Restructuring restructuring:
explaining long passive phenomena in Dutch

Jan-Wouter Zwart
University of Groningen

1. Introduction

Long passives occur in constructions of infinitival complementation where the matrix verb is passivized (of the type *the car was tried to repair*). These are grammatical in German (Höhle 1978), but not in Dutch (pace Ter Beek 2008:36 fn 19):

(1)   *German long passive*
      ... dass die   traktoren zu   reparieren   versuch-t wurden
         that DET:NOM.PL tractor:PL INF   repair:INF   try-PART   AUX.PASS:PAST:PL
      '... that they tried to repair the tractors.'   (Wurmbrand 2001:19)

(2)   *Dutch long passive*
    * ... dat de   tractoren ge-probeer-d   werden   te   repareren
         that DET:PL tractor:PL GE-try-PART   AUX.PASS:PAST:PL   INF   repair:INF
      (intended) '... that they tried to repair the tractors.'

In both German and Dutch (two closely related Continental West-Germanic languages), the passive is formed analytically using a designated passive auxiliary *werden/worden* 'become' in combination with a past participle (often marked by the prefix *ge-* in both languages). In German (1), the matrix verb *versuchen* 'try' is passivized, yielding *versucht wurden*, and we tried to do the same in Dutch (2) with the verb *proberen* 'try', yielding *geprobeerd werden*. Incidentally, the order of the elements in the analytic passive in German is fixed, whereas in Dutch the order *werden geprobeerd* is also possible—the long passive is still excluded, though.

The complex construction in (1), involving (intuitively) a matrix clause headed by *try* and an infinitival complement clause headed by *repair*, is apparently passivized as if it were a single clause, with the internal argument of the embedded verb *repair*, *die traktoren* 'the tractors', promoting to the position of subject of the matrix clause. As a result, its article is in the nominative form *die*, and its number features (plural) control agreement on the passive auxiliary.

To Wurmbrand (2001), long passivization is the hallmark of 'restructuring', i.e. complex configurations of infinitival complementation behaving like a single clause with a single verbal core. She distinguishes two types of restructuring, one involving a lexical matrix verb such as *try*, illustrated in (1), which do allow long passivization, and another involving a functional verb or auxiliary (a raising verb, a perception or causation verb giving rise to 'Exceptional Case-marking', or a modal auxiliary), where long passivization is excluded for independent reasons.

Restructuring as a phenomenon has been observed many times, but as Wurmbrand's discussion bears out, theoretical approaches to the phenomenon may vary considerably. Wurmbrand (2001:3) takes the variation in restructuring possibilities (present vs. absent, with two subcases in each of the two categories) to be a matter of subcategorization properties of the embedding verb. By and large, in restructuring constructions the infinitival complement is of the category VP, whereas in nonrestructuring constructions the infinitival complement involves more functional structure (vP, TP, or CP). Other approaches assume that restructuring is the effect of head movement ('verb raising'), such that the embedded verb moves and adjoins to the matrix verb, with subsequent 'pruning' of the embedded clause structure (Evers 1975).

On the movement approach, nonrestructuring constructions involve 'extraposition' (clause final position) of the infinitival complement clause, so that the two types can be told apart by the verbs' contiguous appearance:

(3) a. *Dutch restructuring (verb raising)*
        … dat hij de tractoren **probeerde te repareren**
        that he DET tractor:PL try:PAST.SG INF repair:INF
        '… that he tried to repair the tractors.'

     b. *Dutch nonrestructuring (extraposition)*
        … dat hij **probeerde** de tractoren **te repareren**
        that he try:PAST.SG DET tractor:PL INF repair:INF
        '… that he tried to repair the tractors.'

There is reason to believe that the restructuring/nonrestructuring variation illustrated in (3) is not morphologically neutral. Dutch has a relative past tense (traditionally called the perfect) which is formed analytically using a temporal auxiliary *have/be* and a past participle:

(4) *Dutch simple past vs. relative past*
     a. probeer-de   b. heeft   ge-probeer-d
        try-PAST.SG   AUX.TEMP:3SG   GE-try-PART
        'tried' (simple past)   'tried' (relative past)

If we put the sentences in (3) in the relative past, the participle shows up as expected in the nonrestructuring context (5b), but in the restructuring context, the participle is replaced by an infinitive ('Infinitivus Pro Partipio' or IPP):

(5) a. *Dutch restructuring (verb raising)*
        … dat hij de tractoren **heeft proberen** te repareren
        that he DET tractor:PL AUX.TEMP:3SG try:INF INF repair:INF
        '… that he tried to repair the tractors.'

     b. *Dutch nonrestructuring (extraposition)*
        … dat hij **heeft ge-probeer-d** de tractoren te repareren
        that he AUX.TEMP:3SG GE-try-PART DET tractor:PL INF repair:INF
        '… that he tried to repair the tractors.'

This IPP-effect also shows up in German, though only in those restructuring configurations where long passives are absent (i.e. where the matrix verb is a raising/ECM-verb or a modal auxiliary). **We return to this instance of variation between Dutch and German**. For now, we tentatively establish that verb raising (contiguous appearance) and the IPP-effect are indicative of restructuring in Dutch, while restructuring in German is attested where we find either long passives or the IPP-effect.

2.   The issue.

Ultimately, we want to gain a clearer understanding of how to account for restructuring phenomena within a formal theory of syntax. Within the limited space of Continental West-Germanic dialects, or even a single such dialect, the variation in the phenomena conventionally described as 'verb clusters' is bewildering, and this complexity is reflected in the range and content of existing analyses. It is my contention that this state of affairs, the complexity and variation of existing analyses closely matching the complexity and variation of attested phenomena, betrays that we are missing something. Analysis should clarify the phenomena, and create order where disorder seems to reign.

My hypothesis is that existing analyses are fundamentally flawed in assuming that a sentence is derived in a single derivational run.

A derivational run is a mapping from an unordered set of elements (often referred to as 'numeration') to an ordered interface representation, ready for processing for sound and meaning. This mapping, we assume, is characterized by minimalist properties, involving a sequence of operations Merge, combining two elements in a set. Typically, one of these elements is taken from the numeration, and the other is the object under construction in the derivational run. (Alternatively, the first element can be a subpart of the object under construction.) Merge is the only operation allowed in the derivational run.

What is missing from this picture is the origin of the elements in the numeration. And clearly, those elements may be structured and should therefore have a derivational history of their own. This is clear in for instance compounds, but nothing prevents us from assuming that entire syntactic phrases may appear as single elements in the numeration.

If we allow elements in the numeration to have their own derivational history, every derivation is potentially a *network of derivations*, what I have described elsewhere as a layered derivation (Zwart 2009, 2011).

It seems to me that the Continental West-Germanic verb clusters provide a fruitful area for studying the effects of derivation layering, on the assumption that the verb clusters involved in restructuring phenomena are in fact the output of a separate derivation, included in the numeration as a single, complex element.

I return to the arguments leveled against such a 'lexicalist' approach to verb clusters. Here, I want to make clear that the whole range of restructuring phenomena cannot be the subject of discussion within the limited confines of this paper. My further goal, therefore, is to provide an explanation for the absence of long passives in Dutch restructuring constructions, and to clarify the status of long passives as a diagnostic tool in the study of restructuring phenomena.

This particular question is addressed only in passing in Wurmbrand (2001:24 fn 10), who suggests that Dutch restructuring constructions never involve infinitival complements of the bare VP quality (the ones that give rise to long passives in German). This assumes

that restructuring (both its presence and its type) is a matter of subcategorization, an essentially descriptive analysis mirrorring the attested variation too closely to achieve any explanatory adequacy.

3.   Analytic verb morphology

It can easily be shown that analytic verb forms, such as the Dutch relative past in (4b), must be created postsyntactically, as part of the morphological interpretation of the syntactic object under construction. This assumes (following essentially Halle and Marantz 1993) that inflectional morphology is represented in syntax only in the form of morphosyntactic features, and that part of the interface externalization process is to replace the terminal elements of a syntactic structure by elements from a language specific morphological inventory.

This translation from syntax to morphology is governed by the principle of underspecification, ensuring that a form is produced that provides the best match for the syntactic terminal's features. We therefore require a theory of morphological paradigms to supplement the theory of syntactic derivation.

We will not provide such a theory here, but we will note that a paradigm may consist of both synthetic and analytic formations, as anyone familiar with Indo-European inflectional morphology will immediately recognize. From this perspective, the formation of the relative past in Dutch is clearly a paradigmatic issue, as opposed to a syntagmatic issue. In other words, a single verbal element in syntax, carrying the morphosyntactic feature [RELATIVE PAST], may be externalized as a complex of lexical elements as in (4b).

To see that this in fact *must* be the case, consider the formation of past tense infinitival forms in Dutch.

The simple past in Dutch (in its core use) places an event in a position that is cotemporaneous with a reference point in the past (Zwart 2007a, 2014). This can be shown because the past tense must be used whenever a reference point in the past is made explicit, as in (6b):

(6) a.   Hij { slaap-t / sliep /   heeft   ge-slap-en   }
          he   sleep-3SG sleep:PAST.SG   AUX.TEMP:3SG   GE-sleep-PART
          'He sleeps/slept/slept.'

     b.   Hij { *slaap-t   / sliep /   *heeft   ge-slap-en   }
          he   sleep-3SG   sleep:PAST.SG   AUX.TEMP:3SG   GE-sleep-PART

          toen   ik binnen kwam
          when   I inside   come:PAST.SG

          'He slept when I came in.'

We might take from this that the past tense is the morphology used in the presence of an explicit reference point in the past. Consider now how the morphology of infinitives is affected when a reference point in the past is made explicit:

(7) a. Hij   beweert   te   slapen
         he   claim:3SG INF   sleep:INF
         'He claims to be sleeping.'

     b. Hij   beweert   { *te   slapen / ge-slap-en   te   hebben }
         he   claim:3SG   INF   sleep:INF GE-sleep-PART INF   TEMP.AUX:INF

         toen   ik binnen kwam
         when   I   inside   come:PAST.SG

         'He claims to have been asleep when I came in.'

The infinitive *te slapen* must be replaced by the analytic form *geslapen te hebben* to express cotemporaneity with a reference point in the past. We therefore have a paradigmatic tense opposition of both finite and nonfinite forms:

(8) *Dutch tense paradigms across finiteness*

	FINITE	NONFINITE
PRESENT	slaap	slapen
PAST	sliep	geslapen hebben

It follows that the temporal auxiliary *hebben* 'have' in (7b) is not in the numeration: it is a product of the interface conversion of syntactic terminals to morphological paradigm members.

Three major conclusions now follow immediately. First, the combination of a temporal auxiliary and a past participle (of the type (3b)) is a prototypical verb cluster (of the functional type, in Wurmbrand's 2001 classificiation), derived by verb raising in the tradition of Evers (1975). We can now see that that is completely erroneous: verb clusters of this type are morphological by-products. Secondly, the variation that we find in the order of elements in such verb clusters (*heeft geprobeerd* vs. *geprobeerd heeft*) is not a syntactic explanandum, and should not lead to any theorizing as to the headedness of the verb phrase (head-initial or head-final) or the direction (leftward or rightward) of head movement. And finally, the fact that the auxiliary, as the designated element in the cluster expressing finiteness, shows up in the verb-second position, can now also no longer be regulated in narrow syntax, as the auxiliary does not exist in the syntactic derivation. We see here the clearest support to date for Chomsky's (2001) conjecture that verb-second is an interface phenomenon.

We can now use this result to understand the nature of clusters of more than two verbs (say, three). If the hierarchically highest verb in the cluster is a temporal auxiliary, it should not feature in the syntactic derivation, and the number of verbs in the numeration is just two. Do these form a genuine cluster, i.e. complex element functioning as a single item in the derivation at hand, or are they independent elements in the current syntactic derivation?

This revolves around three-verb clusters of the type illustrated in Dutch (9):

(9) ... dat hij   heeft   moeten   werken
         that he   TEMP.AUX:3SG   must:INF   work:INF
      '... that he had to work.'

Observe that the modal auxiliary *moeten* 'must' shows the IPP-effect, taking the form of an infinitive instead of the expected participial form. As is well-known, when modal auxiliaries like *moeten* take no complement, they do show up as participles in the relative past:

(10) Het   heeft   ge-moet-en
       it   TEMP.AUX:3SG   GE-must-PART
      'It was inevitable.'

Apparently, the morphological component is sensitive to the presence of an infinitive in the complement of a modal verb: if such an infinitive is present, the relative past form of the modal involves an infinitive, while if such an infinitive is not present, the relative past form involves a past participle. Assuming that the input to the morphological component is constituted by syntactic terminals, we must conclude that the modal-infinitive cluster is a single item in the narrow syntactic derivation of clauses like (9).

Since clusters like *moeten werken* in (9) are clearly compositional, the simplest account posits that such clusters are created in a separate derivation layer, passed through the interfaces concluding that derivation layer, and introduced as a single item in the numeration underlying (9). Restructuring, then, is derivation layering.

4. Passive

The analytic passive of German and Dutch can now be given the same treatment as the relative past: the auxiliary is not an element of syntax, but a by-product of morphological conversion. The language has a voice paradigm of the type in (11), and a syntactic element marked [passive] will be converted into the complex from the passive row.

(11) *Dutch/German voice paradigm (partial)*

repair, 3SG	DUTCH	GERMAN
ACTIVE	repareert	repariert
PASSIVE	wordt gerepareerd	repariert wird

Also the passive auxiliary in the German long passive (1) will have to be introduced postsyntactically, if this is on the right track. The question is, what is the input to the morphological passive formation?

Just like with the three-verb clusters discussed in section 3, it stands to reason that the syntactic element carrying the feature [PASSIVE] is a cluster, i.e. a combination created in a separate derivation. To be more precise, that separate derivation feeding the numeration for (1)/(2) involves just the verbs *try* and *repair*, the former taking the latter as its

complement. In German (1), this yields the cluster *zu reparieren versuchen* [lit. to repair try] 'try to repair', and in Dutch (2) *proberen te repareren* 'try to repair' (ignoring tense and person). Adapting the table in (11) to the situation of verb clusters, we get (12):

(12) *Dutch/German long passive paradigm (partial)*

try to repair, 3SG	DUTCH	GERMAN
ACTIVE	probeert te repareren	zu reparieren versucht
PASSIVE	***	zu reparieren versucht wird

As can be seen, the absence of long passive in Dutch translates into a gap in the morphological paradigm. From this perspective, the contrast in (1)/(2) must be explained in terms of morphology, rather than syntax.

A striking difference between the clusters in the active row in (12) is that the matrix verb (*try*) is initial in the Dutch cluster and final in the German cluster. This assumes that the dependency between the verbs in the cluster, established in the previous derivation in which the cluster was formed, is not lost once the cluster is introduced as a single element in another numeration. This is consistent with theories of percolation in morphology (cf. Lieber 1980), as applied to verb clusters by Williams (2004).

We may now hypothesize that the matrix verb (the head of the cluster) being rightmost is a prerequisite for the cluster to be able to participate in the voice paradigm. This also accounts for a long-standing problem, namely that perception verbs and causative verbs taking an infinitival complement fail to passivize (Bennis and Hoekstra 1989; (13b) is also ungrammatical with the infinitive *horen* replacing the participle *gehoord*, or when the object *een liedje* 'a song' is left out):

(13) a.   … dat we Kaatje een   liedje   hoorden   zingen
              that we Kaatje INDEF song   hear:PAST.PL sing:INF
           '… that we heard Kaatje sing a song.'
       b. * … dat Kaatje een   liedje   werd   ge-hoor-d   zingen
              that Kaatje INDEF song   AUX.PASS:PAST.SG GE-hear-PART   sing:INF
           (intended) '… that Kaatje was heard singing a song.'

Again, the explanation would be that *horen zingen* is a cluster formed in a separate derivation, and introduced in the numeration for the derivation of (13) as a single left-headed element, not meeting the requirement for passivization.

On the other hand, passivization of ECM and causative constructions is also excluded in German (Höhle 1978), as in many other languages, so that independent factors are arguably involved here as well.

5. Against 'lexicalist' approaches

At this point we may pause to address existing arguments against lexicalist approaches to cluster formation. To be clear, our approach is only partly lexicalist, namely where we have

proposed that some clusters are created in the postsyntactic morphological component. Other than in traditional lexicalist approaches, these clusters do not feed the syntactic component, but are fed by it. Still other clusters, in our approach, do feed the syntactic component in that they are created in separate derivations and inserted as single elements in the numeration for the next derivation. However, these clusters are not devoid of syntactic properties and are in fact created in a wholly syntactic manner; but the syntax is played out in a separate derivation, so there is no interaction with syntactic processes taking place in the next derivation layer.

Wurmbrand (2001:20) argues that the properties of long passives like (1) "pose a serious problem for lexicalist approaches". The problem is that in a lexicalist approach, the observation that passivizing the matrix verb affects the properties of the embedded verb is unexpected. The properties of the embedded verb are affected by the passivization process in that the embedded verb can now no longer license its object (assign accusative case), which must therefore raise and become the subject of the matrix clause (cf. *die traktoren* 'the tractors' in (1)).

This problem now seems not so serious, since the cluster is introduced in this derivation as a single element. As explained in Williams (2004), we may assume that the matrix verb in the cluster inherits the subcategorization properties of the embedded verb, or, put differently, that the single element which is the cluster unites the relevant properties of its constituent parts (see also Van Noord and Bouma 1998, Bhatt and Keine 2014). For all intents and purposes, then, *zu reparieren versuchen* is just a single lexical item, with an internal argument that raises to subject position under passivization.

Wurmbrand (2001:20) also raises another, potentially more damaging problem, where she observes that part of the presumed cluster can be topicalized:

(14)   Zu   reparieren   wurden   nur   die   traktoren   versucht
       INF repair:INF   AUX.PASS:PAST.PL just DEF:NOM.PL   tractor:PL try:PART
       'They tried to repair only the tractors.'

If (14) results from a syntactic movement operation, the approach contemplated here must be wrong (assuming something like the Generalized Integrity Hypothesis of Zwart 2007).

6.   Restructuring properties

The active counterpart to (1), (15), is claimed by Wurmbrand (2001), Bobaljik and Wurmbrand (2005) to be syntactically ambiguous.

(15)   ... dass er   die   traktoren zu   reparieren   vergessen   hat
       that he DEF.PL.ACC   tractor:PL INF repair:INF   forget:PART AUX.TEMP:3SG
       '... that he forgot to repair the tractor.'

The ambiguity is brought out by the observation that the object *den traktor* 'the tractor' may take scope over the matrix verb *vergessen* 'forget' or not:

(16)   ... dass er   nur einen   traktor zu   reparieren   vergessen   hat
       that he just INDEF.ACC tractor INF repair:INF   forget:PART AUX.TEMP:3SG
       '... that he forgot to repair only one tractor.'   (*only* ≫ *forget* ; *forget* ≫ *only*)

In the wide scope reading, there is only one tractor such that he forgot to repair that tractor. In the narrow scope reading, he forgot that he had to repair only one tractor.

This ambiguity can be teased apart by passivizing the construction, where the wide scope reading survives under the long passive (17), when the object *nur einen traktor* becomes nominative and controls verbal agreement, and the narrow scope reading survives under what one might call the local passive (17), where the object remains an object.

(17) ... das nur ein   traktor zu   reparieren   vergessen   wurde
          that just INDEF.NOM   tractor INF repair:INF   forget:PART AUX.PASS:PAST.SG
    '... that they forgot to repair only one tractor.' (*only* ≫ *forget*)

(18) ... das nur einen   traktor zu   reparieren   vergessen   wurde
          that just INDEF.ACC tractor INF repair:INF   forget:PART AUX.PASS:PAST.SG
    '... that they forgot to repair only one tractor.' (*forget* ≫ *only*)

The structural ambiguity of (15), then, is one of restructuring vs. non-restructuring, which in Wurmbrand's (2001) analysis translates in a categorial difference of the embedded infinitival clause: VP in the case of restructuring vs. vP in the case of non-restructuring.

This analysis assumes that structural accusative case is assigned inside vP, so that the object is licensed in the embedded infinitival clause in the non-restructuring case, but needs to move into the matrix clause in the restructuring case. Passivization of the matrix verb then affects object licensing in the restructuring case, leading to subject promotion, but not in the non-restructuring case.

As Bhatt and Keine (2014) show, the details of this analysis cannot be right, as other material belonging to the embedded clause, but not in need of case-licensing, show the same behavior as objects. We may take this as a confirmation of our earlier suspicion that an account in terms of subcategorization (categorial status of the embedded clause) lacks explanatory merit. But other than that, the observation seems correct that the ambiguity of (15) involves either a verb cluster (restructuring, (19a)) or full clausal complementation (what we might call intraposition, (19b)):

(19) a. ... dass er die traktoren [zu reparieren vergessen hat]
     b. ... dass er [die traktoren zu reparieren] vergessen hat

In Dutch, intraposition is rarely an option, and then only with factive predicates (Koster 1989), so (19b) would come out with the embedded clause to the right ('extraposition', an option also available in German). In addition, the verb cluster shows the 'ascending' order (cf. Zwart 1996 for terminology). So (19) translates as (20):

(20) a. ... dat hij de   tractoren [was   vergeten   te   repareren]
          that he   DEF tractor:PL AUX.TEMP:PAST.SG forget:PART INF repair:INF
     '... that he forgot to repair the tractors.'

     b. ... dat hij was   vergeten   [de tractoren te   repareren]
          that he   AUX.TEMP:PAST.SG forget:PART DEF tractor:PL INF repair:INF
     '... that he forgot to repair the tractors.'

As Dutch does not have long passives, only the non-restructuring variant (20b) has a passive counterpart:

(21) ... dat er werd vergeten [de tractoren te repareren]
      that EXPL PASS.AUX:PAST.SG forget:PART DEF tractor:PL INF repair:INF
      '... that they forgot to repair the tractors.'

Like (18) from German, this is an impersonal passive, here marked by the expletive subject *er* 'there'.
    But the scope properties of (20) bring out the same restructuring/non-restructuring contrast as German (16). And since the Dutch surface order is not ambiguous, passivization is not needed to bring the contrast to light:

(22) a. ... dat hij maar één tractor
        that he just one tractor:PL

        was vergeten te repareren
        AUX.TEMP:PAST.SG forget:PART INF repair:INF

      '... that he forgot to repair only one tractor.' (*only* ≫ *forget*)

   b. ... dat hij was vergeten
        that he AUX.TEMP:PAST.SG forget:PART

        maar één tractor te repareren
        just one tractor:PL INF repair:INF

      '... that he forgot to repair only one tractor.' (*forget* ≫ *only*)

We can repeat this observation using the subsequent tests provided by Bhatt and Keine (2014). In each case it turns out that the clustering construction has only one reading, namely the wide scope reading of the object associated with the embedded verb.
    In (23), the indirect object PP *aan maar één student* 'to only one student' takes scope over the matrix verb *vergeten* 'forget' in the restructuring ('verb raising') construction (23a), but not in the non-restructuring ('extraposition') construction (23b).

(23) a. ... dat hij mij aan maar één student
        that he me to just one student

        was vergeten voor te stellen
        AUX.TEMP:PAST.SG forget:PART for INF place:INF
                                   [idiomatic: to introduce]

      '... that he forgot to introduce me to only one student.' (*only* ≫ *forget*)

   b. ... dat hij was vergeten
        that he AUX.TEMP:PAST.SG forget:PART

mij	aan	maar	één	student	voor	te	stellen
me	to	just	one	student	for	INF	place:INF

[idiomatic: to introduce]

'… that he forgot to introduce me to only one student.' (*forget* ≫ *only*)

In (24), the event modifying adverbial *vijf keer* 'five times' modifies the matrix event (the forgetting event) in the restructuring construction (24a), but the embedded event (the button pushing event) in the nonrestructuring construction (24b).

(24) a. … dat hij de knop vijf keer
　　　　that he DEF button five time

　　　　was　　　　　　　vergeten　　in te　drukken
　　　　AUX.TEMP:PAST.SG　forget:PART　in INF　press:INF

'… that he forgot to press the button five times.'　(five x *forget*)

b. … dat hij was　　　　　　　vergeten
　　　that he AUX.TEMP:PAST.SG　forget:PART

　　　de　knop　vijf　keer in　te　drukken
　　　DEF　button　five　time in　INF　press:INF

'… that he forgot to press the button five times.'　(five x *press*)

[NPIs more complicated]

This shows that Dutch has restructuring in spite of the absence of long passives, leading me to believe that long passivization, and the concomitant categorial characterization of the embedded infinitival clause, is not a key ingredient of restructuring.

7. Restructuring restructuring

The findings so far suggest that Dutch and German are similar in showing a restructuring vs. nonrestructuring opposition, which is shown by the interpretation of scope-sensitive elements, and that (some) restructuring configurations in German may feed passivization, an option that Dutch lacks. We have attributed this contrast to the morphological mechanism of producing a form from the paradigm to express syntactic elements with the relevant voice features. We have suggested that this morphological mechanism is sensitive to something like the Right Hand Head Rule of Williams (1981): if the matrix verb is not the rightmost element in the verbal cluster, morphology cannot produce a passive variant of that cluster.

　　The question now is: how does restructuring come about? Recall that the ambition is to derive the facts using simple syntactic mechanisms: Merge and derivation layering.

　　Restructuring, then, occurs when the two verbs merge in a separate derivation layer, and

are subsequently introduced in the numeration for the next derivation as a single element. In a toy example like (25), this presupposes a first derivation with a numeration in (26a) and an output in (26b).

(25) John tried to read a book

(26) a. numeration =   { try, read }
      b. [try to read]

The next derivation, then, would feature the numeration in (27a) and the output in (27b).

(27) a. numeration =   { John, [try to read], [a book] }
      b. [John tried to read a book]

In embedded clauses in German and Dutch, the object *a book* would appear to the left of the complex *try to read*, yielding the verb-final order illustrated in all the above examples. In German, passivizing the cluster leads to the long passive. In both Dutch and German, the object would take scope over the cluster, hence also over the matrix verb (now a misnomer).

Nonrestructuring may involve just a single derivational run, starting from the numeration in (28a) and yielding the output in (28b).

(28) a. numeration =   { John, try, read, [a book] }
      b. [John tried to read a book]

In Dutch embedded clauses, (28b) would be realized with 'extraposition' of the embedded infinitival clause, with the object taking narrow scope with respect to the matrix verb. In German embedded clauses, the scope effect would be the same, but German has the added possibility of realizing the embedded infinitival clause to the left of the matrix verb ('intraposition'), giving rise to the ambiguity of (15)/(19).

Alternatively, the embedded clause may be created first in a separate derivation layer, predicting stricter opacity effects. The alternatives may correspond to the reduced and full nonrestructuring types identified in Wurmbrand (2001).

Notice that this approach steers clear of positing a categorial difference between the various infinitival clauses, and need not resort to structural ambiguity in the matrix verb's subcategorization frame (for further critical discussion of this aspect of Wurmbrand's analysis, see Ter Beek 2008). Accepting the possibility of derivation layering (independently established), the various options leading to either restructuring or nonrestructuring are readily available.

This approach is compatible with a range of observations going back to Hoeksema (1980), and revived in Coppen and Klein (1992), casting doubt on the syntactic derivation of restructuring verb clusters (i.e. on the 'verb raising' mechanism of Evers 1975). As Hoeksema shows, verb clusters can be easily nominalized:

(29) het   [vergeten   te   repareren] van   de   tractoren
      DEF.N forget:INF   INF   repair:INF   of   DEF.PL   tractor:PL
      'the (act of) forgetting to repair the tractors'

While this is easily understandable in a layered derivation framework, (29) is problematic if verb clusters are taken to be the result of a manipulation of verb phrase structure in a clausal embedding configuration.

A similar problem arises in polysyndetic coordinations like (30):

(30) ... dat Jan   de   tractoren zowel heeft   horen   starten
         that John DEF   tractor:PL both   AUX.TEMP:3SG   hear:INF   start:INF

         als   heeft   zien   rijden
         as   AUX.TEMP:3SG   see:INF   ride:INF

    '... that John both heard the tractors start and saw them go.'

The problem here is that a source of clausal embedding seems to be absent in the second member of the coordination.

Hoeksema (1980) also points to the existence of many verb cluster idioms (see also Zwart 2007b:93-94), something that is expected on a layered derivation approach:

(31) *verb cluster idioms*
      zien zitten   laten   zitten
      see sit   'appreciate'   let   sit   'desist'

      kunnen   hebben   staan   te   trappelen
      can   have   'tolerate'   stand   INF   kick$_{FREQ}$ 'be eager'

Clusters may also be fronted (left dislocated), in constructions like (32), where a demonstrative pronoun optionally appears in the left periphery.

(32) Ge-probeer-d   te   repareren (dat)   hebben   ze   de   tractoren niet
     GE-try-PART   INF   repair:INF DEM   AUX.TEMP:PL they DEF   tractor:PL NEG
     'They did not try to repair the tractors.'

This, too, is consistent with the idea that clusters are created in a separate derivation. Interestingly, to some speakers, passivization of a construction like (32), with a left-dislocated verb cluster, becomes possible again:

(33) % Ge-probeer-d   te   repareren (dat)   worden   alleen   de   tractoren
       GE-try-PART   INF   repair:INF DEM   AUX.PASS:PL only   DEF   tractor:PL
       'They try to repair only the tractors.'

If so, the earlier conclusion that the absence of long passives in Dutch is a superficial property of the syntax-to-morphology conversion, is supported. It is not clear how this result could be achieved under a subcategorization analysis of the difference between German and Dutch restructuring.

Finally, it should be noted that this approach, while in many ways consistent with the analysis of the semantic effect of cluster formation in Bhatt and Keine (2014), crucially differs from that analysis in not presupposing a syntactic operation of head movement

(what Bhatt and Keine call 'verb incorporation'). Assuming verb incorporation to be the key element responsible for restructuring and its semantic effects, Bhatt and Keine argue that head movement cannot be a PF-operation, but must be part of narrow syntax (this was expressed somewhat more vigorously in the 2013 GLOW talk than in the 2014 WCCFL paper).

This argument in defense of the syntactic nature of head movement is typically flawed in assuming just a single derivational run. If a derivation involves more layers, each separated by interfaces dealing with sound and meaning (as argued in Zwart 2009), semantic effects have no bearing on the identification of head movement as a syntactic or postsyntactic operation.

Conclusion

References

ter Beek, Janneke. 2008. *Restructuring and infinitival complements in Dutch*. PhD dissertation, University of Groningen.

Bennis, Hans and Teun Hoekstra. 1989. Why Kaatje was not heard sing a song. In Dany Jaspers, Wim Klooster, Yvon Putseys and Pieter Seuren, eds., *Sentential complementation and the lexicon: studies in honour of Wim de Geest*, 21-40. Dordrecht: Foris.

Bhatt, Rajeesh and Stefan Keine. 2014. Verb cluster formation and the semantics of head movement. *Proceedings of WCCFL* 32.

Bobaljik, Jonathan D. and Susanne Wurmbrand. 2005. The domain of agreement. *Natural Language and Linguistic Theory* 23: 809-865.

Chomsky, Noam. 2001. Derivation by phase. In Michael Kenstowicz, ed., *Ken Hale: a life in language*, 1-52. Cambridge: MIT Press.

Coppen, Peter-Arno and Maarten Klein. 1992. Het einde van Verb Raising. In Maarten Klein, ed., *Nieuwe eskapades in de neerlandistiek*, 32-46. Groningen: Wolters-Noordhoff.

Evers, Arnold. 1975. *The transformational cycle in Dutch*. PhD dissertation, Utrecht University.

Halle, Morris and Alec Marantz. 1993. Distributed morphology and the pieces of inflection. In Ken Hale and Samuel J. Keyser, eds., *The view from Building 20: essays in linguistics in honor of Sylvain Bromberger*, 111-176. Cambridge: MIT Press.

Höhle, Tilman. 1978. *Lexikalistische Syntax: die Aktiv-Passiv Relation und andere Infinitkonstruktionen im Deutschen*. Tübingen: Niemeyer.

Hoeksema, Jack. 1980. Verbale verstrengeling ontstrengeld. *Spektator* 10: 221-249.

Lieber, Rochelle. 1980. On the organization of the lexicon. PhD dissertation, MIT.

van Noord, Gertjan and Gosse Bouma. 1998. Word order constraints on verb clusters in German and Dutch. In Erhard Hinrichs, Andreas Kathol and Tsuneko Nakazawa, eds., *Complex predicates in nonderivational syntax*, 43-72. San Diego: Academic Press.

Williams, Edwin. 1981. On the notions 'lexically related' and 'head of a word'. *Linguistic Inquiry* 12: 245-274.

Williams, Edwin. 2004. The structure of clusters. In Katalin É. Kiss and Henk van Riemsdijk, eds., *Verb clusters: a study of Hungarian, German and Dutch*, 173-201. Amsterdam: John Benjamins.

Wurmbrand, Susanne. 2001. *Infinitives: restructuring and clause structure*. Berlin: Mouton de Gruyter.

Zwart, Jan-Wouter. 1996. Verb clusters in Continental West-Germanic dialects. In James R. Black and Virginia Motapanyane, eds., *Microparametric syntax and dialect variation*, 229-258. Amsterdam: John Benjamins.

Zwart, Jan-Wouter. 2007a. Dutch past tense infinitives and the nature of finiteness. Paper presented at the 22nd Comparative Germanic Syntax workshop, Stuttgart, June 8.

Zwart, Jan-Wouter. 2007b. Some notes on the origin and distribution of the IPP-effect. *Groninger Arbeiten zur germanistischen Linguistik* 45: 77-99.

Zwart, Jan-Wouter. 2007c. Generalized Integrity. Paper presented at the Harvard workshop on movement and its relation to the interfaces, May 7.

Zwart, Jan-Wouter. 2009. Prospects for top-down derivation. *Catalan Journal of Linguistics* 8: 161-187.

Zwart, Jan-Wouter. 2011. Structure and order: asymmetric merge. In Cedric Boeckx, ed., *The Oxford Handbook of linguistic minimalism*, 96-118. Oxford: Oxford University Press.

Zwart, Jan-Wouter. 2014. The tense of infinitives in Dutch. In Jack Hoeksema and Dicky Gilbers, eds., *Black book: a Festschrift in honor of Frans Zwarts*, 363-387. Groningen: University of Groningen.