# Words and Features
# On Lexicalization in Generative Grammar

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## 1.  Verb Second as a Problem of Lexicalization

The phenomenon I would like to address is a very familiar one in comparative Germanic syntax.

*Dutch*

| | | | | | |
|---|---|---|---|---|---|
| (1) a. | | Jan | kust | Marie | |
| | | John | kisses | Mary | |
| b. | * | Jan | Marie | kust | |
| | | John | Mary | kisses | |
| (2) a. | | ..dat | Jan | Marie | kust |
| | | that | John | Mary | kisses |
| b. | * | ..dat | Jan | kust | Marie |
| | | that | John | kisses | Mary |
| (3) a. | | Dan | kust | Jan | Marie |
| | | then | kisses | John | Mary |
| b. | * | Dan | Jan | kust | Marie |
| | | then | John | kisses | Mary |
| c. | * | Dan | Jan | Marie | kust |
| | | then | John | Mary | kisses |

The question is how to describe and explain the distribution of the verb in the three types of clauses in Dutch: subject initial main clauses (1), embedded clauses (2), and inversion constructions (3).

The properties of the three types of constructions are well known. In order to make some of them explicit, I will indicate in (4) which pairs of elements in (1a), (2a), and (3a) are obligatorily adjacent:

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| (4) a. | (*XP) | Jan | (*XP) | kust | (XP) | Marie | (XP) | | | |
| b. | (*XP) | dat | (%XP) | Jan | (XP) | Marie | (XP) | kust | (XP) | |
| c. | ((*)XP) | Dan | (*XP) | kust | (%XP) | Jan | (XP) | Marie | (XP) | |

Speakers vary on whether the complementizer and the subject in (4b) are adjacent (similarly with the verb and the subject in (4c)):

| | | | | |
|---|---|---|---|---|
| (5) | ..dat | (%keer op keer) | Jan | Marie | kust |
| | that | time and again | John | Mary | kisses |

The initial XP in (4c) is allowed only when the time demonstrative adverb *dan* `then' resumes the content of the XP:

(6)    Morgen   dan    kust   Jan    Marie
           tomorrow then    kisses  John   Mary

Putting these matters aside, the only hard and fast adjacency effects obtain between the subject and the verb in (4a), and between the fronted constituent and the verb in (4c). For this reason, the two constructions in (4a) and (4c) have been grouped together as "verb second constructions".

"Verb second" appears to be a pervasive property of Dutch syntax. It does not require a stretch of the imagination to detect the "verb second property" in constructions like (7) as well:

(7) a.  Kust   Jan    Marie?
        kisses  John   Mary
        "Is John kissing Mary?"
    b.  Kust   Jan    Marie, dan   doe   ik  hem   wat.
        kisses  John   Mary  than   do    I   him    something
        "If John kisses Mary, I'll get him."

The inversions in (7) can be brought in line with (4c) if we assume that a covert question operator is present in (7a), and a covert conditional marker in (7b). The presence of these phonetically empty initial constituents would yield a "verb third" order, triggering inversion of the subject and the verb.

Likewise, it may not be unreasonable to assume that the "verb second property" has no force in embedded clauses. For this, we would have to assume that a "second" position inside an embedded clauses is not really a "second" position for the purpose of the rigorous verb second constraint.

Thinking along these lines, it seems that the "verb second property", rather than being a generalization over observed phenomena, actually acquires the status of an explanation of these same phenomena. Saying that Dutch "has the verb second property" merely repeats the facts to be described, rather than explaining them.

At this point I would like to make clear what I understand by "explaining". Chomsky has repeatedly connected the notion of explanatory adequacy with the process of language acquisition. A phenomenon is explained if it helps you understand how it is that children acquire it at such an unexpected rate, without explicit instruction. However, I feel that explanatory adequacy may very well be defined without subscribing to such lofty mentalist objectives. An explanation, in my view, is just a sound and correct description in terms that we understand.

The part "in terms that we understand" is crucial here. It presupposes a theoretical framework that we use in order to make sense of the data. The framework itself is constantly under construction, as Chomsky's own work makes abundantly clear. Nevertheless, it seems important to extract from 40 years of generative grammar certain conceptual desiderata which have largely remained constant. It is in terms of these desiderata that we would like to describe verb second phenomena, and hence explain them.

I would like to propose the following as conceptual cornerstones of generative grammar:

(8) 1.  Linguistic expressions are sound-meaning links
    2.  These sound-meaning links are best described as derivations
    3.  The sound representation does not feed into the meaning representation, or vice versa
    4.  Sound and meaning are linked by

a. a set of elements that are relevant to both ("the numeration")
b. making the relations between these elements explicit in a structure ("merge and move"), where these relations are
    i   local (sisterhood)
    ii  one-to-one
c. allowing for a set of options to make language variation explicit (parameters, "strong and weak features")
d. observing as much as possible certain economy conditions

I have included in parentheses some of the terms that are presently used in Chomsky's Minimalist Program, in order to make explicit how these fashionable terms are really constants of generative grammar.

The Minimalist Program, incidentally, differs from previous stages in the theory by maintaining that these core notions are really all there is in the grammar, and that further constraints or principles or notational niceties would only lead away from explanatory adequacy.

I will not go into point (8.3) here. It specifies that the sound interface, called PF, is not identical with or directly linked to the meaning interface, LF. This point is contentious, but I will not pursue it here. The important aspect of it is that syntax is seen as the mediator between the sound and the meaning interface.

Syntax is what does the "linking up" in point (8.4). The derivation (8.2) starts with a set of elements that are "merged" in local, one-to-one fashion, yielding some kind of binary branching configuration. The process of merge is clearly connected to lexical semantics and predication theory. Thus, if the verb *kissed* in (9) is merged directly with *Mary*, as in (10), the interpretation is forced upon us that Mary is the one who is kissed:

(9) a.  John kissed Mary
    b.  Mary was kissed

(10)          XP
           ╱      ╲
       kissed    Mary
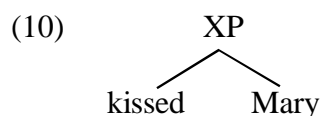
In the passive sentence (9b), the relation between *kissed* and *Mary* is the same as in the active sentence: Mary is still the one who is kissed. For that reason, the derivation of (9b) starts out from the same stage as (9a), namely (10), but unlike in (9a), *Mary* must be "displaced" in order to also function as the grammatical subject of the sentence (11).

(11)          YP
           ╱      ╲
        Mary      ...
                ╱      ╲
               XP
            ╱      ╲
        kissed   <Mary>
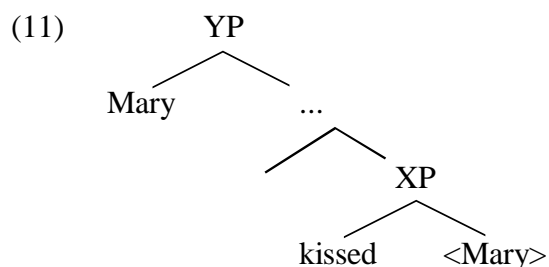
As the notation in (11) indicates, *Mary* is actually present in two positions in the structure, but *Mary* is LEXICALIZED in only one of these positions, the structural subject position.

The conceptual desiderata that relations are local and one-to-one unavoidably leads to the displacement property of language. On this view, the fact that the finite verb in Dutch occupies

various positions (cf. (1)-(3)) is just one other instance of this displacement property. The verb needs to be in (at least) two positions at the same time, but it can be lexicalized in only one.

We may therefore write the pattern in (1a, 2a, and 3a) again as in (12), and proceed from there to try and find an explanation for the differences in lexicalization:

(12)  a.                  Jan    kust    Marie  <kust>
      b.          ..dat   Jan    <kust>  Marie  kust
      c. Dan  kust  Jan   <kust>  Marie  <kust>

In (12) I have ignored the circumstance that the subject *Jan* and the object *Marie* also have various copies hanging around in the structure. To make these explicit, we would have to rewrite (12a) as (13), for example:

(13)  Jan    kust    Marie  [$_{VP}$ <Jan>  <kust>      <Marie> ]

The partial representation in (13) proposes a universal basic SVO structure, in which the subject and the object are generated ("merged") inside the Verb Phrase (VP) and have subsequently been moved out of the VP to positions where they are actually lexicalized.

(Arguments for these movements of the subject and object can be derived from the patterns of adjacency and nonadjacency in (4), but I will not go into that here.)

Now let us return to the question of how to explain the verb second pattern in Dutch. Our initial inclination was to describe this pattern as the result of a "verb second requirement", stating that the finite verb has to occupy the second position in main clauses. But we did have our doubts about the status of this explanation, as what it really appeared to do was just rephrase the facts. Now we can conclude that the verb second requirement in no easy way falls out from the conceptual desiderata listed in (8). Displacement, according to (8), is the result of the requirement that the relations between the elements in the sentence are local and one-to-one. Both reduce to the unique sisterhood relation illustrated in (10). The notion "second position" cannot be deduced from these purely structural requirements.

The same is true of another fairly influential proposal to describe the pattern in (1)-(3). This proposal is found in Hans den Besten's seminal paper on the subject (MIT manuscript of 1977, published in 1983 and reprinted as part of his dissertation in 1989).

Hans den Besten observed that the verb in inversion constructions (3a) occupies the same position as does the complementizer in embedded clauses (2a). This is also suggested by the representation in (12b,c).

The arguments for concluding that the verb in (3a) is actually in the complementizer position have to do with the adjacency phenomena referred to in (4). We noticed there that for some speakers, the inverted verb in (2a) and the subject need not be adjacent:

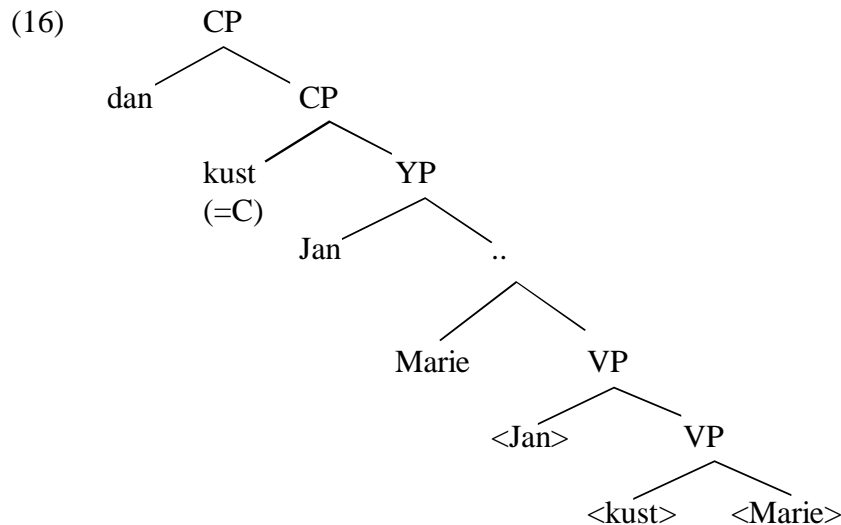(14)       Dan    kust    (%keer op keer)   Jan    Marie

The exact same judgments obtain in embedded clauses:

(15)       ..dat   (%keer op keer)   Jan    Marie  kust

If we look at these and other phenomena, it turns out the the inverted verb and the complementizer behave exactly alike. Hence, the conclusion is justified that the inverted verb and the complementizer occupy the same position, referred to as C.

In this view, the fronted element *dan* "then" in (3a) is a specifier of C, merged with the constituent resulting from merging C with the remainder of the construction:

(16)

```
              CP
           /      \
        dan        CP
                 /     \
              kust      YP
              (=C)     /   \
                    Jan     ..
                          /    \
                      Marie     VP
                              /     \
                          <Jan>      VP
                                   /     \
                               <kust>    <Marie>
```

Likewise, *Jan* and *Marie* are in specifier positions somewhere between CP and VP (a proposal which we will return to).

Since at least one of the verb second constructions, namely the inversion construction, features a verb in C, we might suppose that the other verb second construction, the subject initial main clause, has the verb in C as well. This would lead to the representation in (17) (cf. (12)):

(17)  a. Jan    kust    <Jan>  <kust>    Marie  <kust>
      b.        ..dat   Jan    <kust>    Marie  kust
      c. Dan    kust    <Jan>  <kust>    Marie  <kust>

This would then lead to the following proposal to explain the pattern:

(18)  1. The finite verb must be in C..
      2. ..unless something else is in C.

This is the explanation that was generally accepted in the 1980's.

I have argued in my dissertation that this explanation is not right, mainly because the representation in (17) is less economical than the representation in (12). In (12), the subject-verb order is achieved without the additional displacements that move the verb to C and the subject to the specifier position of CP. But what I want to discuss here is another aspect of the analysis in (17)-(18), one that I now think drives more directly at the heart of the verb second pattern in Dutch and related languages (see also Zwart 1997).

The requirement (18.1) in itself is a pure stipulation, again repeating the observations to be explained (albeit in more abstract terms). If we want to describe the pattern as displacement of the verb to the C-position, we have to make explicit what kind of syntactic relation is established by displacing the verb in this way. In other words, we need a trigger for the movement.

Now it is easy enough to identify a trigger. It is highly probably that the movement in question is related to Tense (as has been proposed by many authors, including Den Besten). Tense is a sentential feature which is at some point merged with the sentence structure (as in Chomsky 1957):

(19)

```
            TP
           /  \
       Tense    YP
```
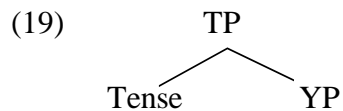
The finite verb carries certain tense features which must be in agreement with the Tense features of the clause as a whole. For this reason, we may propose that the verb moves and adjoins to Tense, "to check the tense features". This is one way of describing the ubiquitous phenomenon of verb movement, which is not particularly implausible.

As Den Besten notes, there is a clear link between Tense and the complementizer position, C. Thus, the morphology of the complementizer is dependent on the particular Tense features of the clause:

(20)      Tense          C

          finite         dat, of, als
          nonfinite      om (te), ∅

This suggests that if C is present, Tense has to actually move to C:

(21)
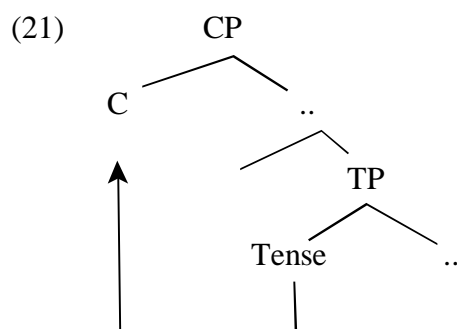


Then if the verb moves to Tense, and Tense moves to C, the verb ends up in C. This would explain the placement of the verb in C in (3a) (and, if (17) is correct, in (1a) as well).

(There is ample empirical evidence for Tense-movement to C, which I will return to.)

The only problem with this explanation, is that it leaves (18.2) unaccounted for. If the verb must move to Tense, and if Tense must move to C, why does the presence of a complementizer in C matter? Why not lexicalize the verb in C, together with the complementizer:

(22)   *   ..kust-dat  Jan     <kust>     Marie  <kust>

Obviously, the interesting point here is that there must be some condition on lexicalization. However, it is not immediately clear how to state this condition, as there is no general ban on adjunction of one lexical item to another in Dutch.
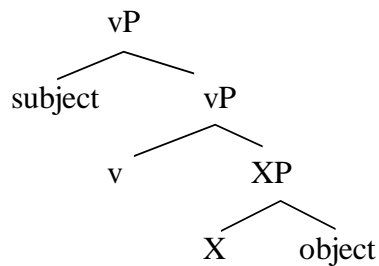
For example, verb clusters in sentence final position are generally described as involving some kind of adjunction of one verb to another:

(23)   ..dat   Jan    Marie  had-willen-kussen
        that   John   Mary   had-wanted-to kiss

Similarly, the distribution of preverbal particles is generally described as involving adjunction to the verb:

(24)  ..dat    Jan    Marie  op-belde
      that    John   Mary   up-called
      "..that John telephoned Mary"

In addition, many languages can adjoin clitics to verbs or incorporate of bare nouns or prepositions or applicative morphemes into a verb stem, etc.

So what we want to achieve in this paper is a theory of lexicalization that is sufficiently constrained to explain the pattern of verb placement in (1a, 2a, and 3a), while at the same time allowing for various other types of lexicalization of multiple lexemes.


## 2.  Words and Features

I believe that the first question to ask is, what are these elements that are merged and moved in the syntax (the elements making up what Chomsky calls "the numeration"; I will not be discussing merger and movement of phrases here). Traditionally, we think of them as words, but what are words (lexical items)?

Mark Aronoff in his recent work *Morphology By Itself* makes a number of interesting observations regarding the use of the word *lexical* in generative grammar. The term "lexical" is actually used in two senses, each going back at least to Bloomfield. These two senses are:

(25)    *Lexical* (Aronoff 1992)
    1.  idiosyncratic (i.e. with a certain arbitrary form)
    2.  substantive (i.e. with a certain non-arbitrary meaning)

In its first sense, a lexical item provides an arbitrary sound form to some element of meaning. This yields a sound-meaning pairing which is truly arbitrary in the Saussurian sense. The Lexicon can be seen as the repository of these language specific arbitrary sound forms, including inflectional paradigms etc.

In its second sense, a lexical item is a "chunk of meaning", a bundle of semantic features, which is presumably universal rather than language specific. It is this "chunk of meaning" that the language specific Lexicon provides a sound form for. Aronoff proposes to call lexical items in this second, universal sense *lexemes*. He also proposes to define morphology as a set of functions mapping lexemes into lexical items.

(26)    1.  universal chunks of meaning  → lexemes
                                              |
                                      Morphology
                                              ↓
        2.  arbitrary lexical items    → words

In view of this reallocation of the term "lexical", we can repeat the question of what are the elements in the numeration that are merged and moved in the syntax. And there are reasons to believe that these are actually lexemes rather than words.

One reason for believing this is that various lexemes can apparently be combined in the syntax to create something that is spelled out as a single word. Chomsky (1995) proposes that all transitive verbs have this property. Transitive verbs consist of two stems, one verbal or nominal stem, say *kiss*, and an empty light verb which, when combined with the stem, yields a transitive verb:

(27)     *transitive verbs*

```
                vP
              /    \
        subject      vP
                   /    \
                  v      XP
                       /    \
                      X    object
```

The "little v" in (27) is a lexeme TRANSITIVIZER, which turns a nondescript stem into a transitive verb. Notice that the stem *kiss* on this view might as well be a noun as a verb. Thus, this analysis of transitivity eliminates the need for a morphological N/V conversion in the Lexicon.

The incorporation of X into *v* in (27) is clearly modeled after other incorporation phenomena as studied in Baker (1988) or Hale and Keyser (1993). These incorporation phenomena have all in common that a word is the spell out of a combination of lexemes created in the syntax. The following is an example of incorporation of an applicative morpheme in Dutch:

(28)   a.   De soldaten      schoten    op het huis
            the soldiers     shot       at the house
       b.   De soldaten      be-schoten    het huis
            the soldiers     APPL-shot     the house

       both    "The soldiers shot at the house."

In (28b) *beschoten* is clearly one word, but it incorporates two lexemes, which may also occur separately, as in (28a). The fact that *be* and *op* are not phonetically identical merely illustrates the point that Morphology assigns arbitrary sound forms to non-arbitrary lexemes.

Dutch provides us with some arguments involving inflectional morphology which prove the same point: syntax merges and moves lexemes, which are spelled out only at a later stage in the derivation.
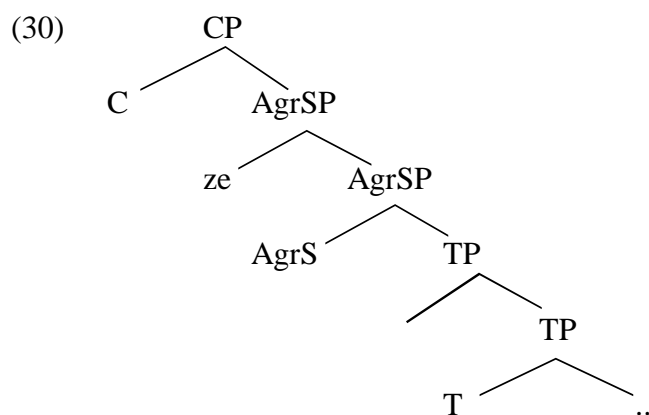
First, consider the phenomenon of inflected complementizers, present in a number of dialects of Dutch:

(29)   a.   ..dat       ze      lacht                            South Hollandic
            that        she     laughs-SG
       b.   ..datte     ze      lache
            that-PL     they    laugh-PL

The subject *ze* in (29a) differs from the subject *ze* in (29b) only in number. The plural features in (29b) trigger agreement not only on the verb, but also on the complementizer.

This has been described in the recent literature as a function of movement of a lower functional head, Agreement, to C, comparable to the movement of Tense to C discussed above:

(30)

```
              CP
            /    \
          C       AgrSP
                 /    \
               ze      AgrSP
                      /    \
                   AgrS     TP
                           /  \
                              TP
                             /  \
                            T    ..
```

As illustrated in (30), we can describe the AgrS-to-C movement as a concomitant effect of the Tense-movement to C.

(AgrS or "subject agreement" is a morpheme mediating between the subject and the verb, in the sense that it provides a local domain in which both the subject and the verb can enter into an agreement relation with each other.)

I will propose a slight modification of this approach to complementizer agreement below. But for the present purposes the relevant point is that the Agr+C combination is created only in the syntax. The particular morphological spell out of C is apparently fed by the syntax.

There is a way of circumventing this dependency of morphology on syntax, namely by arbitrarily throwing various forms of the complementizer at the syntax, which then have to be CHECKED afterwards, i.e. in the syntax, by moving AgrS to C. The problem with this approach is that it is totally unclear why there would be these "various forms of the complementizer" in the first place.

The phenomena of complementizer agreement can only be described if we allow for a "paradigm of complementizers". We may think that there is a parallel with verbs here, which are also organized in paradigms. But the parallel is misleading. While it is easy to maintain that verbs MUST be organized in paradigms, as the relevant lexemes come with certain grammatical features, it is very difficult to maintain the same about complementizers. Complementizers generally do not agree with the subject in the way verbs do, and in fact, it is impossible to repeat the subject-verb agreement configuration in (31a) with the subject and the complementizer (31b):

(31)  a.      Ze       lache
              they     laugh-PL
      b.  *   ..ze      datte        ...      lache
              they     that-PL               laugh-PL

Thus, it appears that complementizer agreement is a reflex of some syntactic process, rather than an inherent feature of the complementizer that wants to be checked.

This point can be strengthened if we look at dialects in which verbal morphology depends on the position of the verb in the syntactic structure. In these so-called double agreement dialects (discussed by Van Haeringen 1958) the complementizer agreement suffix differs from the verbal agreement suffix:

(32)  a.      ..datte      wy (XP)    speult                          East Netherlandic
              that-PL      we         play-PL
      b.  *   ..datte      wy (XP)    speule

The verbal agreement appears on the verb in sentence final position, as in (32), and also on the verb in subject initial main clauses (33a). However, in inversion constructions the verbal agreement is replaced by the complementizer agreement:

(33)  a.   Wy    speult/*speule
           we    play-PL
      b.   Dan   speule/*speult wy
           than  play-PL         we

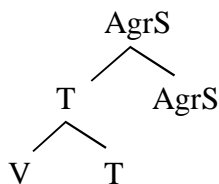The facts can be repeated in the table in (34):

(34)  a.              Wy    speult    (XP)   <speult>
      b.        datte wy    <speult>  (XP)   speult
      c.  Dan   speule wy   <speult>  (XP)   <speult>

The problem is clear. If the verb is generated as *speult*, how can it be turned into *speule* in (34c)? Notice that it will not do to generate the verb in (34c) as *speule*, since the Tense and Agreement features triggering the first displacement require the morphology *speult*.

      This problem disappears if we think of the verb in (32)-(33) as a lexeme, i.e. a bundle of semantic and grammatical features, but without phonological features (these are provided by Morphology after the syntax). If we then think of the displacement of the verb as involving head movement and adjunction, each displacement in (34) will create a new grammatical object:

(35)              V                                                      (=(34a))

(36)              AgrS                                                   (=(34b))
                 /  \
               T     AgrS
              / \
             V   T

(37)                 C                                                   (=(34c))
                   /   \
                AgrS     C
               /   \
             T      AgrS
            / \
           V   T
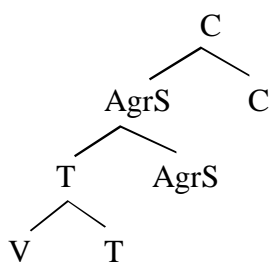
Morphology will then turn these structures into phonetic strings according to the following functions:

(38)  {V}            →   speult
      {AgrS,T,V}     →   speult
      {C,AgrS,T,V}   →   speule

Interestingly, the Lower Bavarian dialect of German presents a slightly different case of double agreement. Here the verb in subject initial main clauses patterns with the verb in inversion constructions (Bayer 1984):

(39)  a.  Mir      fahrma/*fahrn  noch Minga                                    Lower Bavarian
          we       go-PL          to Munich
      b.  ..dasma   mir       noch Minga    fahrn/*fahrma
          that-PL   we        to Munich     go-PL
      c.  Fahrma/*Fahrn    mir      noch Minga
          go-PL            we       to Munich

The syntax will create the same structures as in East Netherlandic (37), but Morphology will specify minimally differing functions:

(40)  {V}            →  fahrn
      {AgrS,T,V}      →  fahrma
      {C,AgrS,T,V}    →  fahrma

In fact, the functions can be written in a more economic way as in (41):

(41)      *East Netherlandic*          *Lower Bavarian*

          +C →   speule              +Agr   →   fahrma
          -C →   speult              -Agr   →   fahrn

The crucial part of this analysis is that it associates a particular morphological form of a verb with a particular syntactic position of that verb, where crucial information is provided by the derivational history of the verb. This is only possible if the verb which is moved around in the syntax is not a word, but a lexeme.

    This is the time to specify more exactly what I think is in a lexeme. A fruitful approach would be to think of a lexeme as a bundle of features. These features include the following:

(42)      *features of a lexeme*

          (i)      semantic features
          (ii)     categorial features (function of (i)?)
          (iii)    inherent grammatical features (e.g. gender)
          (iv)     variable grammatical features (tense, agreement)

What is lacking in (42) are, of course, phonetic features. The crucial assumption is that these are provided by Morphology, in a point in the derivation that follows syntactic operations:

(43)                              set of lexemes
                                        |
          syntax          →     merge & move      →   LF
                                        |
          morphology      →     phonetic string
                                        ↓
                                       PF

A question may arise with regard to the "variable grammatical features" associated with lexemes in (42). Could they not be provided by independent functional heads like Tense and Agreement?

The answer has to be "no". The various displacements are motivated by the circumstance that the lexical items (lexemes) possess inflectional features which must be checked. Thus, the verb moves to the "verb second position" in order to check ITS tense features with the features of the sentence morpheme Tense. The only viable alternative would be to say that the lexeme is a bare stem that NEEDS some tense feature. But this does not seem to be correct, as verbs that do not move to Tense/Agreement at all, such as the verb in embedded clauses in Dutch (2a), repeated as (44), still do have tense and agreement inflection.

(44)       ..dat    Jan    Marie  kust/*kussen/*kus

I conclude, therefore, that the features of tense and agreement (and others) are part of the feature complex making up a lexeme, albeit that the value of the feature is not inherently fixed.

(Chomsky 1995:231 assumes that these are optional features, added as the lexical items enter the numeration. I prefer to think of them as variable features, which are assigned a feature value as they enter the numeration; cf. Zwart 1997:186.)


3.   Feature Movement and Lexicalization.

Now let us return to the pattern of verb placement in Dutch ((1)-(3)). It turns out that the phenomenon of complementizer is extremely important to our understanding of what goes on.

All dialects that show complementizer agreement also show the verb movement pattern in (1)-(3).

(45)       complementizer agreement    →    V-final in embedded clauses

We can even make the stronger observation. Many dialects of Dutch allow verb second in embedded clauses under certain conditions (as has been discussed extensively by Wobbe de Vries):

(46)    Het is zo koud     dat     je kunt het niet warm stoken
        it is so cold        that     you can it not warm get
        "It's so cold that you can't get it warm [in the room]."

Some of these dialects happen to be complementizer agreement dialects. This allows us to pinpoint the relation between complementizer agreement and verb movement: complementizer agreement never shows up in embedded verb movement constructions. The following is an example from Frisian (Van der Meer 1991):

(47)    a.  Heit sei    datst      do     soks net leauwe    moast                    Frisian
            dad said   that-2SG   you    such not believe   must-2SG
            "Dad said that you should not believe such things."
        b.  Heit sei    dat(*st)   do moast  soks net leauwe
            dad said    that-(2SG) you     must-2SG  such not believe
            "[the same]"
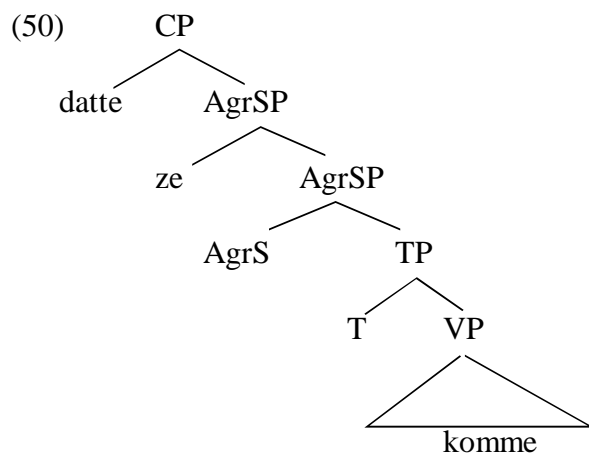
This allows us to add the following to (45):

(48)       verb movement    →    *complementizer agreement

The relation in (45) was already obvious to C.B. van Haeringen in his 1939 article on inflected complementizers. Van Haeringen describes complementizer agreement as an attempt to bridge the gap between the subject and the verb in final position. He calls it "syntactic or morphological prematurity".

Though Van Haeringen may have been right in identifying complementizer agreement as some kind of prolepsis, it is clear that the triggering factor is not linear distance. Complementizer agreement also occurs when the subject and the verb are linearly adjacent:

(49)    ..datte    ze    komme
        that-PL    they    come-PL

But the prolepsis metaphor does make sense if we think of the distance in structural terms. In terms of syntactic structure, the subject *ze* and the verb *komme* in (49) are miles apart:
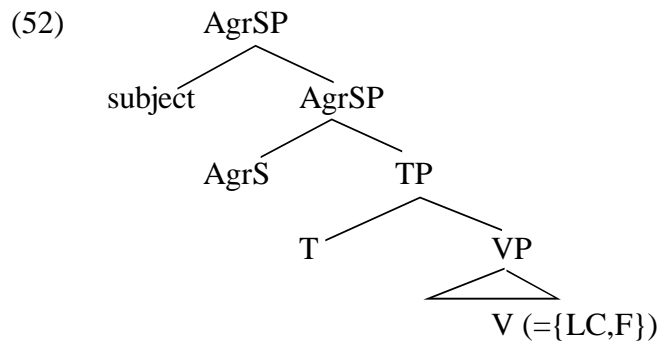
(50)

```
            CP
           /  \
       datte   AgrSP
              /  \
            ze    AgrSP
                 /  \
              AgrS   TP
                    /  \
                   T    VP
                       /  \
                      /    \
                    komme
```

I would like to adopt Van Haeringen's prolepsis proposal and describe the phenomenon of complementizer agreement as follows.

We know that the verb *komme* in (50) is really a lexeme, consisting of bundles of features. For ease of exposition, let us group these features together as in (51):

(51)    Lexeme    (i) lexical/categorical features (semantic features, categorical features) [**LC**]
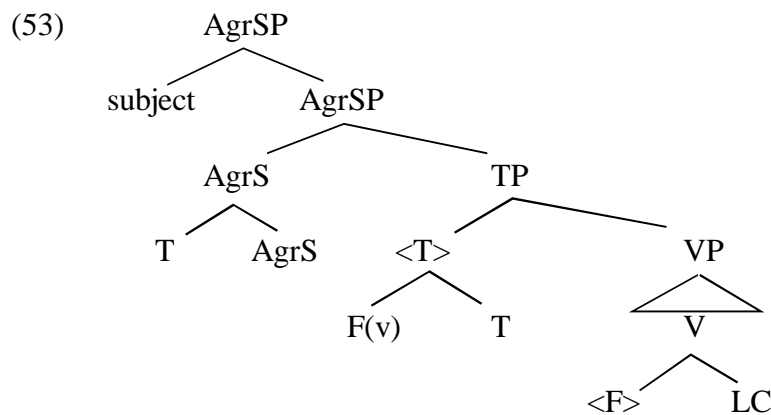                  (ii) formal features (grammatical features) [**F**]

I have mentioned several times that formal features are crucial to our understanding of the displacement property of language (movement). For example, the verb is taken to move to C in inversion constructions because it is hooked up with Tense, and because Tense moves to C. The verb is hooked up with Tense because it checks its own tense features with the features of the sentential morpheme Tense. More generally, all movements are ideally described as movement for feature checking purposes (Chomsky 1993).

For a finite verb, this means that the verb has to at some point in the derivation move and adjoin to the functional nodes AgrS and T, assuming the structure in (52) (ignoring objects):

(52)

```
              AgrSP
             /    \
      subject      AgrSP
                  /    \
              AgrS      TP
                       /  \
                      T    VP
                           /\
                          V (={LC,F})
```

However, if we look at the composition of the lexeme in (51), it appears that only the formal features are involved in the displacement process. The formal features are the only ones that are actually checked in the syntax. We may therefore start from the hypothesis that the formal features are actually the only elements that move.

Let us see where this leads. Suppose we move the F-features of the verb (F(v)) via T to AgrS, leaving the LC-features of the verb (LC(v)) behind:

(53)

```
               AgrSP
              /    \
       subject      AgrSP
                   /    \
               AgrS      TP
              /   \     /   \
             T    AgrS <T>    VP
                      /  \    /\
                   F(v)   T  V
                            /  \
                         <F>    LC
```
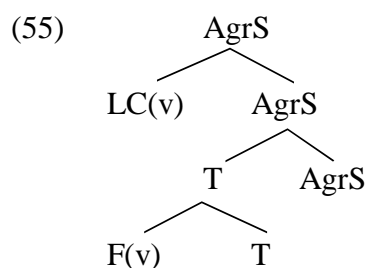
This leads to the following question: how can Morphology interpret the adjunction complex in AgrS? This is a complex without lexical-categorical features. Arguably, there is no form available in the Lexicon that matches the structure represented by AgrS in (53).

To make this more explicit, let us propose that Morphology operates as follows:

(54)    Morphology    1.  selects a paradigm on the basis of LC-features
                      2.  selects a form from the paradigm on the basis of F-features

The first step in (54) is indispensable in order to find a spell-out for a structure. Thus, AgrS in (53) as it stands is not interpretable. It can be saved, however, by moving the LC-features of V as yet. This yields the complex in (55):

(55)

```
            AgrS
           /    \
      LC(v)      AgrS
                /    \
               T      AgrS
              /  \
           F(v)   T
```
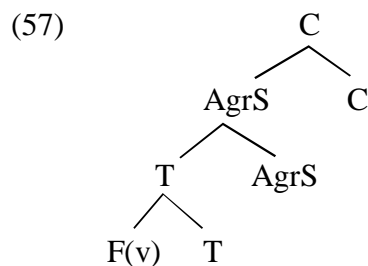
This complex provides Morphology with the required sets of features: it can select a paradigm on the basis of the LC-features, and a form on the basis of the V-features. I propose that this is what happens in ordinary subject initial verb second constructions like (1a):
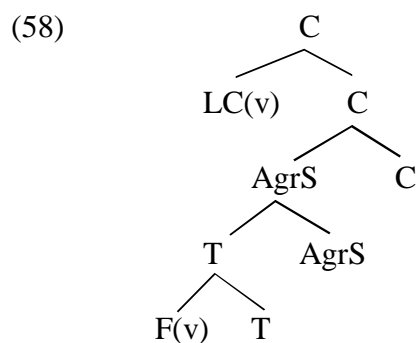
(56)     [$_{AgrSP}$ Jan kust     [$_{TP}$ <kust>     Marie  [$_{VP}$ <kust> ]]]

We now also understand why the verb could not be spelled out in the position of its trace: this would leave the F-features of the verb in AgrS uninterpretable.

   What happens in inversion constructions? More or less the same. In these constructions, one additional level, CP is added. Still assuming that Tense moves to C, we end up with a structure in C as in (57), after F-movement but before LC-movement:

(57)
```
                        C
                      /   \
                 AgrS      C
                /    \
              T      AgrS
            /   \
         F(v)    T
```

This complex is again not interpretable by Morphology, on account of the absence of LC-features. Again, the LC-features of the verb may be moved, creating the structure in (58), which is unproblematic:
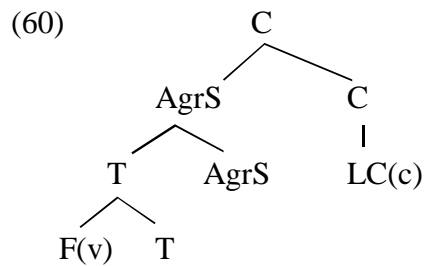
(58)
```
                     C
                   /   \
               LC(v)    C
                      /   \
                 AgrS      C
                /    \
              T      AgrS
            /   \
         F(v)    T
```

This derivation yields inversion constructions of the type in (3a):

(59)   [$_{CP}$ Dan kust [$_{AgrSP}$ Jan  <kust> [$_{TP}$ <kust> Marie  [$_{VP}$  <kust> ]]]]

Again, the verb could not have been spelled out in any other position, as this would have left the F-features of the verb in C uninterpretable.

   Finally, consider what happens in embedded clauses. Again, the F-features of the verb move all the way up to C, as in inversion constructions. But this time, C has lexical content, i.e. it is an independent lexeme with its own LC-features:

(60)

```
                    C
               /         \
           AgrS            C
          /    \           |
        T       AgrS      LC(c)
       /  \
    F(v)    T
```

So C in (60) is a complex that unites the LC-features of the complementizer with the F-features of the verb. I propose that this is exactly what an inflected complementizer is.

Morphology will proceed as follows. Presented with (60), it will first select a paradigm of complementizers on the basis of the LC-features of C. In the standard language this paradigm will consist of just a single form, *dat*. The presence of the F-features of the verb in this case has no effect.

(61)        Morphology    1.  → dat
                          2.  → dat

In complementizer agreement dialects, the second step is not without effect, as Morphology will select a form in accordance with the F-features of the verb:

(62)        Morphology    1.  → {dat, datte}
                          2.  → {datte}

The crucial part is that the F-features of the verb have found a lexical host. Movement of the LC-features of the verb is superfluous, and, by economy, will not take place. This explains the absence of verb movement in embedded clauses:
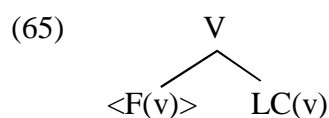
(63)        ..dat    Jan    (*kust)    Marie    kust

Importantly, this explanation does not incur the problems we faced earlier, namely how to exclude adjunction of the verb to the complementizer:

(64)    *    ..kust-dat    Jan    Marie

This is excluded because the form *kust-dat* could only result from moving both the F-features and the LC-features of the verb. The latter movement is excluded by economy. Morphology is perfectly able to interpret the F-features of the verb on C, without forcing additional movement of the LC-features of the verb.

The result is that the verb gets spelled out in its basic position, inside VP. This complex looks as in (65):

(65)            V
              /   \
        <F(v)>     LC(v)

Here the lexeme V is marked as consisting of a copy of the displaced F-features. This accounts for the fact, noted earlier, that the verb in V is not spelled out as a bare stem or an infinitive, but as an inflected verb:

(66)　　　..dat　Jan　　Marie　kust/*kussen/*kus

It is essential, then, that we follow Chomsky (1993) in taking traces of movement to be copies of the moved element. This expresses the generalization that displacement does not *destroy* relations that were previously established via the operation Merge.

The proposed analysis clearly violates the Lexical Integrity Principle. However, this principle is simply inoperative when words come into being only after the syntax.

## References

Aronoff, Mark. 1992. *Morphology by Itself*. MIT Press, Cambridge.

Baker, Mark. 1988. *Incorporation: A Theory of Grammatical Function Changing*. The University of Chicago Press.

Bayer, Josef. 1984. "COMP in Bavarian Syntax." *The Linguistic Review* 3, 209-274.

den Besten, Hans. 1977. On the Interaction of Root Transformations and Lexical Deletive Rules. Ms, MIT/University of Amsterdam.

Chomsky, Noam. 1957. *Syntactic Structures*. Mouton, The Hague.

Chomsky, Noam. 1993. "A Minimalist Program for Linguistic Theory." In Hale & Keyser, eds, 1-52.

Chomsky, Noam. 1995. *The Minimalist Program*. MIT Press, Cambridge.

van Haeringen, Coenraad. 1939. "Congruerende voegwoorden." *Tijdschrift voor Nederlandse Taal- en Letterkunde* 58, 161-176.

van Haeringen, Coenraad. 1958. "Vervoegde voegwoorden in het Oosten." *Driemaandelijksche bladen* 10, 115-124.

Hale, Kenneth and Samuel J. Keyser. 1993. "On Argument Structure and the Lexical Expression of Syntactic Relations." In Hale & Keyser, eds., 53-109.

Hale, Kenneth and Samuel J. Keyser, eds. 1993. *The View from Building 20. Essays in Honor of Sylvain Bromberger*. MIT Press, Cambridge.

van der Meer, Gaert. 1991. "The 'Conjugation' of Subclause Introducers: Frisian *-st*." *NOWELE* 17, 63-84.

de Vries, Wobbe. 1910-1911. *Dysmelie: Opmerkingen over Syntaxis*. Program of the Municipal Gymnasium, Groningen.

Zwart, Jan-Wouter. 1997. *Morphosyntax of Verb Movement: A Minimalist Approach to the Syntax of Dutch*. Kluwer Academic Publishers, Dordrecht.