LOC} \mid \text{CAT} \mid \text{COMPS} \quad \boxed{A} \quad \oplus \quad \left\langle \boxed{1} \right\rangle \\ \text{NONHD-DTR} \mid \text{SS} \quad \boxed{1} \ \textit{synsem} \end{bmatrix}$$

V[SUBJ < >, COMPS < >]

- $\boxed{1}$ N
  - ze
- V[SUBJ <$\boxed{1}$>, COMPS < >]
  - $\boxed{2}$ NP
    - die wedstrijd
  - V[SUBJ <$\boxed{1}$>, COMPS <$\boxed{2}$>]
    - V[SUBJ <$\boxed{1}$>, COMPS <$\boxed{3}$>]
      - heeft
    - $\boxed{3}$V[SUBJ <$\boxed{1}$> , COMPS <$\boxed{2}$>]
      - gewonnen
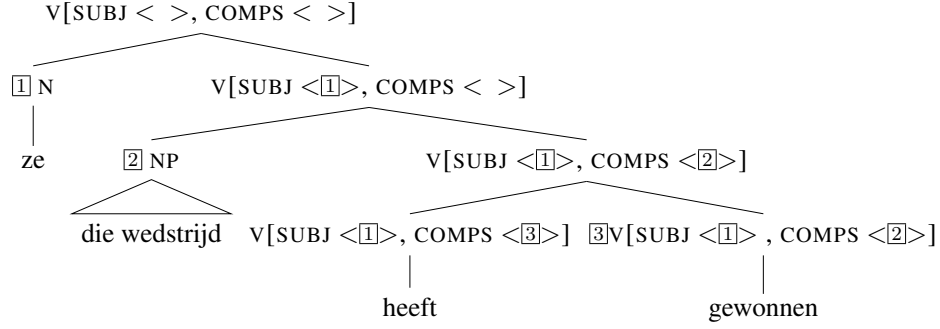
Figure 3: Complement raising

The complement raising analysis will be assumed for the verb clusters dealt with in this paper.

3.2 Word order variation

We discard the use of the GVOR feature for the analysis of word order variation in Dutch verb clusters for three reasons. First, most linearization possibilities depend on the VFORM of the verbs in the cluster (e.g. clusters with participles have different linearization possibilities compared to clusters without a participle). Second, the type of the selecting verb is important (e.g. substitute infinitives in constructions with *Oberfeldumstellung*). Third, the length of the constructions has an influence on certain linearization patterns (e.g. the constructions in which an infinitival complements precedes a finite modal verb). In order to account for all types of verb clusters in Dutch we opt for a constructivist account.

Ginzburg & Sag (2000) advocate a constructivist version of HPSG, in which they propose a bidimensional type hierarchy for phrase types. The main distinction concerns the difference between clausality and headedness, cf Figure 4.

phrase

- CLAUSALITY
  - *clause*
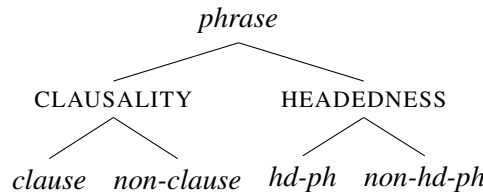 - *non-clause*
- HEADEDNESS
  - *hd-ph*
  - *non-hd-ph*

Figure 4: Phrase type hierarchy (Ginzburg & Sag, 2000)

The clausality dimension distinguishes clauses from non-clauses. The headedness dimension differentiates headed phrases (*hd-ph*), i.e. phrases with a head-daughter

such as head-complement phrases, from non-headed phrases (e.g. coordinate structures).

In order to accurately model Dutch verb clusters, we extend the phrase type hierarchy proposed in Ginzburg & Sag (2000, 38-45). The proposed extension deals with the non-clause type. It is given in Figure 5.
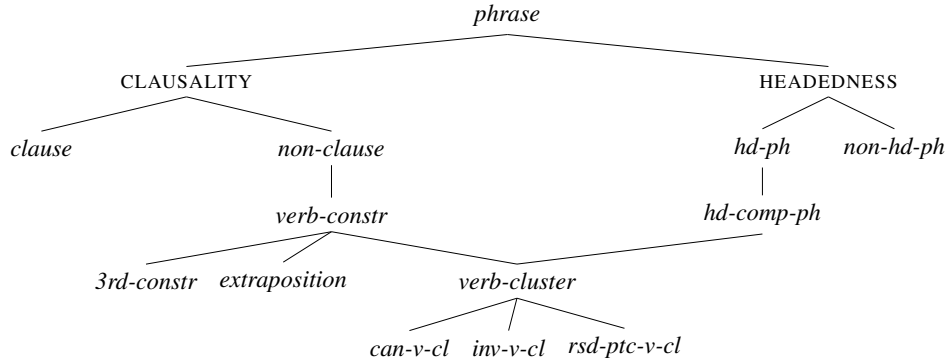

Figure 5: Extended phrase type hierarchy

The types that are relevant in this discussion are *verb-constr(uction)* and *verb-cluster*. The former includes phrases with a head daughter of type *verb* and a non-head daughter which has a nonfinite verb as its head, cf (14).

(14)

$$verb\text{-}constr \;\Rightarrow\; \begin{bmatrix} \text{SS} \,|\, \text{LOC} \,|\, \text{CAT} \,|\, \text{HEAD} \quad verb \\ \text{NON-HD-DTR} \,|\, \text{SS} \,|\, \text{LOC} \,|\, \text{CAT} \,|\, \text{HEAD} \begin{bmatrix} verb \\ \text{VFORM } nfin \end{bmatrix} \end{bmatrix}$$

The type *verb-constr* not only comprises instances of verb clusters, such as the examples in (1-8), but also extraposition (15) and the third construction (16).

(15)   ... net nu hij dacht   een goede indruk   te maken.
          just now he thought a   good impression to make
       '... just as he thought to make a good impression.' [CGN]

(16)   ... dat men daarin   moet trachten het juiste evenwicht te zoeken.
          that one there-in has try   the right balance   to search
       '... and I think that one has to try to find the right balance in that.' [CGN]

In (15) the verb *denken* 'think' selects its verbal complement *te maken* 'to make' in the Nachfeld. The same holds for *trachten* 'try' in (16), but in this construction the object *daarin* 'in that' belonging to the extraposed VP *te zoeken* 'to search' appears in the Mittelfeld.

The hierarchy in Figure 5 makes use of multiple inheritance. The type *verb-cluster* is a subtype from both *verb-constr* and *hd-comp-ph* and therefore inherits properties from those types. Its defining property is given in (17).

(17) $\quad$ *verb-cluster* $\Rightarrow$ $\begin{bmatrix} \text{SS} \,|\, \text{LOC} \,|\, \text{CAT} \,|\, \text{HEAD} & \textit{cl-verb} \end{bmatrix}$

A verb cluster is a construction which has a clustering verb (*cl-verb*) as its head. Clustering verbs are verbs that may select another verb in a verb cluster, as opposed to non-clustering verbs (*non-cl-verb*), cf Figure 6.
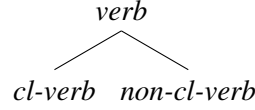

Figure 6: *verb* type hierarchy

In (3), for example, the verbs *moeten* 'must' and *worden* 'be' are clustering verbs. *Gehoord* 'heard' is also part of the verb cluster, but it is not a clustering verb since it does not select another verb.

The set of clustering verbs in Dutch is limited. Augustinus (2015) has identified different types of clustering verbs, such as modals, perception verbs, auxiliaries of the perfect etc. We introduce the feature VTYPE to differentiate between those types. Its values are presented in Figure 7.
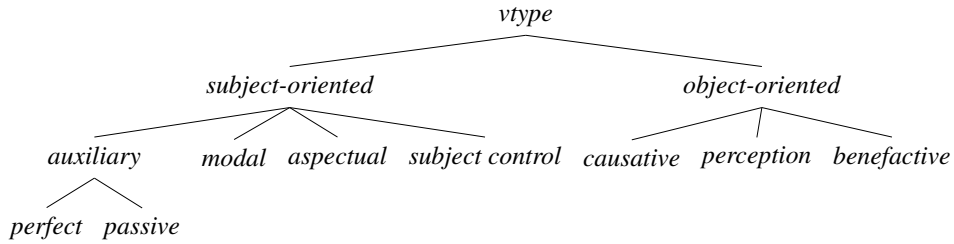

Figure 7: *vtype* type hierarchy

A characteristic aspect of Dutch clustering verbs is that they never appear as a participle, as participles cannot select another verb in the cluster. The formal definition of clustering verbs (*cl-verb*) is given in (18).

(18) $\begin{bmatrix} \textit{cl-verb} \\ \text{VFORM} & \neg\textit{ptc} \\ \text{VTYPE} & \textit{vtype} \end{bmatrix}$

In order to model word order variation in verb clusters, three subtypes are introduced: *canonical verb clusters*, *inverted verb clusters*, and *raised participle verb clusters*.

3.2.1 Canonical verb clusters

The most general cluster type is the **canonical verb cluster** (*can-v-cl*). Its formal properties are given in (19).

(19)

$$
\textit{can-v-cl} \Rightarrow
\begin{bmatrix}
\text{PHON} & \boxed{A} \oplus \boxed{B} \\
\text{HD-DTR} \mid \text{PHON} \; \boxed{A} \\
\text{NON-HD-DTR} \mid \text{PHON} \; \boxed{B}
\end{bmatrix}
$$

Canonical verb clusters inherit from (17) that they have a head daughter with a clustering verb as its head, and a nonfinite non-head daughter (which may be a word or a phrase). As indicated in PHON, the clustering verb ($\boxed{A}$) appears before its non-head daughter ($\boxed{B}$). (19) accounts for constructions with the canonical (ascending) word order such as (1), (2), and (3), repeated in (20-22).

(20)   ... dat ze die wedstrijd   heeft₁ gewonnen₂.
        that she that competition has   won

'... that he has won that competition.'

(21)   Ze zal die wedstrijd   kunnen₁ winnen₂.
        She will that competition can   win

'She will be able to win that competition.'

(22)   In de tussentijd zouden de twee belangrijkste   getuigen ... moeten₁
        in the meantime would the two most-important witnesses ... must
        worden₂ gehoord₃.
        be   heard

'In the mean time the two most important witnesses would have to be heard.' [LASSY]

3.2.2 Inverted verb clusters

The second cluster type is the **inverted verb cluster** (*inv-v-cl*):

(23)

$$
\textit{inv-v-cl} \Rightarrow
\begin{bmatrix}
\text{PHON} & \boxed{B} \oplus \boxed{A} \\[2pt]
\text{HD-DTR} &
\begin{bmatrix}
\text{PHON} \; \boxed{A} \\[4pt]
\text{SS} \mid \text{LOC} \mid \text{CAT} \mid \text{HEAD} &
\begin{bmatrix}
\textit{cl-verb} \\
\text{VTYPE} & \textit{auxiliary} \vee \textit{modal}
\end{bmatrix}
\end{bmatrix} \\[18pt]
\text{NON-HD-DTR} \mid \text{PHON} \; \boxed{B}
\end{bmatrix}
$$

(23) states that the head-daughter should be a clustering verb of type *auxiliary* or *modal*.[6] The verbal non-head daughter appears in front of its head sister, as indicated in the PHON feature. In order to account for constructions such as (4), (7) and (8), we introduce three subtypes.

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[6]Clustering verbs of type *auxiliary* include the auxiliaries of the perfect and the passive, cf Figure 7.

Participle-inverted clusters   If the selecting verb is of type auxiliary, the non-head daughter should be a past or passive participle to form constructions in which the past participle occurs right in front of its selector, such as (24) and (4), repeated in (25).

(24)   ... toen ze   voor de eerste keer rechtstreeks verkozen$_2$ werden$_1$.
        when they for   the first   time directly   elected   were

'... when they were directly elected for the first time' [CGN]

(25)   er   zijn toch   zo'n paar   boeken die ge   moet$_1$ gelezen$_3$ hebben$_2$
      there are actually such couple books   that you must   read   have
      in uw   leven.
      in your life

'actually there are a couple of books that you should have read in your life.' [CGN]

The formal constraint accounting for such constructions is given in (26).

$$
(26)\quad \textit{ptc-inv-v-cl} \;\Rightarrow\; \begin{bmatrix} \text{HD-DTR} \,|\, \text{SS} \,|\, \text{LOC} \,|\, \text{CAT} \,|\, \text{HEAD} \,|\, \text{VTYPE} \;\; \textit{auxiliary} \\ \text{NON-HD-DTR} \,|\, \text{HEAD} \,|\, \text{VFORM} \; \textit{ptc} \end{bmatrix}
$$

Auxiliary-inverted clusters   In order to deal with *Oberfeldumstellung*, the head daughter should be of type auxiliary, whereas the non-head daughter should be a canonical verb cluster to ensure the other verbs appear in the ascending order:

$$
(27)\quad \textit{aux-inv-v-cl} \;\Rightarrow\; \begin{bmatrix} \text{HD-DTR} \,|\, \text{SS} \,|\, \text{LOC} \,|\, \text{CAT} \,|\, \text{HEAD} \,|\, \text{VTYPE} \;\; \textit{auxiliary} \\ \text{NON-HD-DTR} \;\; \textit{can-v-cl} \end{bmatrix}
$$

The constraint in (27) yields constructions like (7), repeated in (28), and excludes ungrammatical orders such as * *kijken$_3$ gaan$_2$ ben$_1$*.

(28)   ... terwijl dat 'k ik naar buiten gaan$_2$ kijken$_3$ ben$_1$.
      while that I I to   outside go.IPP look   am

'... while I was going to look outside.' [CGN]

For variants of Dutch that do not accept Oberfeldumstellung, the non-head daughter of (23) should be of type *word*.

Modal-inverted clusters   The third subtype of inverted verb clusters includes constructions in which a finite modal verb follows its infinitival complement, as in (8), repeated in (29).

(29)   ... om ervoor   te zorgen   dat dit nooit meer gebeuren$_2$ zal$_1$.
      to   there-for to make-sure that this never again happen   will

'... in order to make sure that this will never happen again.' [LASSY]

The formal definition of such verb clusters in (30) states that the selecting verb should be [VTYPE *modal*]. This excludes constructions in which another type of verb follows its infinitival complement, such as the causative verb *laten* 'let' in (10).

In addition the non-head daughter should be an infinitive of type *non-cl-verb*. This avoids the embedding of longer clusters, which would yield ungrammatical constructions such as * *kunnen gebeuren zal* 'will be able to happen' in (9).

$$
(30) \quad \textit{mod-inv-v-cl} \Rightarrow
\begin{bmatrix}
\text{HD-DTR} \mid \text{SS} \mid \text{LOC} \mid \text{CAT} \mid \text{HEAD} \mid \text{VTYPE} \quad \textit{modal} \\[4pt]
\text{NON-HD-DTR} \mid \text{HEAD} \quad
\begin{bmatrix}
\textit{non-cl-verb} \\
\text{VFORM} \quad \textit{inf}
\end{bmatrix}
\end{bmatrix}
$$

3.2.3 Raised participle verb clusters

The third cluster type is the **raised participle verb cluster** (*rsd-ptc-v-cl*). It deals with constructions in which the main verb does not appear next to its head, such as the construction in (5), repeated in (31).

(31) Diversiteit in onze samenleving zou   nog veel   meer benadrukt$_3$
      diversity   in our   society   should still much more focussed
      moeten$_1$ worden$_2$.
      must   be

      'Diversity in our society should be much more focussed on.' [LASSY]

(31) is treated as a construction in which the participle *benadrukt* 'focussed' is raised. As the CRP in (12) does not put any restrictions on the type of complement that can be raised, it accounts for this kind of constructions. The formal specifications of clusters with a raised past participle are given in (32).

$$
(32) \quad \textit{rsd-ptc-v-cl} \Rightarrow
\begin{bmatrix}
\text{PHON } \boxed{B} \oplus \boxed{A} \\[4pt]
\text{HD-DTR} \quad
\begin{bmatrix}
\textit{can-v-cl} \\
\text{PHON } \boxed{A}
\end{bmatrix} \\[10pt]
\text{NON-HD-DTR} \quad
\begin{bmatrix}
\textit{word} \\
\text{PHON } \boxed{B} \\
\text{SS} \mid \text{LOC} \mid \text{CAT} \mid \text{HEAD} \quad
\begin{bmatrix}
\textit{verb} \\
\text{VFORM} \quad \textit{ptc}
\end{bmatrix}
\end{bmatrix}
\end{bmatrix}
$$

(32) accounts for the combination of a participial non-head daughter with a *can-v-cl* head daughter. As only participles can occur in a raised position in Dutch verb clusters, the non-head daughter should be a participle. The requirement that the head daughter should be a canonical verb cluster accounts for the fact that the order of the verbs in the cluster is ascending. It furthermore avoids spurious ambiguity between the *rsd-ptc-v-cl* construction and the *inv-v-cl* construction in which a past participle occurs right in front of the selecting verb, as in (4).

Another reason that raised constructions need to be differentiated from inverted clusters with a past participle, is that some varieties of Dutch accept a raised participle construction, but not an inverted verb cluster in constructions with more than two verbs.[7] For those varieties, one could restrict the inverted cluster construction with a past participle to finite constructions, in a similar way as the modal-inverted verb clusters discussed in section 3.2.2.

4   Conclusion

This paper proposes a constructivist account of word order variation in Dutch verb clusters. In this model the linear order of the verbs in the cluster is similar to the order in which they appear in the phrase structure tree. Linearization is not modelled in terms of the GVOR feature of the verbal complement. Instead, it crucially relies on the bidimensional phrase hierarchy initiated by Ginzburg & Sag (2000), which is extended for the analysis of constructions with verb clusters, cf Figure 8. This proposal accounts for the most common instances of word order variation in Dutch verb clusters, but it can be easily adapted in order to model a specific variety or dialect.
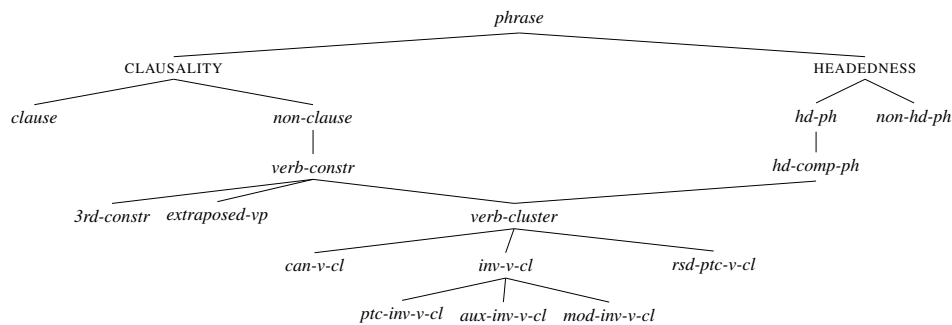
Figure 8: Extended phrase type hierarchy (bis)

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[7]For instance, 1-3-2 constructions are typically accepted in Belgian Dutch, whereas in the Netherlands they generally prefer 3-1-2 constructions (next to the canonical 1-2-3 constructions), see Barbiers (2005).

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