A Purely Syntactic Account of Displaced Morphology in German

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Abstract

Salzmann (2019) claims that the phenomenon of displaced morphology in German dialects is a strong argument for the post-syntactic model of morphology posited by Distributed Morphology. This paper shows that his generalization about displaced morphology is incorrect and his Distributed Morphology analysis, using a post-syntactic operation of Local Dislocation, fails to capture the facts. A purely syntactic account that uses only Merge, Move, and Agree captures the actual generalization by analogizing the highest non-finite morphology to finite morphology (tense and agreement). Features are checked either through Agree, which is hierarchical, or head movement, which is linear. The highest non-finite morphology in the clause is always checked by head movement, and so it always appears on the last verb of the verb cluster.

1 Introduction

The theory of Distributed Morphology (Halle & Marantz 1993) posits a level of Morphological Structure after the syntax that can permute the output of the syntax in various ways. The assumption behind this model is that there are mismatches between syntax and morphology. The proposed post-syntactic permutations are meant to account for these mismatches. For the most part, practitioners of Distributed Morphology just assume that this is how the grammar works, and analyze language data using the tools afforded by the model. Few give actual arguments that such a conception is *necessary*. Consider an alternative model, one where there is only the syntax, and all morphology is assembled by the syntax, using only mechanisms necessary for phrasal syntax. This model is clearly simpler and uses much less theoretical machinery. Standard metrics of theory comparison should therefore prefer it, and dictate that it should be pursued as the default until it is proven to be unworkable.

In this respect, papers like Salzmann (2019) are important and significant. This is one of the few works to explicitly argue that some natural language phenomenon *requires* the Distributed Morphology conception of grammar and the post-syntactic mechanisms that it posits. If this argument were correct, it would definitively show that what should be the default view of grammar, where there is only the syntax, is insufficient, and we need a post-syntactic level with extra-syntactic mechanisms.

In this paper, I re-examine the data analyzed by Salzmann (2019), and show that his empirical generalizations are incorrect. The Distributed Morphology analysis that he proposes does not accurately capture the data. I propose an alternative analysis, one which uses only the syntactic mechanisms of Merge, Move, and Agree, all of which take place in the syntax. There is no need for a post-syntactic level of grammar or any extra-syntactic mechanisms. It follows that the argument in favor of the Distributed Morphology conception of grammar does not go through, and there is no barrier to maintaining the default view of grammar where there is only the syntax.

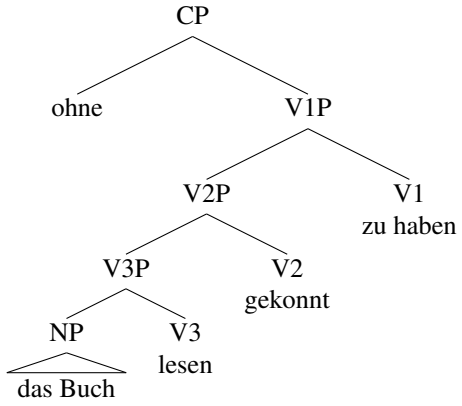
I start by describing the set of data at issue, involving displaced morphology in German (section 2). This section also describes the post-syntactic analysis proposed by Salzmann (2019). Section 3 points out problems for Salzmann's generalization and analysis, and states the actual generalization. Section 4 lays out the proposed purely syntactic analysis and shows how it accounts for all of the data. Section 5 discusses a few further issues related to this topic. The conclusion (section 6) discusses further issues relating to the default model of grammar that has only the syntax.

2 The Data: Displaced Morphology in German

The data analyzed by Salzmann (2019) is displaced morphology in German verb clusters. German dialects are verb-final, and under many circumstances verbs can stack up at the end of the clause. These are called verb clusters. If they appear in their hierarchical order, ascending to the right as in (2),[1] there is no displacement. Each verb bears the morphology selected by the next higher verb. Consider example (1). This clause has three verbs. The complementizer *ohne*, 'without', assigns the *zu* infinitive to the highest verb, and this is the form of the final (highest) verb. That verb is *haben*, which assigns the participle form. The second verb, *können*, appears in that form. It selects the bare infinitive, so the third verb, *lesen*, appears in that form:

(1) ohne das Buch lesen$_3$ gekonnt$_2$ zu haben$_1$
without the book read.Inf can.Ptcp to have.Inf
'without having been able to read the book' (Standard German, (Salzmann 2019: (9a)))

(2)



[1] Salzmann (2019) confusingly calls such orders "descending." The label appears to be based on the numbers assigned to the verbs, for instance in (1) the order is 3–2–1. (Following Salzmann 2019, I subscript the verbs in the examples with their hierarchical number.) These numbers descend, 3–2–1. Translated into a syntactic hierarchy, however, the cluster ascends: As one goes to the right, the verbs get higher, as shown in (2). I will try to avoid the terms "ascending" and "descending" in order to avoid confusion.

If the order of the verbs in the cluster is different, however, the assigned morphology can appear to be "displaced," appearing on a verb different from the one immediately selected by the assigning verb (or complementizer). In the following examples, for instance, the final verb is not the hierarchically highest, but it takes the *zu* infinitive form selected by the complementizer:

(3) a. ohne das Buch haben$_1$ lesen$_3$ zu können$_2$
without the book have.Inf read.Inf to can.Inf
'without having been able to read the book' (Standard German, Salzmann 2019: (9b))

b. ohne das Buch lesen$_3$ haben$_1$ zu können$_2$
without the book read.Inf have.Inf to can.Inf
'without having been able to read the book' (Standard German, Salzmann 2019: (9c))

The participle form selected by V1, *haben*, meanwhile, disappears, and all the other verbs are in the bare infinitive form (assumed to be a default).

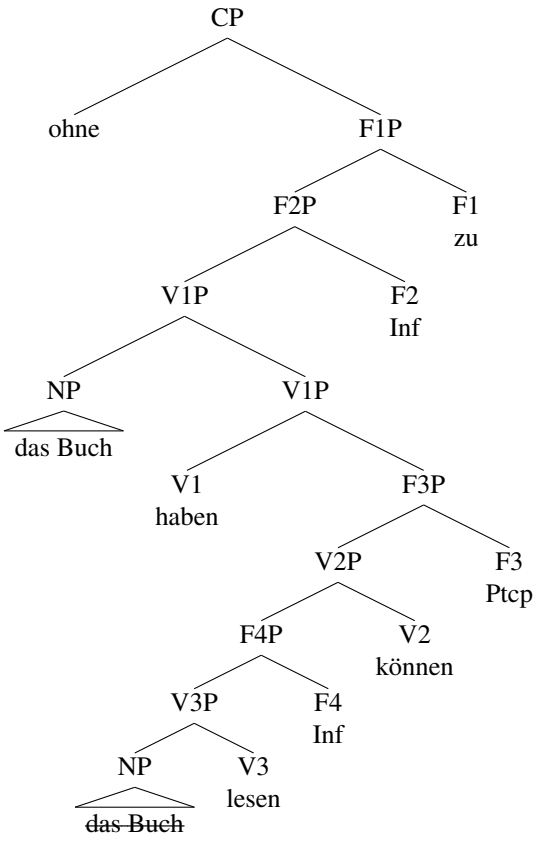
Salzmann (2019) claims that the generalization is that the morphology selected by a particular selector always appears on the *last* verb in the complement of the selector. So, in the above examples, the complementizer *ohne* selects the *zu* infinitive, and this always appears on the last verb of the verb cluster, since its complement includes all of the verb cluster. In another case, V1 might be the selector, and then the morphology can be displaced within its complement:

(4) ob in diu edele vrouwen het(e)$_1$ lazen$_2$ daz getan$_3$
if him the noble lady have.Sbjv.3Sg let.Inf that do.Ptcp
'if the noble lady had let him do that' (Middle High German, Salzmann 2019: (4))

In (4), V1 is the auxiliary 'have', which selects the participle form. This form does not appear on V2, though, it appears instead on V3, which is the last verb in the complement of V1.

Salzmann (2019) proposes that the mechanism for the placement of non-finite morphology in German is Local Dislocation (Embick & Noyer 2001), which is an operation on linear strings in the post-syntactic component of grammar hypothesized by Distributed Morphology. Non-finite morphology always heads its own functional projections, labeled "F." In the post-syntactic component, Local Dislocation rebrackets F with what is adjacent to it on its left, making them a complex head. For (3a), the syntax would produce the following structure. Salzmann assumes that reordering in verb clusters is largely just free ordering of a verb with its complement, plus scrambling of arguments. Here *das Buch* scrambles to a higher position, while V1 *haben* takes its complement to its right rather than to its left:

(5)



Ohne requires two functional heads, one *zu* and the other the infinitive form (F1 and F2). V1 *haben* requires the Ptcp form (F3). V2 requires the infinitive form (F4). In the post-syntax, F4 undergoes string-vacuous Local Dislocation with what is adjacent to it on its left, putting Inf morphology on V3 (realized as *lesen*). F3, F2, and F1 will all undergo Local Dislocation with the V to their left, which is V2, *können*. In this case, there is a conflict between Ptcp morphology and Inf morphology, so the Ptcp morphology deletes. This results in F2 being spelled out on V2 (producing *können*), while F1 inverts with V2, since F1 *zu* needs to immediately precede a V. This produces *zu können*. V1 is not associated with any F, and so appears in the default infinitive form.

Thus, Salzmann's Local Dislocation appears to correctly place the morphology where it appears. The same mechanism results in both displaced morphology, as in (3a) above, and in well-behaved morphology, as in (1). In that case, all the Fs would immediately follow the correct verb and would correctly be placed on the verb to their left.

This proposal appears to work very well, and to the extent that it is successful, it supports the existence of post-syntactic operations like Local Dislocation. Salzmann (2019) also argues against alternatives, including some purely syntactic ones, and concludes that only a post-syntactic account can succeed.

3 Problems, and the Actual Generalization

There are several problems that indicate that Salzmann (2019) does not have the correct generalization, nor the correct account of the facts. I go through these problems here and state a new generalization.

3.1 Problem 1: Intermediate Verbs

Consider first example (6), where the complement of a noun like 'joy' is assigned the *z* infinitive in Swiss German:

(6) d Froid, di ghööre$_2$/ghöört$_2$ singe$_3$ z haa$_1$
the joy you hear.Inf/hear.Ptcp sing.Inf to have.Inf
'the joy to have heard you sing' (Swiss German, Salzmann 2019: (14d))

Salzmann's account correctly locates *z* and the infinitive morphology on the last verb of the cluster, here 'have'. However, 'have' itself assigns participle morphology. The last verb in the complement of 'have' is 'sing'. According to Salzmann's generalization and his analysis, this verb should be assigned participle morphology. It is not, however. Instead, V2 (the one that 'have' takes as its complement) is the verb that bears participle morphology (optionally; it can also appear in the infinitive). In Salzmann's account, all morphology consists of functional heads that are head-final in the phrase that is the complement of the assigning element. In the case of (6), we would have the following structure:

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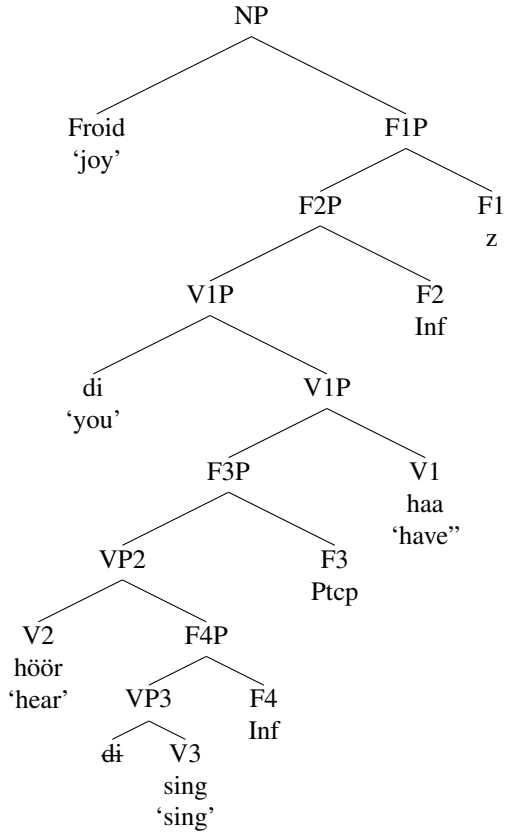


The N requires two Fs, *z* and the infinitive morphology (F1 and F2). V1 requires an F3 for Ptcp morphology. V2 requires infinitive morphology (F4). Local Dislocation correctly locates F2 and F1 on 'have', and F4 on 'sing'. However, it incorrectly locates F3 on 'sing' as well. There should be a conflict between Ptcp and Inf which would need to be resolved, in favor of either Ptcp or Inf. What should not happen in Salzmann's analysis is what actually happens, which is that Ptcp goes on V2 'hear'. V2 should not be associated with any F, and should only be the default infinitive.

This problem is quite general. Here is another example, also from Swiss German. In this case, the complement of an adjective like 'happy' assigns the *z* infinitive. V1, 'have', assigns participle morphology, while V2, 'begin', assigns the infinitive. In this case, V1 is not the final verb, so the *z* infinitive goes on the verb that is final, which in this case is V3:

(8) Wieder en grund meh zum glüklich drüber sii, niä agfange$_2$ ha$_1$ z
again a reason more to happy about.it be.Inf never begin.Ptcp have.Inf to
rauche$_3$!
smoke.Inf
'Another reason to be happy to have never started smoking!' (Swiss German, Salzmann 2019: 14e

Salzmann's analysis correctly places *z* and the infinitive morphology here. However, the last verb in the complement of 'have' is not 'begin', it is is 'smoke'. Salzmann's analysis would incorrectly locate the Ptcp morphology on 'smoke', along with the Inf morphology from 'begin'. This conflict would have to be resolved, but what should not happen is that V2, 'begin', appears with the Ptcp morphology.

Note that the Ptcp morphology assigned by 'have' as V1 *can* be displaced to V3 or V4, but only if this morphology is the highest non-finite morphology in the clause. Consider the example in (9), repeated from (4) above:

(9) ob in diu edele vrouwen het(e)$_1$ lazen$_2$ daz getan$_3$
if him the noble lady have.Sbjv.3Sg let.Inf that do.Ptcp
'if the noble lady had let him do that' (Middle High German, Salzmann 2019: (4))

Here V1 is in a finite (subjunctive) form. The highest non-finite morphology assigned in the clause is therefore the Ptcp morphology that it assigns. In this example, that morphology ends up on the last verb in the complement of 'have', which in this case is V3, 'do'.

3.2 Problem 2: Displaced Morphology is Only Ever on the Final V

The examples above also illustrate the second problem. Salzmann's generalization is that non-finite morphology appears on the last verb in the complement of the selector. His Local Dislocation analysis is designed to have this result. However, the only place we ever see displaced morphology show up is on the *last* verb of the cluster. Morphology is never displaced to an intermediate verb. In none of the examples in Salzmann (2019) does morphology show up on the wrong verb if that verb is not final. We do see non-final verbs showing up in default forms, typically the infinitive (or a form called the "supine" in some dialects), but never in incorrect participle or *z(u)* infinitive forms.

3.3 The Correct Generalization

From the above, we can see that the correct generalization is the following:

(10) The highest non-finite form of morphology assigned in a cluster may be displaced to the *final* verb in the cluster. Non-final verbs bear either the morphology assigned by the head that selects them or default morphology.

In (6), repeated as (11), the highest non-finite form of morphology is the *z* infinitive, which appears on the final verb of the cluster. The Ptcp morphology is not the highest non-finite morphology, and so it is not displaced. It appears (optionally) on the verb selected by the verb that assigns Ptcp.

(11) d Froid, di ghööre$_2$/ghöört$_2$ singe$_3$ z haa$_1$
the joy you hear.Inf/hear.Ptcp sing.Inf to have.Inf
'the joy to have heard you sing' (Swiss German, Salzmann 2019: (14d))

In (8), repeated as (12), the highest non-finite morphology assigned in the cluster is again the *z* infinitive. It is displaced to the final verb of the cluster. V1, 'have', assigns Ptcp morphology. It is not the highest non-finite morphology assigned in the cluster, and so it is not displaced. It appears on the verb that 'have' takes as its complement.

(12) Wieder en grund meh zum glüklich drüber sii, niä agfange$_2$ ha$_1$ z
again a reason more to happy about.it be.Inf never begin.Ptcp have.Inf to
rauche$_3$!
smoke.Inf
'Another reason to be happy to have never started smoking!' (Swiss German, Salzmann 2019: 14e

Finite morphology is never displaced. It is always on the highest verb of the clause. Salzmann (2019) accounts for this by saying that the morphology assigned by T gets on the verb not by Local Dislocation, but by Lowering (Embick & Noyer 2001). Lowering is a hierarchical rather than a linear process. It lowers a head onto the head of its complement. This will always put the finite morphology on the hierarchically highest verb in the clause.

Notice the similarity between finite morphology and the highest non-finite morphology. Finite morphology is always on the *highest* verb. This is quite regular and is typically accounted for by locating the morphology in T in some way. It gets on the highest verb in T's complement either by the highest verb moving to T, or in some other local way (Agree, or Lowering). In the case of the highest non-finite morphology, it also seems to be assigned uniformly, but in a linear fashion, not a hierarchical one: to the *last* verb in the cluster. I suggest that the analysis of non-finite morphology should parallel that of finite morphology, but with linear order rather than hierarchy being relevant.

4 The Proposed Analysis

As just stated, finite morphology always being on the hierarchically highest verb is typically accounted for by associating that morphology with a head T. T takes the sequence of verbs as its complement. The morphology gets on the highest verb through some kind of syntactic relation between T and a verb, and this relation is constrained by locality to being with the highest verb in the complement of T.

4.1 Proposal: Locality of Agree versus Shortest Move

If we want to analogize non-finite morphology to finite, one way to do it would be to associate the highest form of non-finite morphology with a head analogous to T, call it NF for "non-finite." The

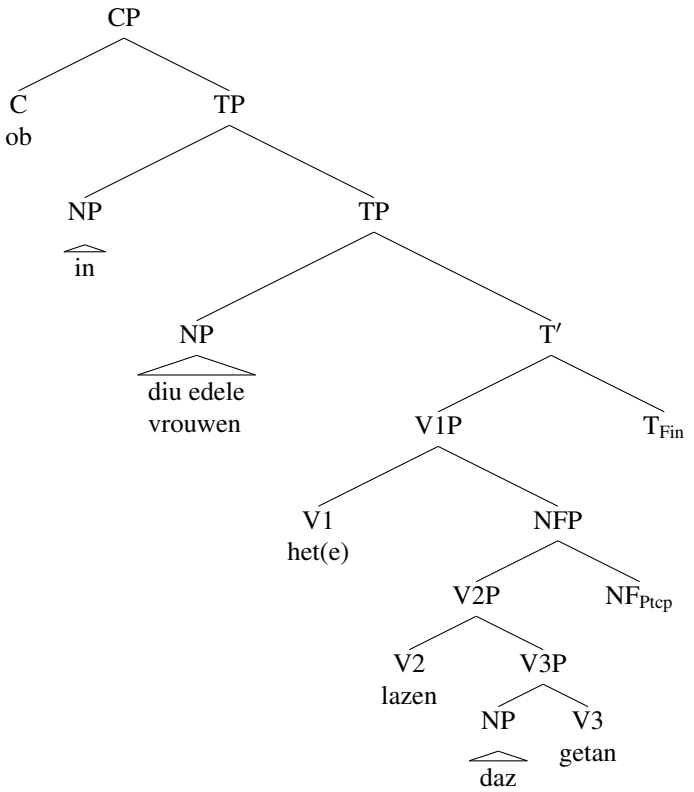
morphology associated with this head will appear on a verb through a syntactic relation between that verb and NF. Which verb will be constrained by locality, just as with T. However, in the case of NF, locality will be linear rather than hierarchical. Since this only happens with the *highest* non-finite form of morphology, lower forms of non-finite morphology must not be associated with designated syntactic heads, contra Salzmann (2019).

I will work out this proposal with respect to the example from (4), repeated as (13):

(13) ob in diu edele vrouwen het(e)$_1$ lazen$_2$ daz getan$_3$
if him the noble lady have.Sbjv.3Sg let.Inf that do.Ptcp
'if the noble lady had let him do that' (Middle High German, Salzmann 2019: (4))

I assume that *ob* is the complementizer and the third person pronoun has been scrambled to a high position, let us say adjoined to TP. The subject is also in a relatively high position, let us say Spec-TP (the exact position of non-verbal constituents is not important). Following Salzmann (2019), I will assume that most verb cluster reordering is due to flexible linearization of verbs with their VP complements. Here V1 and V2 take their complements to the right:

(14)



What is important here is that T heads the complement of C and is responsible for the finite morphology. It selects a verb. Whatever verb is complement of T then selects another head, NF. This head is responsible for the highest non-finite morphology. The basic idea is that there are two functional domains in the clause: One is headed by T and is associated with finiteness, and the other is headed by NF and encodes non-finiteness. (Pushing the analogy further, the finite domain is actually encoded by two heads, C and T; the non-finite domain is similarly encoded in two heads, V1 and NF.)

T will enter into a syntactic relation with the hierarchically closest verb in its complement, which is always V1. NF will enter into a syntactic relation with the linearly closest verb in its complement. This will be whichever verb happens to be last in the cluster.

Note that I am assuming that the relation between the last verb and NF is a *syntactic* relation. Since it depends on linear order, this requires that linear order be specified from the beginning of the derivation, at Merge. Linear order is therefore something that is present in the syntax and can be referred to by the syntax, as argued in Bruening (2014).

Now the question is why T and NF differ in their locality restrictions. I suggest that the answer is that they differ in the syntactic relations they have with a verb. The syntactic relation between T and the highest verb is Agree. This is also the relation involved in all other instances of morphological selection: each verb Agrees with the next higher one up. The locality condition on Agree, I propose (following all other literature) is hierarchical in nature:

(15) Locality of Agree: X can Agree with Y only if

a. X c-commands Y and

b. There is no Z such that X c-commands Z and Z c-commands Y and Z could potentially Agree with X.

One thing to note is that I view Agree as symmetric: It is not "downward" or "upwards" (see Wurmbrand 2012, Zeijlstra 2012, Bjorkman & Zeijlstra 2019 vs Preminger 2013, 2014), rather, it is a symmetric relation between two heads. As I will explain in section 4.2, all feature values are specified from the beginning, and this Agree relation checks that they match (as in Chomsky 1993). This checking is symmetric.

T matches features with the highest verb by Agree, then. NF must be different. I propose that the syntactic relation that NF has with the closest verb is that of movement, specifically head movement. I also hypothesize, contra all previous literature, that the locality restriction on movement, namely, Shortest Move (Chomsky 1993, Richards 1997, among many others), is stated in linear terms:

(16) Shortest Move
X can move to Y only if Y c-commands X and there is no Z such that Z intervenes linearly between X and Y and Z could potentially move to Y.

In the tree in (14), V1 cannot move to NF because NF does not c-command it. V2 cannot move to NF because there is another verb, V3, which intervenes linearly between it and NF and could potentially move to NF. Therefore only V3 can move to NF.

We now have the rough outlines of the proposal: The highest verb Agrees with T and so is finite. Below the highest verb is another domain headed by NF. The closest verb in that domain moves to NF. Since closest for movement is stated in linear terms and NF is always head-final, it will always be the *last* verb in the cluster that moves to NF. All other morphology is checked via Agree, so it will be hierarchical, in the same way as the highest verb Agrees with T. This will correctly make only the *highest* non-finite morphology ever be displaced, while all other morphology will be assigned to the hierarchically highest verb in the complement of the selector.

One thing to note is that movement of the highest verb to C in verb-second clauses in German will always require that V1 be linearized to the left of its complement, given this formulation of Shortest Move (if there is more than one verb). Since German allows this, this is not a problem. It

must then be ensured that V1 is the one that is linearized to the left and moves to C, rather than some lower verb. This can be ensured, because verb-second C is also associated with finiteness. Only a *finite* verb can move to C. I assume that this is because C Agrees with T and checks finiteness values with it. T Agrees with V1, because Agree is stated purely hierarchically. The end result is that only V1 could ever move to C; any other verb moving to C would result in a feature clash. I will return to the issue of head movement more generally, and verb second in particular, in section 4.9.

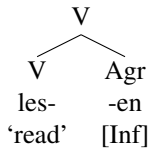
4.2 Morphology

I assume that there is no component of grammar other than the syntax for putting complex forms together (see Bruening 2018). That is, there is no component of morphology. All morphology is assembled using the syntax, and only the operations that the syntax needs anyway. These are Merge, Move, and Agree. There is no post-syntactic level. Phonological features also cannot be inserted late, as in Distributed Morphology, because that would violate the Strict Cycle Condition. It follows that all phonological information must be present in the heads that are first merged into the syntax, along with syntactic and morphological information. Note that having phonological features present in the syntax does not predict that the syntax would refer to them; the syntax routinely ignores most information that is accessible to it. See Bruening (2017: section 2.2).

Complex forms are put together in the same way that syntactic phrases are: by Merge and by Move (and Move is just Merge applying to elements that have already been merged into the workspace). A head can be merged with another head to form a complex head. A head can also Move to another head and Merge with it to form a complex head. These are the two mechanisms for forming complex heads (they are really the same mechanism).

I assume that initial Merge is driven by selection. For instance, in German, no verb root ever appears without another morpheme, typically a suffix. I therefore assume that all verbs select an Agr morpheme. Whenever a verb is merged into the syntax, an Agr morpheme has to be merged with it to satisfy its selectional requirements:

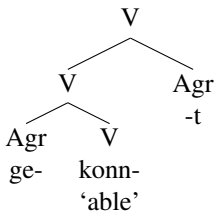
(17)



There is a relatively small stock of Agr morphemes, including the infinitive, the participle, and the finite forms. I assume that any of them can be freely chosen and merged with the V when it is merged in the syntax. However, features have to be checked in the syntax, so choosing the wrong form will result in a failure of feature checking and the derivation will crash. (I am essentially adopting the checking theory of Chomsky 1993, except that I assemble complex forms in the syntax rather than pre-syntactically.)

One thing to note is that the participle form is often bi-morphemic. It consists of a prefix *ge-* and a suffix. I assume that this is two Agr heads which typically go together. So one option for satisfying the selectional requirement of V is to merge *two* Agr heads with the V:

(18)



We can assume that merging Agr *ge-* triggers merger of another Agr (that is, Agr *ge-* selects another Agr).

As just mentioned, features need to be checked in order to license the appropriate forms. I assume that checking can take place in one of two ways: Either by Agree, or by head movement. Individual heads specify which they use. The default is Agree in German. Only non-finite functional heads (non-finite T and NF) check features using head movement.

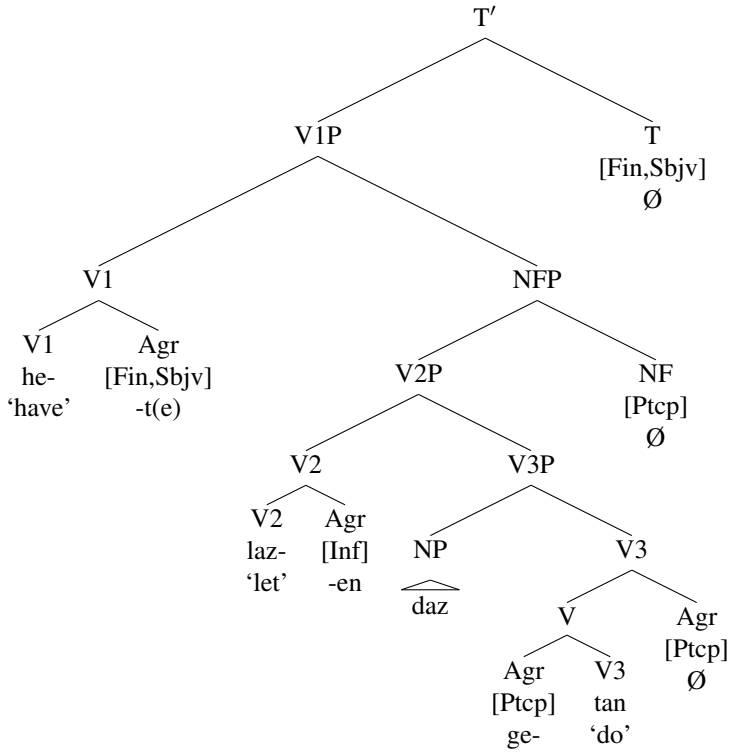
So, each verb has features in an Agr morpheme adjoined to it that it needs to check against a higher head (as in the account of verbal morphology in Wurmbrand 2012, except that in my account, the features start our valued and are checked). Each verb is also capable of checking the features of a lower head, as are T and NF. Verbs do not need to do this, but T and NF do need to check their own features against those of a lower verb (but see below for dialectal variation in this respect).

4.3 Accounting for Displaced Morphology

With this in place, let us return to an example of displaced morphology. The part of the tree in (14) from T downward is spelled out more fully as in (20):

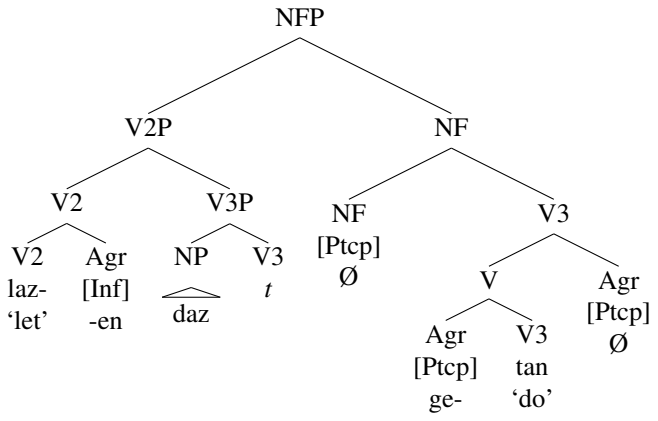
(19) ob in diu edele vrouwen het(e)$_1$ lazen$_2$ daz getan$_3$
if him the noble lady have.Sbjv.3Sg let.Inf that do.Ptcp
‘if the noble lady had let him do that’ (Middle High German, Salzmann 2019: (4))

(20)



I assume here that the derivation is built from the bottom up in accordance with the Strict Cycle Condition. Once V2 is built, V3 Agrees with it. In this case, V3 does not have the right features to check against V2. The Agr morphemes on V3 are the participle, but V2 checks the infinitive. Feature checking fails, leaving the Agr morphemes on V3 unchecked. Then NF is merged. NF requires head movement, and it checks features by head movement. Given Shortest Move (16), only V3 can move to NF. It does, forming a complex head (I show it adjoined on the right, but since NF is null, it could be adjoined on the left instead):

(21)



NF checks the features of the Agr morphemes adjoined to V3. They match the [Ptcp] specification of NF, and so the features of V3 and NF are checked.

Moving on in the derivation, at the point shown in (21) (or before head movement took place, it does not matter), V2 attempts to check its features. NF is the only head against which it could check its features, given the locality condition on Agree in (15). However, NF is not an agreeing head. It only checks features by head movement. Agree therefore fails, leaving the features of

V2 unchecked. I assume that this would leave all other values of Agr unlicensed, which would cause the derivation to crash, but the default [Inf] version of Agr is a default and does not need its features checked. It will still attempt to enter into an Agree relation and check its features if it can (crashing if there is a conflict), but if Agree fails it is still licensed. This is why V2 is in the default infinitive form. No other version of Agr could have its features checked.

V1 then merges, and an Agr is merged with it. Then T is merged. V1 Agrees with T. If Agr is [Fin] and [Sbjv], checking is successful. (There is also agreement with the subject, which I will not spend time on in this paper. I assume that T Agrees with the subject and therefore has its features as well, which must be checked against the highest verb along with features like [Fin] and [Sbjv].) The features of Agr on V1 are checked, as are the features of T. The derivation will move on to complete the CP. All of the morphology has been merged and checked, and the derivation converges.

As can be seen, the proposed analysis correctly places the highest nonfinite morphology on the last verb of the verb cluster, while the other verbs either take the forms they would be expected to based on their selector, or a default infinitive form.

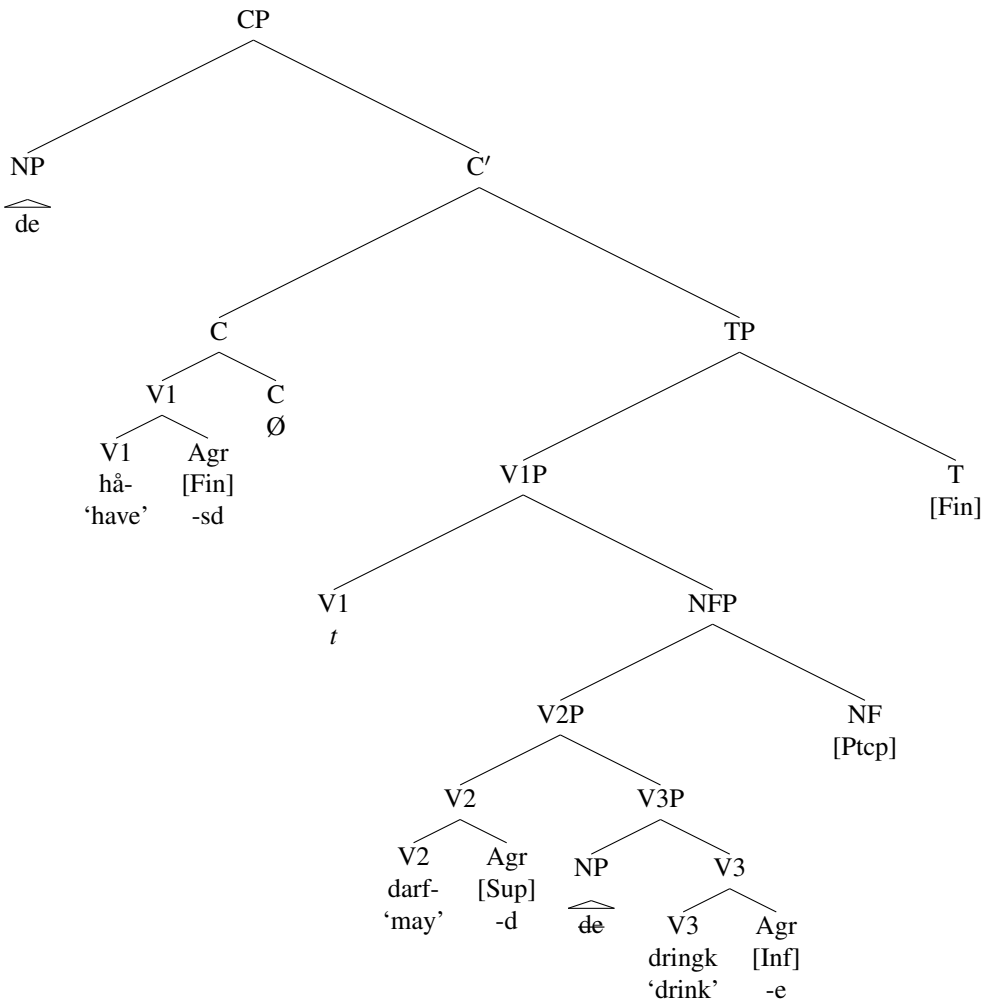
4.4 Infinitive Instead of Participle

As stated above, any value of Agr can be adjoined to any verb, subject to feature checking in the syntax. We could in principle have adjoined a different version of Agr to V3 in the derivation above. In particular, we could have adjoined the infinitive Agr that V2 checks, and it would have been checked through Agree with V2. I suggest that this is exactly what happens in the following example, where V1 is an auxiliary that requires the participle, but the final verb appears in the infinitive instead, and V2 is in a default form (the "supine"):

(22) de håsd$_1$ darfd$_2$ dringke$_3$
you have.2Sg may.Sup drink.Inf
'You were allowed to drink.' (Oberschwöditz, Salzmann 2019: (58))

This would have the following structure in the current analysis (this clause appears to be a verb-second clause):

(23)



Starting from the bottom, once V2 is merged, V3 Agrees with it. In this case, V2 as a modal checks the infinitive. This checks the features on V3. V2 attempts to check its features by Agree with NF, but NF is not an Agreeing head, so feature checking fails. The only form of Agr that is licensed is the default, which in this dialect is the supine. NF then requires head movement. V3 is the closest verb to it, so V3 moves and adjoins to NF. This would normally check features, but in this case the features do not match: NF checks [Ptcp], but V3 has the [Inf] Agr. Feature checking fails. Since this is grammatical, it appears that NF does not need to check its features in this dialect, unlike T.

More generally, notice that in this situation there is a conflict on V3: It Agrees with V2, but undergoes head movement to NF. These two heads check different features. The result is a conflict. It appears that different dialects resolve this conflict differently. In Middle High German in (21) above, the conflict is resolved in favor of realizing [Ptcp]. I suggest that this is because, in this dialect, NF needs its own features checked. The verbs do not; V2 does not need to check the features that would enter into the Agree relation with V3. It *can* check features with a lower verb, but it does not need to. That is, verbs have two sets of features, the ones on Agr that need to be checked, and their own inherent features that are capable of checking Agr features on a lower verb, but do not need to be checked by doing so. In some dialects, NF is like T rather than a verb and does need its features checked. The conflict between V2 and NF in these dialects is therefore

resolved in favor of NF. In Oberschwöditz in (23), in contrast, NF is like a verb and does not need to check its own features. The conflict is therefore resolved in favor of Agree with V2.

Note that in this dialect the infinitive morphology is not the default, the supine is. The infinitive Agr on V3 must therefore be checked against V2, it could not be a default. This is consistent with the current analysis, which always has an Agree relation between each verb and the next higher head, in addition to head movement.

Note also that other choices of morphology would all fail. The features of V3 must be checked, and they must be checked either by Agree with V2, or by head movement to NF. If neither of those would check its features, the result would be the derivation crashing (or possibly a default infinitive/supine; see section 5.2).

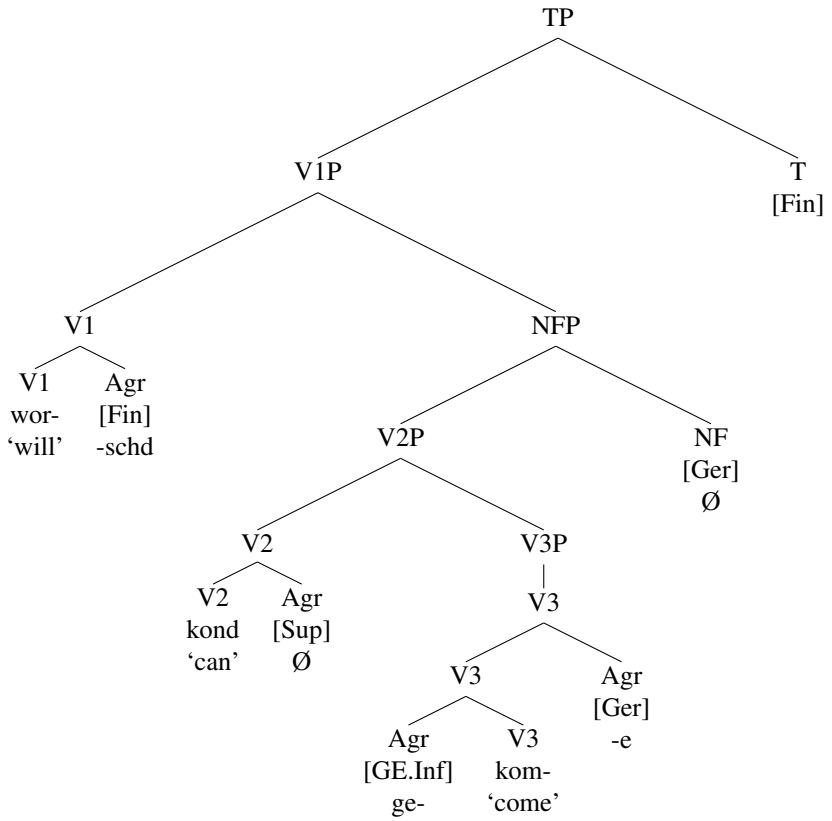
4.5 Mixed Exponence

Some German dialects have additional non-finite morphological forms besides the participle and the infinitive. Steinbach-Hallenberg has a *ge* infinitive (with the prefix *ge-*) and a gerund. In one particularly interesting case, V1 selects the gerund while V2 selects the *ge* infinitive. V3 is the last verb of the cluster and has the combination, with the *ge* prefix of the *ge* infinitive but the suffix of the gerund:

(24) öb-sd=e wörschd$_1$ könd$_2$ ge-kom-e$_3$
if-2Sg=you will.2Sg can.Sup GE-come-Ger
'whether you will be able to come' (Steinbach-Hallenberg, Salzmann 2019: (79))

Since *ge*+gerund is not a form that exists outside of this context, Salzmann (2019: 35) says this is "one of the strongest arguments for a post-syntactic perspective." However, the current—purely syntactic—theory predicts the existence of such forms. The structure in the current analysis would be the following:

(25)



Starting from the bottom, as soon as V2 is merged, V3 Agrees with it. V2 checks the *ge* infinitive. I assume that this checks the features of the Agr prefix, but fails to check the features of the Agr suffix, which is the gerund. So the features of V3 are partially checked. Next, once NF is merged, V2 attempts to Agree with it, but fails. The only Agr that is allowed on V2 is therefore the default, which in this dialect is the supine. NF then requires head movement. The closest head to NF is V3, so V3 moves and forms a complex head with NF. This checks the features of NF and the features of the Agr suffix on V3, which is the gerund. The features of the Agr prefix have already been checked. All of the features of V3 have therefore been checked.

Once finite T merges, V1 Agrees with it. This checks the features of V1 and those of T. All of the features are successfully checked, and the derivation converges. This is the only context where it would: The mixed morphology has to be checked by two different heads, one checking the *ge* infinitive and the other checking the gerund. No other context in the language would check this particular combination.

Consider now some alternative choices of Agr morphemes for V3. Just the gerund by itself would have converged, as well. Agree with V2 would have failed, but then the features of the gerund would have been checked once V3 moved to NF, as in some of the examples gone through above. I assume that this form would be grammatical. If it is not used in the dialect, this may be because of a desire to maximize morphological exponence. If the grammar produces two forms as equally grammatical, but one realizes more features, then that one might be preferred.

If V3 had been the infinitive, with *ge-* or not, checking would have failed. NF would not have had its features checked, and it appears that this dialect is one of the ones where NF needs its features checked. Any other value of Agr on V3 would have failed for the same reason. The current analysis requires that V3 have *at least* the morphology required by NF, in this case the

gerund. If it can have additional morphology as well, this may or may not be allowed, depending on the particulars of the language.

Another example presented by Salzmann (2019) also seems to have this character, although this is not how he describes it. In the following example, V1 is 'have' and presumably selects the participle. I assume that the participle has the *ge* prefix in this dialect. V2 then selects the *ge* infinitive, which also has the *ge* prefix (but the infinitive ending). V3 I assume selects the bare infinitive. The last verb in the cluster seems to be showing up in the *ge* infinitive, although this is not the *highest* non-finite morphology. That would be the participle.

(26) iç hdåu$_1$=s-nʌ los$_3$ khun$_2$ gə-max$_4$
I have.1Sg=it=him let.Inf can.Inf GE-do.Inf
'I have been able to let him do it.' (Steinach, (Salzmann 2019: (21)))

I suggest this is also a case of mixed exponence. V4 first Agrees with V3, which checks the infinitive suffixal Agr. The *ge* prefix is left unchecked. V3 Agrees with V2; this would check the *ge* infinitive, but the bare infinitive is also allowed, as a default. (It is possible that permutations of word order in verb clusters make the default more likely and more acceptable.) V2 attempts to Agree with NF, but cannot; only the default bare infinitive is allowed. As the last verb, V4 then moves to NF, which has [Ptcp] features from V1. This checks the participle prefixal Agr. All the features of V4 are now checked, as are the features of NF. V4 bears mixed morphology, although in this case the resulting form is identical to an existing form, the *ge* infinitive. Finally, V1 Agrees with finite T and moves to C.

To summarize this subsection, cases of mixed exponence are expected in the current—purely syntactic—analysis. Since these case are amenable to a purely syntactic analysis, they are not, as Salzmann claims, a strong argument for post-syntactic morphology.

4.6 Nonfinite T

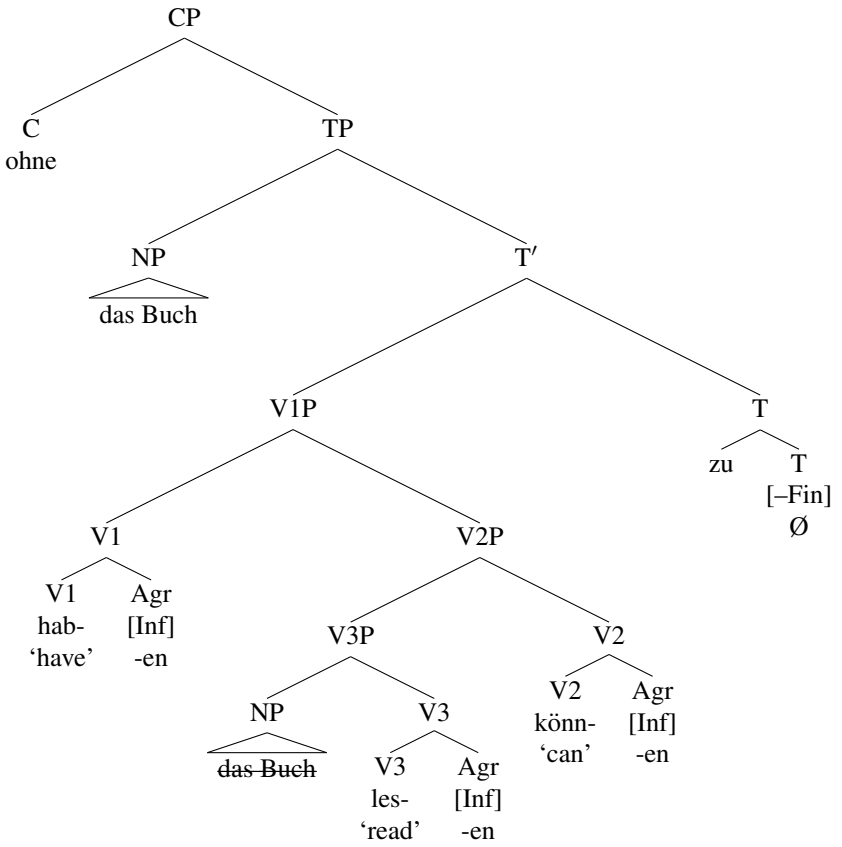
The head NF is always the *highest* non-finite head in the clause. If T is finite, then NF is below T (and T's complement V). If T is non-finite, however, then T is the highest non-finite head in the clause, and there is no need for NF. I assume that in this case it is not projected at all.

Let me illustrate this by going through a case of a *zu* infinitive assigned from outside the verb cluster. Consider (3a), repeated here as (27):

(27) ohne das Buch haben$_1$ lesen$_3$ zu können$_2$
without the book have.Inf read.Inf to can.Inf
'without having been able to read the book' (Standard German, Salzmann 2019: (9b))

The complementizer requires a *zu* infinitive. I assume that C Agrees with T (the highest head in its complement) and checks its own [–Fin] feature against T. I propose that C also has another feature, call it [Z]. This feature must also be checked against T. The only way T can check this feature is if it has the head *zu* adjoined to it. So *zu* must be merged with T. NF is not projected at all:

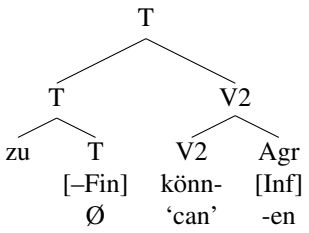
(28)



T also has [–Fin] features that it needs to check against a lower head. As described above, feature checking in German generally uses Agree, except with non-finite T and NF. [–Fin] T is just like NF in requiring head movement. Starting from the bottom, V3 Agrees with V2, checking the infinitive features of its Agr against the modal V2. V2 Agrees with V1, but in this case checking fails. Agr on V2 is infinitive, but V1, being ‘have’, only checks the participle. V1 tries to Agree with T, but it cannot, because non-finite T only checks features through head movement. This Agree relation also fails, so the only Agr morpheme that is permitted on V1 is the default infinitive *-en*. V1 is therefore *haben*.

[–Fin] T now requires head movement. Given Shortest Move (16), the only head that can move to T is V2. So V2 moves to T, creating the following complex head:

(29)



I assume that *zu* wants to be leftmost, which forces V2 to adjoin on the right, as shown. Agr checks its features against [–Fin] on T (T is always null, I assume), and so can only be the *-en* (Inf) suffix. The end result is *zu könn-en*.

If V2 had had the participle morphology adjoined to it, the features of V2 would have been checked against V1 by Agree. However, feature checking would then have failed when V2 moved

to T. T would not have had its features checked, and the derivation would have crashed. The only derivation that converges is the one shown, where V2 has an [Inf] Agr adjoined to it.

As can be seen, the proposed analysis produces the correct result for this case, as well.

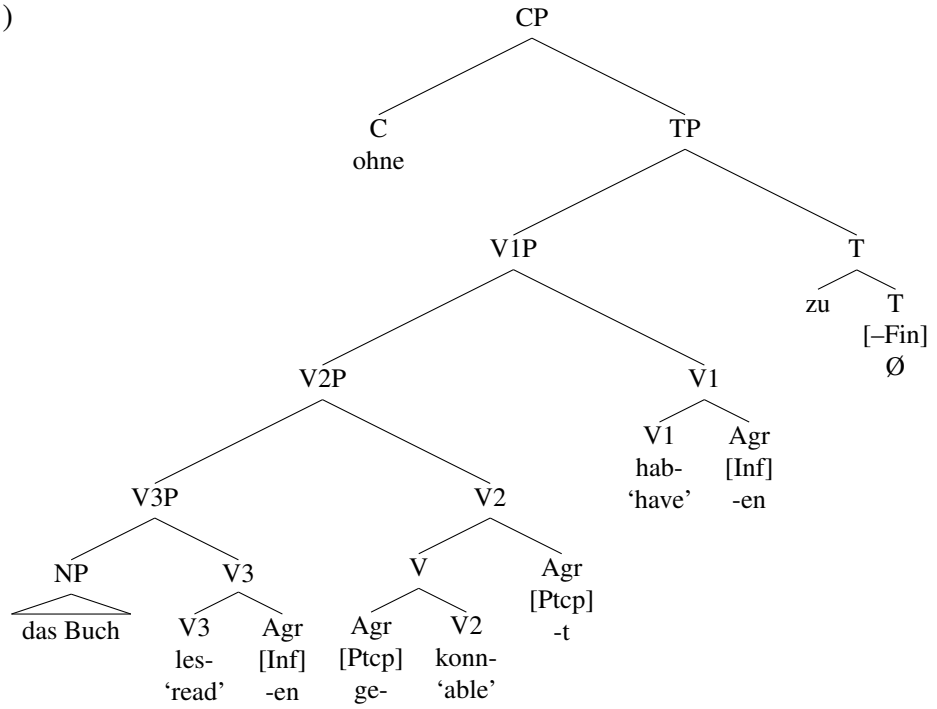
4.7 When Hierarchy and Linear Order Match (3–2–1 Order)

We should also check that the correct result is obtained when the hierarchical structure matches the linear structure (rightward = higher). Recall that in this case all morphology appears where it would be expected to based on selection. Example (1) is repeated below as (30):

(30) ohne das Buch lesen$_3$ gekonnt$_2$ zu haben$_1$
without the book read.Inf can.Ptcp to have.Inf
'without having been able to read the book' (Standard German, Salzmann 2019: (9a))

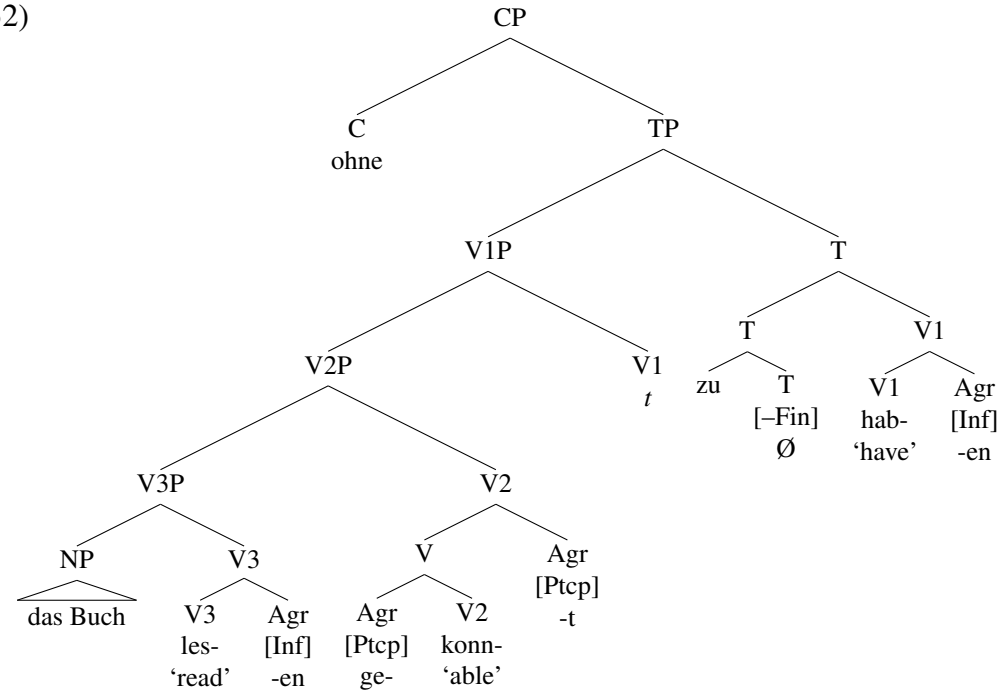
This would have the following structure. As before, the complementizer requires a [–Fin] T with *zu* adjoined to it. NF does not appear at all, since T is [–Fin]:

(31)



Starting from the bottom, once V2 is merged V3 will Agree with it. This will check the Agr features of V3, since they are [Inf] and V2, as a modal, checks [Inf]. Once V1 is merged, V2 will Agree with it. V2 has [Ptcp] morphology, which is exactly what *haben*, 'have', checks. V1 will then try to Agree with T once it merges, but this will fail. T instead requires head movement. V1 is the closest head to T, so V1 will move to T and adjoin on the right, as before:

(32)



This yields the right result. As in Salzmann's (2019) analysis, exactly the same mechanism places the morphology in the apparently displaced cases as in the well-behaved cases.

4.8 Intermediate Verbs

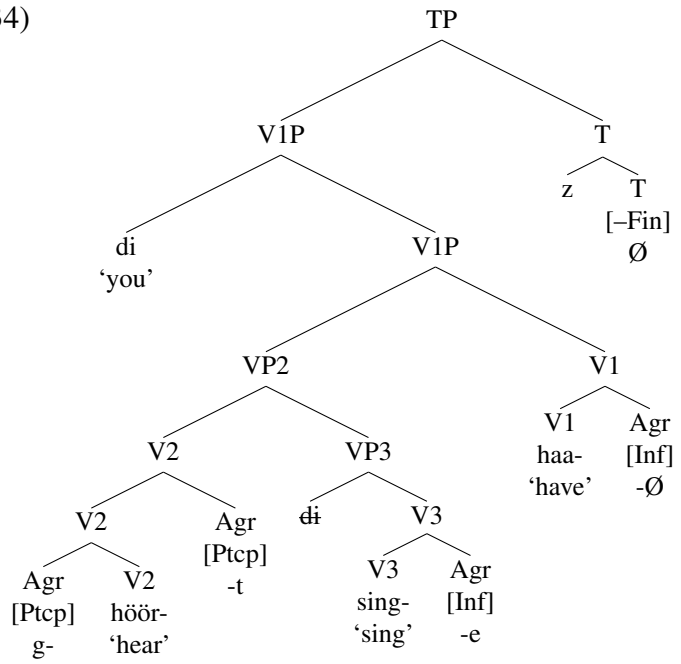
Let us now go through one of the examples that was problematic for Salzmann (2019). Recall example (6), repeated here as (33):

(33) d Froid, di ghööre$_2$/ghöört$_2$ singe$_3$ z haa$_1$
the joy you hear.Inf/hear.Ptcp sing.Inf to have.Inf
'the joy to have heard you sing' (Swiss German, Salzmann 2019: (14d))

Recall that Salzmann's (2019) account correctly locates *z* and the infinitive morphology on the last verb of the cluster, here 'have', but it would incorrectly put the participle morphology assigned by 'have' on 'sing', which is the last verb in the complement of 'have'.

In the current analysis, the non-finite clause would have the following structure, with *z* adjoined to non-finite T:

(34)



Starting from the bottom, once V2 is merged, V3 Agrees with it. V2 is a perception verb, which checks [Inf]. Agr on V3 is [Inf] and so is checked. Once V1 merges, V2 Agrees with it. V2 has [Ptcp] morphology, which is exactly what ‘have’ checks. Once T is merged, V1 cannot Agree with T, instead it moves to T, since T is non-finite. This creates a complex head with T on the left, putting *z* to the left of V1, exactly as before. Agr on V1 must be [Inf], since T is non-finite and checks [Inf]. This produces exactly the right result. In particular, V2 is in the participle form, correctly. The participle form is not incorrectly assigned to V3, as in Salzmann's analysis.

Apparently V2 can also optionally be in the infinitive form. The analysis already allows this, since the infinitive Agr is the default and does not need to be checked. Verbs also do not need to check the Agr features of lower verbs. Only T and NF need to check their own features against a lower verb. So, when V2 Agrees with V1, feature checking can fail, if the Agr on V2 is the default infinitive. Only verbs that move to NF or [–Fin] T, or that Agree with finite T, must match the features on NF or T. Thus, the current analysis does not have the problem with intermediate verbs that Salzmann's analysis does.

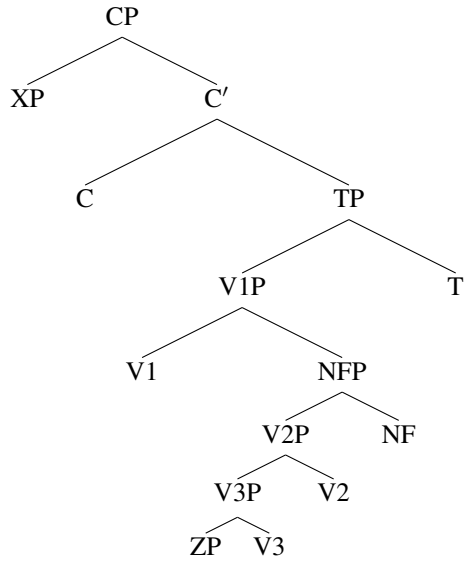
4.9 Separable Prefix Verbs and Verb-Second

With separable prefix verbs like *auf-stellen*, ‘to set up’, the infinitive *zu* comes between the prefix and the verb stem: *auf-zu-stellen*. In the current analysis, this follows in the same way that the prefix is stranded in verb second. These separable prefixes are always stranded in verb second clauses, they never move with the verb. I assume that this is because the prefix does not form a complex head with the verb stem. When the verb undergoes head movement, the prefix will necessarily be stranded. Since *zu* is placed to the left of the verb by head movement in the current analysis, we correctly expect that it will not be placed to the left of the prefix. Instead the prefix will be stranded when the verb moves to T. Since only the linearly closest verb moves to T, the prefix will still be adjacent to the verb in T, yielding *auf-zu-stellen*.

Returning to verb-second, I mentioned above that, given Shortest Move as defined here, the

highest verb when there is a sequence of verbs must be linearized to the left in order to move to C. It is worth highlighting some aspects of how this must take place in the current analysis. Here is a schematic example of multiple verbs:

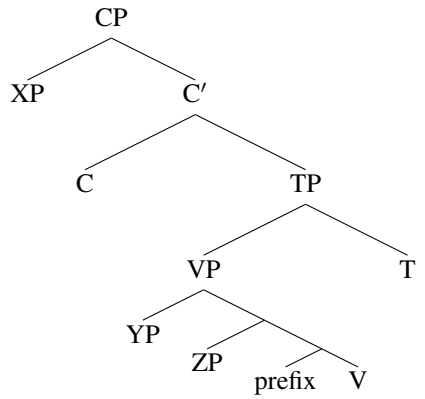
(35)



In the current analysis, V1 will Agree with T and check its morphology against T. It will then move to C, directly, without stopping in T. This is possible in the current analysis, in contrast with approaches that adopt some version of the Head Movement Constraint. As far as I am aware, there is no evidence that the verb has to stop in T on its way to C in German verb-second clauses. (Completing the derivation, V3 will Agree with V2, and V2 will move to NF.)

Going back to separable prefix verbs, the prefix is always stranded *last*, which seems to contradict the need for V1 to be linearized to the left in verb-second clauses. This is not a contradiction, however, because the prefix is only stranded when the separable prefix verb is the *only* verb in the clause. This would have the following sort of structure:

(36)



In this structure, V is the only head that can move to C. The only heads that intervene linearly between C and V are the prefix and any heads that are contained within phrases like YP and ZP. Any phrase like YP and ZP is most likely a phase, meaning that anything within it is not eligible to move to C (because of the Phase Impenetrability Condition, Chomsky 2000). Any heads within YP and ZP therefore do not count as intervenors. As for the prefix, it could also be phrasal and therefore also a phase. Alternatively, it is the wrong sort of thing, meaning that it lacks whatever

features C is looking to attract (finite V features, say). Either way, it does not intervene, either, as it is not a potential mover to C. Since verbs can only linearize on the left when they take a VP complement, the prefix must be linearized to the left of the verb, along with any other complements, and so the prefix will be stranded at the end of the clause when the verb moves to C.

4.10 Summary

The proposed purely syntactic analysis captures all of the data that Salzmann's (2019) post-syntactic analysis does, and more. It does not run afoul of the problem of intermediate verbs. It correctly displaces morphology only to the final verb in the cluster, and it correctly only displaces the *highest* non-finite morphology.

Since a purely syntactic analysis is capable of capturing all of the facts, and in fact is superior to the post-syntactic analysis, Salzmann's argument that we need a post-syntactic analysis and all of the extra-syntactic mechanisms that Distributed Morphology posits does not go through. We can do without a post-syntactic level, and we can do without extra-syntactic mechanisms like Lowering, Local Dislocation, and Vocabulary Insertion (all of which would violate the Strict Cycle Condition). The default view of grammar where there is only the syntax can be maintained, and is to be preferred.

5 Some Further Issues

In this section I discuss some further issues related to verb clusters and displaced morphology.

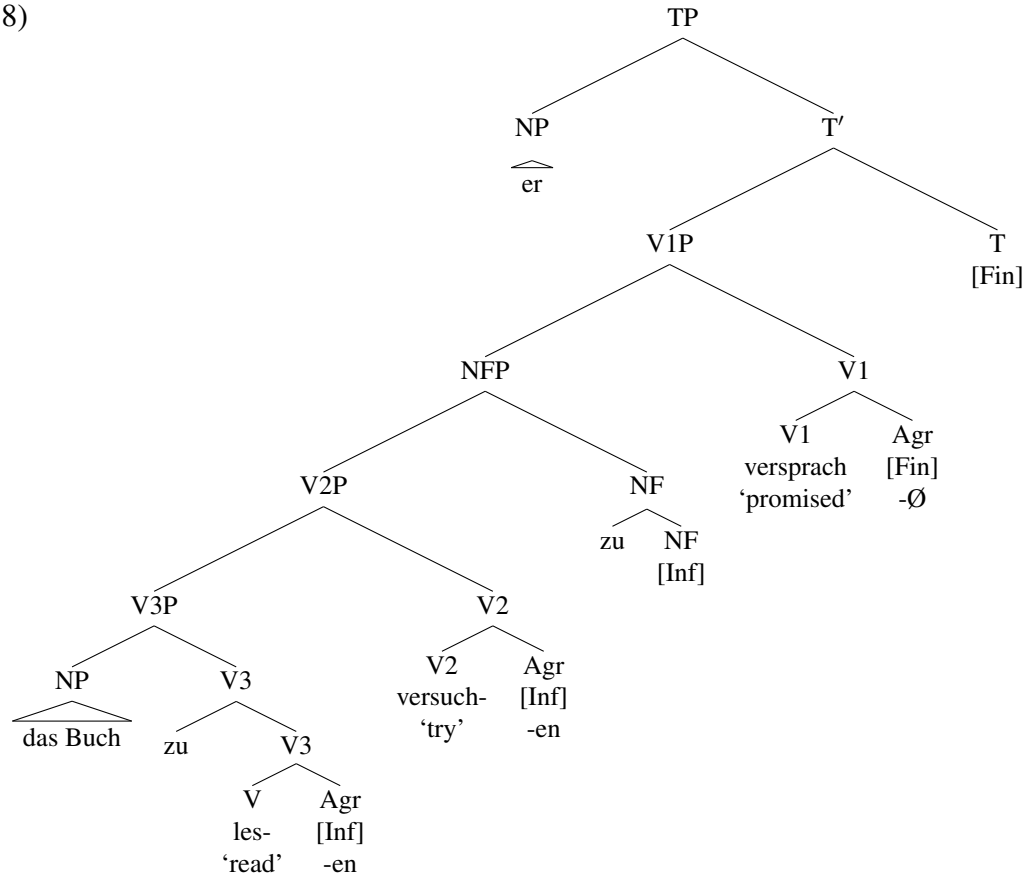
5.1 More on *zu* Infinitives

Above we saw cases where the *zu* infinitive was selected from outside the verb cluster. Verbs inside the verb cluster can also select the *zu* infinitive:

(37) dass er das Buch zu lesen$_3$ zu versuchen$_2$ versprach$_1$
that he the book to read.Inf to try.Inf promise.Past.3Sg
'that he promised to try to read the book' (Standard German, Salzmann 2019: (7d))

When *zu* was selected from outside, C (or the other selector) was said to have a [Z] feature, which can only be checked by a complement head with *zu* adjoined to it. We can say the same thing here. 'Promise' and 'try' both have a [Z] feature. This is only checked by merging *zu* with their complement:

(38)



The [Z] feature on ‘promise’ is checked by merging *zu* with the head of its complement, NF. The [Z] feature of ‘try’ is checked by merging *zu* with the head of its complement, V3. V3 Agrees with V2, checking [Inf]. V2 undergoes head movement to NF and adjoins to it on the right, checking [Inf] on both. V1 Agrees with T and checks its features. *Zu* correctly appears on both V3 and V2.

A *zu* that is selected by the highest (finite) verb can also be displaced to the last verb of the cluster:

(39) weil er sich nicht von ihm braucht$_1$ lassen$_2$ an**zu**schnauzen$_3$
because he self not by him need.3Sg let.Inf rant.at.Inf
‘because he does not need to be ranted at by him’ (Altenburg, Salzmann 2019: (16b))

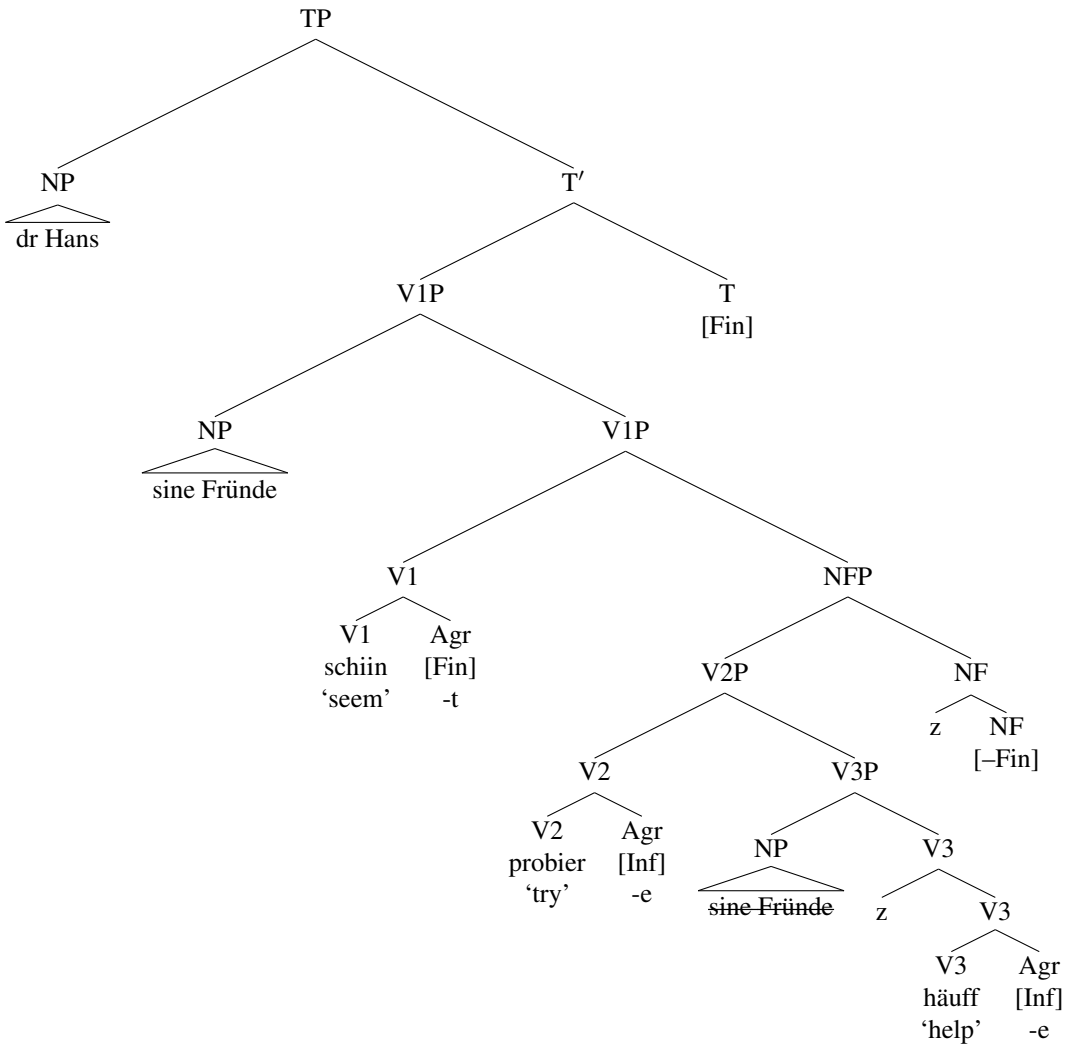
Here, V1 selects the *zu* infinitive. This means that the head of V1’s complement must have *zu* adjoined to it. The head of V1’s complement is NF, since this clause is finite. V3, as the last verb, will be the one to move to NF (stranding the separable prefix). V2 will try to Agree with NF, but this Agree relation will fail, and so the only form available to V2 is the default infinitive. V1 Agrees with finite T.

In Swiss German, if both V1 and V2 select the *z* infinitive in the 1–2–3 order, one of them can optionally delete. Consider the following example:

(40) wüu dr Hans sine Fründe schiint$_1$ probiere$_2$ z häuffe$_3$
because the John his.Dat friends seem.3Sg try.Inf to help.Inf
‘because John seems to try to help his friends’ (Bernese German, Salzmann 2019: (68))

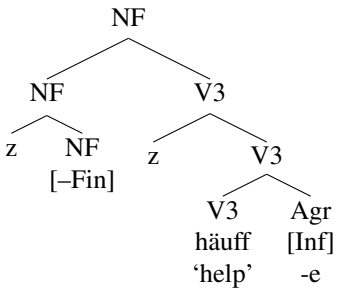
This would have the following structure:

(41)



V2 has a [Z] feature that can only be checked by merging it with a V3 that has a *z* adjoined to it. Once V2 is merged, V3 Agrees with V2 and checks its features. V1 also requires that *z* be adjoined to the head of its complement. This is NF. V2 tries to Agree with NF when it is merged, but this fails, so V2 can only be the default infinitive. V3 as the closest verb to NF then moves to NF and adjoins to it on its left:

(42)



This puts two instances of *z* adjacent to each other. One is deleted in an instance of haplology, as in Salzmann (2019). Continuing the derivation, V1 Agrees with finite T.

Salzmann (2019) also treats the following example as haplology, but it is not on my analysis. In this example, both V1 and V2 select the *ge* infinitive, but only one instance of *ge* appears. V2 appears in the default supine:

(43) ə meçd$_1$ lɪwɐ̯ kend$_2$ gə-aʁwəd$_3$
I would.like.1Sg rather can.Sup GE-work.Inf
'I would rather like to be able to work.' (Barchfeld, Salzmann 2019: (75))

V3 has Agr morphemes adjoined to it which have the *ge* infinitive features. These can be checked by Agree with V2, but they can also be checked by moving to NF. V3 as the last verb does move to NF, and thereby checks the features of NF. V2 attempts to Agree with NF, but this fails, and so it is in the default form. V1 Agrees with finite T (and then moves to C). In the current analysis, Agr morphemes are adjoined directly to Vs. Only the infinitive *z(u)* could ever be doubled and subject to haplology, because it can be forced to adjoin to NF or non-finite T in addition to a verb.

Salzmann (2019) also needs haplology for the following example:

(44) sɪ wiʁd$_1$ dɔs ned bʁyçd$_2$ tsə dω-n$_3$
she will.3Sg this not need.Sup to do-Ger
'She won't have to do this.' (Barchfeld, Salzmann 2019: (76))

In this example, V1 selects the gerund and V2 selects the *zu* gerund. The final verb, V3, appears as the *zu* gerund. In the current analysis, V2 has a [Z] feature that can only be checked if the head of its complement has *zu* adjoined to it. So V3 has to have *zu* adjoined to it. It also has the [Ger] Agr adjoined to it. This can be checked by Agree with V2. When NF is merged, V3 moves to NF, which also checks [Ger] and the features of NF. V2 attempts to Agree with NF, but this fails, and V2 can only be in the default supine form. V1 Agrees with finite T (and moves to C).

The current analysis is therefore simpler, as it does not need haplology in all of the places that Salzmann's analysis does. In the one case where haplology is necessary, with two *zu* infinitives, Salzmann says that both can optionally appear, in an instance of the third construction (Salzmann's note 20). This shows that the missing *zu* is actually present in that case, and haplology is justified. The current analysis does not need it for the other cases.

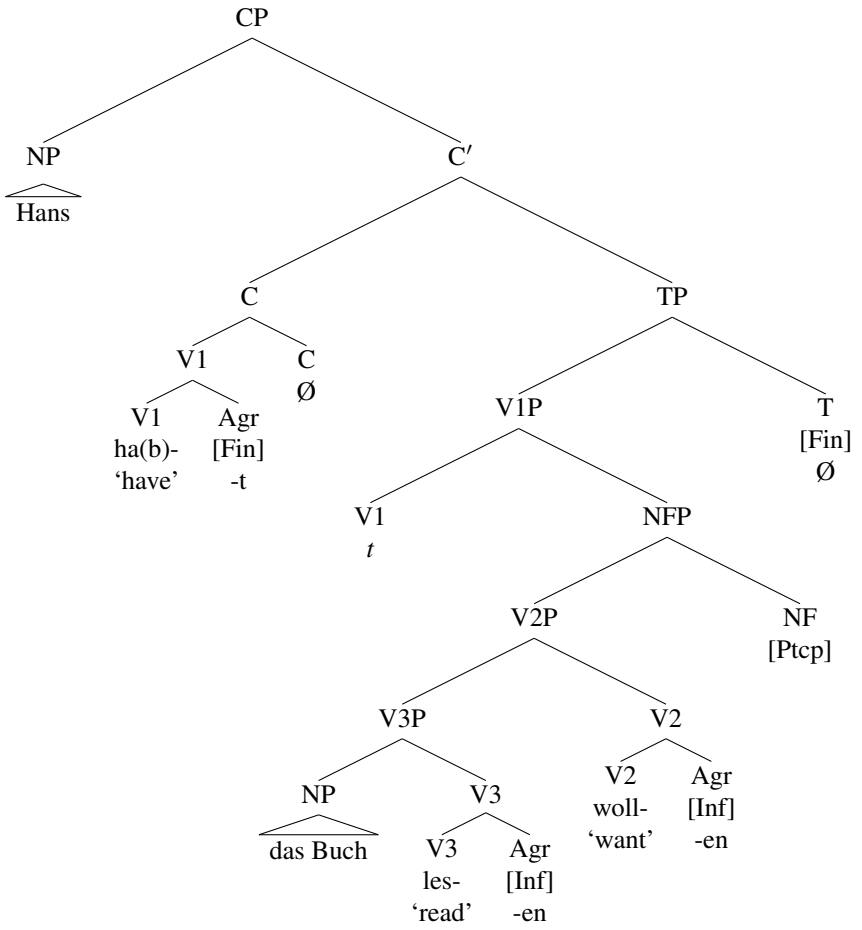
5.2 Infinitive Instead of Participle

We have already seen several cases, some optional, where a verb in a cluster appears in the default infinitive. Another such case is what is referred to as the "IPP" effect, for *infinitivo pro participio*. In IPP cases, V1 requires the participle, but V2 appears in the default infinitive instead, and the participle is apparently not allowed:

(45) Hans hat$_1$ das Buch lesen$_3$ wollen/*gewollt$_2$
Hans has.3SgPres the book read.Inf want.Inf/*want.Ptcp
'Hans wanted to read the book.' (Standard German, Hinterhölzl 2009: (1))

The structure of this example would be the following:

(46)



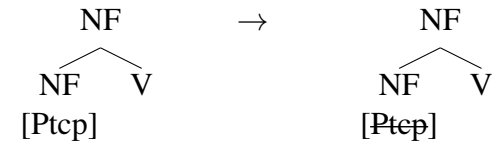
The current analysis would expect a participle on V2 in this example. V3 Agrees with V2, checking infinitive; V2 would move to NF, checking [Ptcp]. V1 Agrees with finite T and then moves to C. Note that Salzmann's (2019) analysis would also expect the participle here, since V2 is the last verb and the only functional heads above it on the right would be those required by V1; there would be no conflict in Salzmann's analysis that would require a resolution and thereby a default to the infinitive.

Something must cause the default to be the only Agr that succeeds on V2 in this structure. The first thing to note is that this does not happen if there are only two verbs. Only the participle is grammatical:

(47) Hans hat_1 das Buch $gelesen_2$/*lesen.
Hans has.3SgPres the book read.Ptcp/*read.Inf
'Hans read the book.'

In the current analysis, V2 would move to NF, checking Ptcp. We would expect this to happen in (46), too.

I suggest that what is going on is that V2 does indeed move to NF in (46). However, with this particular class of verbs (restructuring verbs), there is something wrong with adjoining the verb to NF with a [Ptcp] feature. The fix is to delete the [Ptcp] feature:

(48) 

where V is a restructuring verb

This causes only the default infinitive morphology to be acceptable, while NF's features are effectively checked because they have been deleted.

This solution is admittedly ad hoc, but it should be noted that the competitor analysis, that of Salzmann (2019), would have to make a similar stipulation (and Salzmann repeatedly appeals to a process of Impoverishment to resolve morphological conflicts). I will have to leave full exploration of this phenomenon to future research.

5.3 Orders that Require More than Flexible Linearization

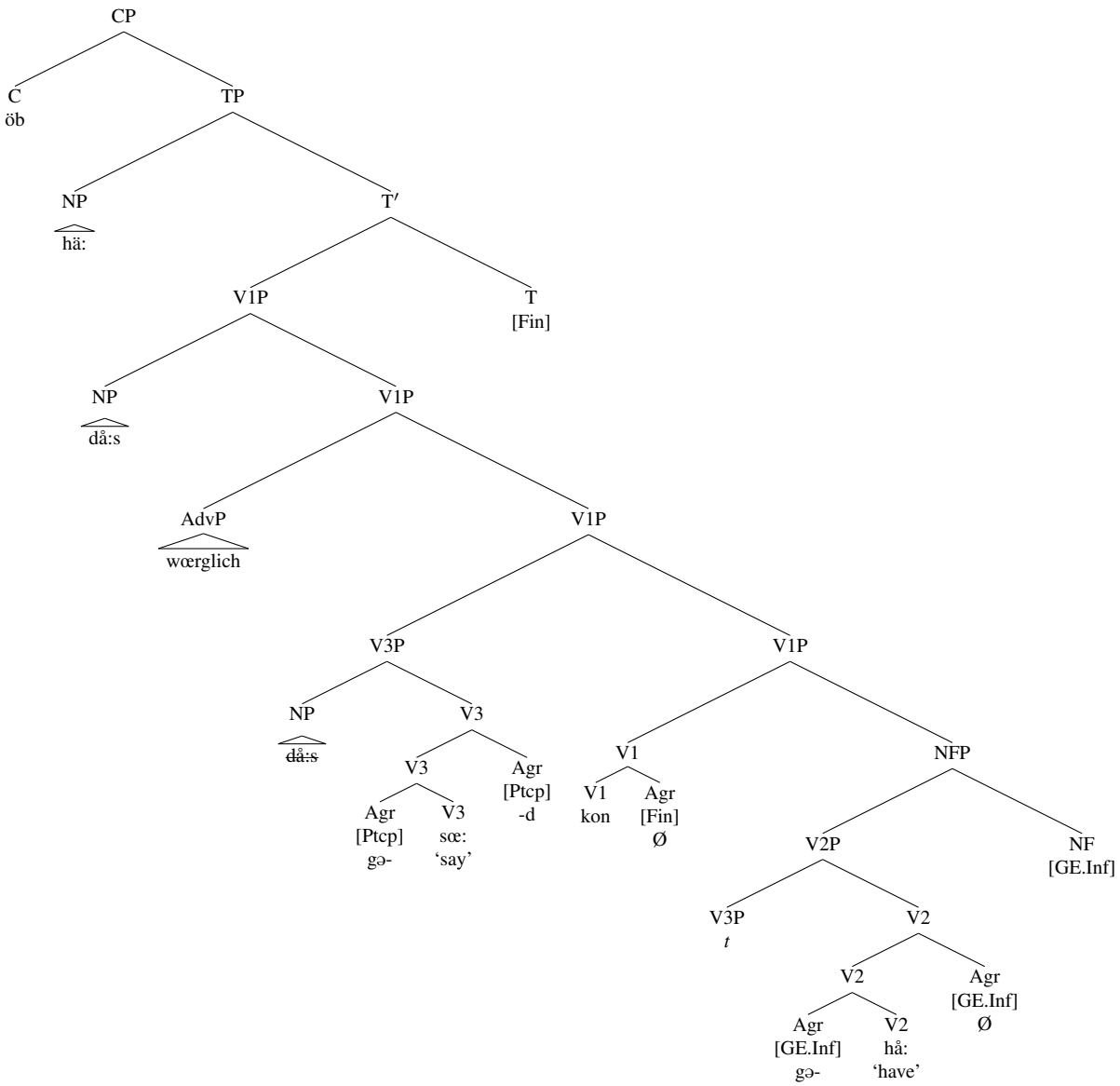
If V1 is not first or last, then flexible linearization by itself is not able to account for the order of the verbs in the cluster. Some sort of movement operation has to take place. Consider the following example of 3–1–2 order:

(49) öb hä: då:s wœrglich gəsœ:d_3 kon_1 gə-hå:$_2$
if he that really say.Ptcp can.3Sg GE-have.Inf
'if he really can have said that' (Steinbach-Hallenberg, Salzmann 2019: (20b))

In this example, V1 selects a *ge* infinitive and V2 selects the participle. The highest non-finite morphology, the *ge* infinitive, shows up on the last verb of the cluster, as expected in the current analysis. V3 is in the participle form, as expected by it Agreeing with V2, the auxiliary 'have'. V1 Agrees with finite T. Something must have moved to achieve the surface word order, but that something apparently does not disrupt the Agree and head movement operations. In fact, the current analysis would expect any reordering operations to feed head movement, since head movement depends on linear order. We would not expect reordering operations to change the Agree relations, since they happen as soon as the next higher verb is merged.

Just to be concrete, here is one possible derivation of the 3–1–2 order. V1 takes its complement to the right while V2 takes its complement to the left. V3 moves and adjoins to a projection of V1 (the scrambled object and the adverb are also adjoined to projections of V1):

(50)



Movement of V3 must be phrasal movement, not head movement. The object NP must scramble out of this phrase after the movement, as shown in the tree. Starting from the bottom, as soon as V2 is merged, V3 Agrees with it. This checks the [Ptcp] features on V3. When NF merges, V2 moves and adjoins to NF (not shown in the tree). This checks the *ge* infinitive form (which NF gets from V1). V1 Agrees with finite T. Then V3P moves, but this does not affect the Agree relation it already entered into with V2.

5.4 Finite Morphology: Exceptions

As stated above, finite morphology is always placed on the highest verb in the clause. However, there are a couple of apparent exceptions. Salzmann (2019) gives the following example from Swabian:

(51) I hedd ned denkt, daβ mr der hälfa$_1$ kochd$_2$.
I had.Sbjv.1Sg not think.Ptcp that me that.one help.Inf cook.3Sg

'I wouldn't have thought that he would help me cook.' (Swabian, Salzmann 2019: (91))

Just when V1 is 'help', the finite morphology can appear on V2 instead. Salzmann also notes in footnote 32 that this verb can move to C in a verb second clause. I suggest that in this case, V2 *is* the finite verb, and the only verb in the clause. 'Help' is an adjunct. Essentially the clause is, 'that one cooked, helping'. If this is correct, then finite morphology is always checked against T by the highest verb, uniformly, with no exceptions.

5.5 The "Scandal" Construction

The so-called scandal construction also involves an apparent displacement of morphology. In this construction, limited to 3–1–2 order, the higher verb selects the *zu* infinitive. This is displaced to the last verb of the cluster, V2. V1, *haben*, selects the participle, but this is realized on V3 rather than on V2. V1 appears in the infinitive:

(52) Er bedauert, es nicht verhindert$_3$ haben$_1$ zu können$_2$
he regret.3Sg it not prevent.Ptcp have.Inf to can.Inf
'He regrets not having been able to prevent it.' (Standard German, Salzmann 2019: (31))

Displacement of *zu* to the final verb of the cluster follows the pattern discussed here generally. However, displacement of participle morphology to V3 deviates from this pattern, since V3 is not the final verb of the cluster.

I tentatively adopt the analysis of Meurers (2000: 96ff), as outlined in Salzmann (2019). In this analysis, the modal is syntactically V1 and *haben* is V2, as in the English *could have prevented*. The order of the cluster then is 3–2–1 and morphological selection is completely regular (participle morphology appears on V3 through Agree with V2, which is *haben*).

5.6 Lack of Displacement

Some Germanic varieties show no displacement of non-finite morphology. Standard Dutch, for instance, shows no displacement. The infinitive *te* goes where it should according to selection and is not displaced to the last verb of the cluster:

(53) zonder het boek **te** moeten$_1$ kunnen$_2$ lezen$_3$
without the book to must.Inf can.Inf read.Inf
'without having to be able to read the book' (Standard Dutch, Salzmann 2019: (12))

I suggest that non-finite T can be on the left in Dutch, the same way verbs can. If it generally linearizes in the same way as its complement, then the highest verb in its complement will always be the linearly closest one.

The hypothesis that non-finite T can be on the left then also nicely accounts for it being displaced to a position *before* the cluster in varieties like West Flemish, if they do not require uniform linearization the way Standard Dutch does. If non-finite T can occur to the left of its complement, but its complement verb can occur to the right of its VP complement, then we expect *te* to be displaced on the left, in the mirror of the German pattern:

(54) mee Valere **te** willen$_2$ Marie dienen boek geven$_2$ een$_1$
with Valere to want.Inf Mary that book give.Inf have.Inf
'with Valere having wanted to give Mary that book' (West Flemish, Salzmann 2019: (90a)

If non-finite T can be linearized to the left in these languages, then we correctly expect it to mirror displacement to the final verb in the cluster in German dialects.

The current analysis, using only syntactic tools, therefore accounts for a large range of facts. Salzmann (2019) has to resort to Lowering versus Local Dislocation in different varieties for different heads. These mechanisms can be entirely dispensed with in the purely syntactic analysis.

6 Conclusion

It would be desirable to have a minimal theory of morphosyntax, where there is only the syntax and the mechanisms that it utilizes (Merge, Move, Agree), without any morphology-specific operations. In this paper I have shown that such a conception not only works for the phenomenon of displaced morphology in German, but it works better than the Distributed Morphology analysis that has a post-syntactic level and extra-syntactic operations like Vocabulary Insertion, Lowering, and Local Dislocation. None of these operations are justified, and they all violate the Strict Cycle Condition, since they require performing operations on just a sub-part of an already built derivation.

The phenomenon of displaced morphology is one of the few cases where it has been argued that this type of post-syntactic analysis is *necessary*. I have shown here that it is not. In most cases, practitioners of Distributed Morphology just assume that we need a post-syntactic level with extra-syntactic mechanisms. They almost never *argue* that we do. Besides Salzmann (2019), I am aware of one other case, Georgieva et al. (2021) on Mari and Udmurt negation. Bruening (2024) shows that a purely syntactic account works for that case, as well. More generally, I believe that there is no need at all for any levels or mechanisms beyond those of the syntax. All morphosyntactic phenomena are amenable to a purely syntactic analysis of the kind proposed here.

Finally, a few remarks are in order concerning my reformulation of Shortest Move in linear terms rather than hierarchical ones. As far as I am aware, this will not cause any problems. In every case where it has been argued that only the higher of two (or more) potential movers can move (to the left), that thing is also the leftmost of the potential movers. This is certainly the case with head movement in head-initial languages (English, French,...). In uniformly head-final languages, any potential head movement would also be consistent with a linear constraint. Turning to A-movement, movement in the passive being limited to the higher object in double object constructions in (most dialects of) languages like English is also consistent with a linear constraint: The higher object is also the leftmost of the two objects. While there are issues with superiority in multiple wh-questions (e.g., Shan & Barker 2006, Bhattacharya & Simpson 2007), it is also the case that the highest wh-phrase in a multiple question is typically also the leftmost (barring adjuncts, which do not occur well in multiple wh-questions). Additionally, reformulating Shortest Move in linear terms may provide new insights into why rightward movement is generally more limited than leftward movement, but this is something that I will have to leave to future research.

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