

## Overview

Müller (2004) attempts to derive verb second order ( $V_2$ ) without head movement. The key to this is tons of remnant movement. Making remnants is the hard part.

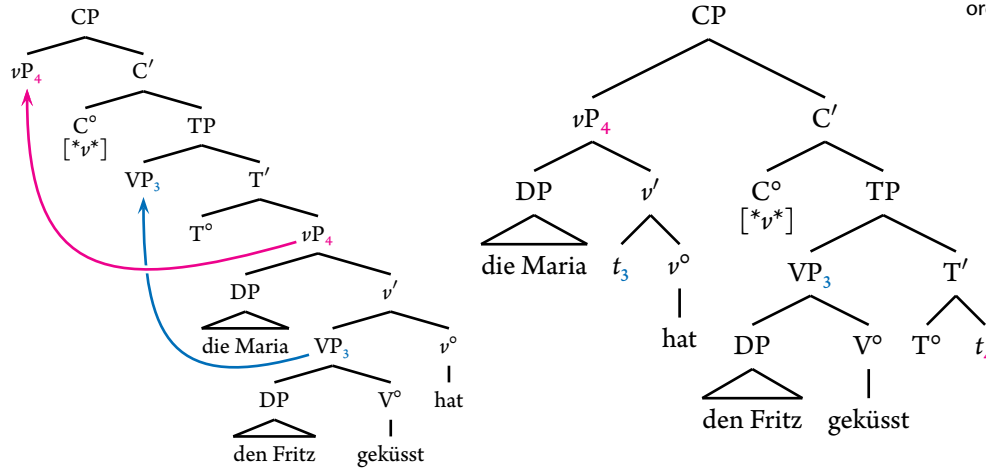
- *The problem:*  
Head movement is problematic for contemporary theoretical approaches to movement (Chomsky 2000, 2001). This has led to doubts that head movement is a syntactic operation. Müller takes this to the next step: Perhaps head movement does not exist at all.
- *Why it's a problem:*  
Head movement is the normal manner by which  $V_2$  is derived (Travis 1984, Vikner 1995, a.o.). Without recourse to head movement, it is not immediately obvious how one should derive  $V_2$ .
- *Previous work:*  
Müller identifies other remnant movement accounts of  $V_2$  order. Sportiche (1998) and Mahajan (2001) both propose that remnant movement can derive  $V_2$  effects. Many still rely on verb movement in some way; still others require undermotivated or unmotivated movement of  $\nu$ P-internal material.
- *Müller says:*  
Müller introduces a few innovations, the main one being the EDGE DOMAIN PIPED PIPING CONSTRAINT (EPC), which essentially requires moved  $\nu$ P's to contain exactly one XP in their specifiers and no other material. Thus, if  $V_2$  is triggered by  $\nu$ P movement to SpecCP, this will force other material in  $\nu$ P to move out to satisfy this constraint, thus motivating movement of material out of  $\nu$ P.
- *Why is it important?:*  
Syntacticians interested in approaches to syntactic phenomena typically explained by head movement should be on the lookout for novel approaches to these phenomena, and so it is worth the time to investigate whether a theoretically viable and empirically adequate way of deriving  $V_2$  from phrasal movement is possible.

### 1 Some initial derivations

The following represent the sorts of structures and derivations Müller argues for.

- (11) Die Maria hat den Fritz geküsst.  
 the Maria.NOM has the Fritz.ACC kissed  
 ‘Mary has kissed Fritz.’

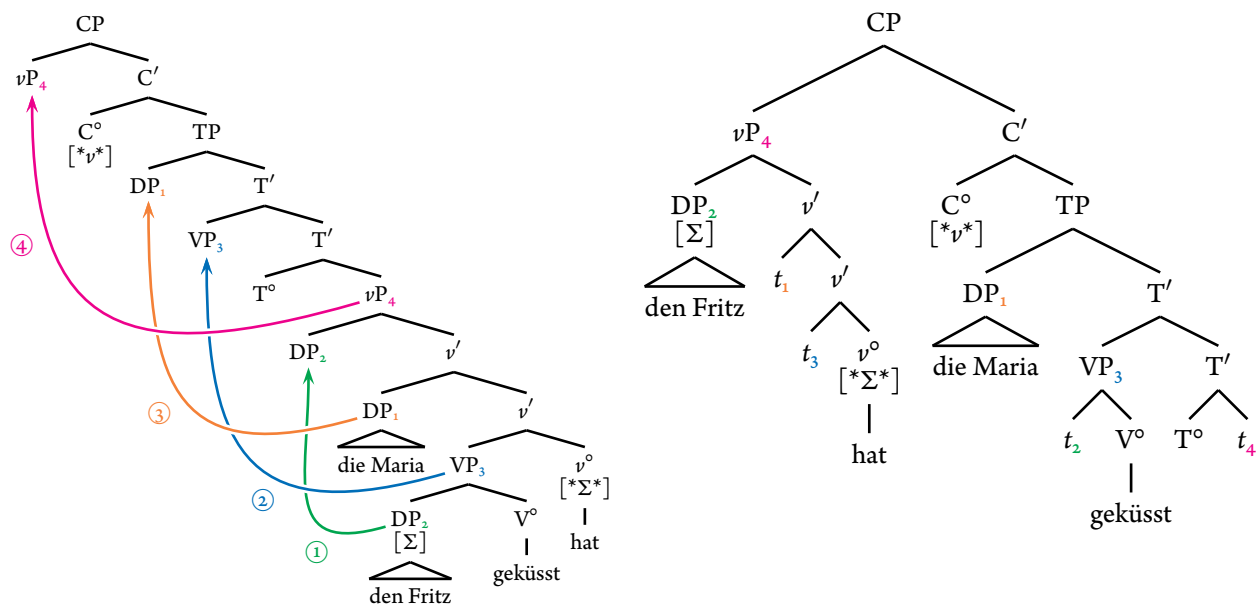
The example numbers here follow the numbers in the paper. I’ve preserved the indices as presented in the examples in the paper. Note that these do not indicate the order in which the movements occur, nor even the order that the constituents do.



Subject-initial cases, as above, appear simple enough, but if any other constituent is in first position, we start getting notably more complicated derivations.

[\*Σ\*] is a feature that triggers scrambling, as I’ll discuss below.

- (15) Den Fritz hat die Maria geküsst.  
 the Fritz.ACC has the Maria.NOM kissed  
 ‘Mary has kissed Fritz.’



Let us turn now to how on earth we get these derivations to happen.

## 2 Getting this to work

- The central hypothesis here is that V<sub>2</sub> patterns are all derived by remnant  $\nu$ P movement.
- Only the highest (visible) head in  $\nu$ P and the left(most) XP in Spec $\nu$ P can be fronted.
- The analysis, thus, requires some way to evacuate  $\nu$ P of all material except the left-most edge material.

### 2.1 Müller's assumptions

- Müller begins with some fairly standard assumptions about cyclicity in a Phase-based model:

i. *The strict cycle condition (SCC):*

Within the current XP  $\alpha$ , a syntactic operation may not target a position that is included within another XP  $\beta$  that is dominated by  $\alpha$ .

ii. *Phase Impenetrability Condition (PIC):*

Material that is dominated by a phase XP is not accessible to operations at ZP (the next phase) unless it is part of the edge domain of X.

After Chomsky 2001. The version from Chomsky 2000 is stronger than this one.

- Critical for certain cases of V<sub>2</sub> will be his particular notion of phase edge domain. This condition means that there can be only one edge specifier for a phase head. The overttness condition in (iii-a) will be necessary for understanding why main verbs appear in second position.

iii. *Edge domain:*

A category  $\alpha$  is in the edge domain of a head X iff (a) or (b) holds:

- $\alpha$  is the highest overt head reflexively c-commanded by X.
- $\alpha$  is a specifier that is not c-commanded by any other specifier in XP, and that precedes the head of the edge domain of X.

- He then gives lists several assumptions that inform the discussion of several specific phenomena later on. Relevant for today are the following:

- Scrambling in German is movement of an XP to Spec $\nu$ P.
- wh*-movement passes through SpecCP with overt heads that get deleted.
- Main verbs are base-generated in V<sup>o</sup> and remain *in situ*.
- Auxiliaries and modals are base-generated in  $\nu^o$ .

### 2.2 The innovation

- The main innovation Müller proposes is EDGE DOMAIN PIED PIPING CONDITION, or EPC:

viii. *Edge Domain Pied Piping Condition:*

A moved  $\nu$ P contains only the edge domain of its head.

- Satisfaction of this constraint will drive movement out of  $\nu$ P if it undergoes movement. These movements will always go to specifiers of TP, since there is nothing else between  $\nu$ P and CP.
- In V2 languages,  $C^{\circ}$  will carry a feature  $[\ast\nu^{\ast}]$  in V2 clauses that attracts  $\nu$ P to SpecCP. Due to the EPC, only edge material – the leftmost specifier and the highest overt head, in accordance with (iii) – will be allowed to remain in the moved  $\nu$ P.

Müller (pp. 185–186) stipulates that there must be multiple specifiers of TP, but only one specifier of CP.

### 2.3 Explaining the derivations above

The EPC and the definition of Edge Domain conspire to make it so that only one element may precede a verb. In traditional approaches, this work is usually done by assuming that V2 is derived from being a head and its single specifier (be it CP or IP).

#### 2.3.1 Subject-initial

- In a case, like (11), the only material in  $\nu$ P other than the edge material is VP, so VP must move to SpecTP to satisfy the EPC.
- One immediate problem with this is that this movement would appear to violate Last Resort, which requires movement to check a strong feature.

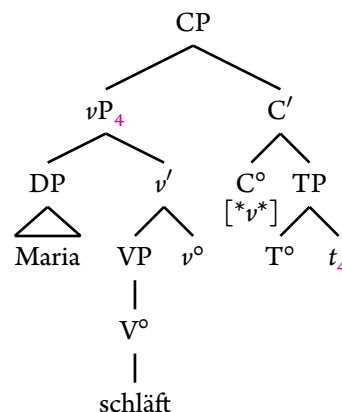
ix. *Last Resort*:

Movement must result in checking of  $[\ast F^{\ast}]$ .

- He thus proposes that Last Resort must be violable if this is the only way to satisfy the EPC.
- As a result of the overttness condition in the definition of Edge Domain (iii),  $\nu$ P's without over  $\nu^{\circ}$ 's will not force  $V^{\circ}$  to move out, since  $V^{\circ}$  is the highest overt head c-commanded by  $\nu^{\circ}$ . This explains why main verbs participate in V2.

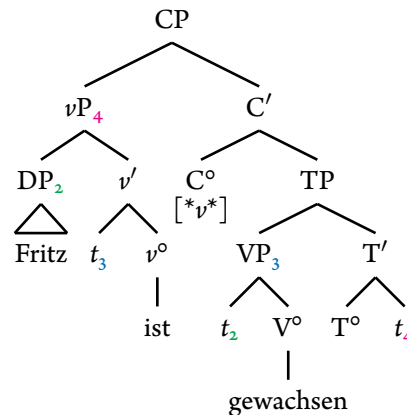
This explains some of the facts covered usually by the head movement constraint.

- (30a) Maria schläft.  
 Maria sleeps  
 'Maria sleeps.'



- Trickier are cases where internal objects are promoted to subject position, as in passives and unaccusatives: Subject movement is no longer driven by the EPP.
- Instead, Müller assumes that, since VP must move out of  $\nu$ P to get the word order right, it must be the case that internal arguments can move to Spec $\nu$ P before  $\nu$ P movement occurs.

- (33a) Fritz ist gewachsen.  
 Fritz is grown.  
 ‘Fritz has grown.’



### 2.3.2 Object-initial

- In a case like (15), with an object in first position, we have to do something more complicated.
- Again, to satisfy the EPC, we have to make sure that only the direct object and the auxiliary are left in the edge of  $\nu$ P.
- This is where the assumption about scrambling comes in.
  - a. As per (iv), scrambling in German is assumed to move material to Spec $\nu$ P.
  - b. This is driven by a  $[\ast\Sigma\ast]$  feature on  $\nu^\circ$ , which must be checked by moving some element marked  $[\Sigma]$  to Spec $\nu$ P.
- This comes attached with a claim that the only material that can appear in first position in German is material that can independently occur in the edge domain of  $\nu$ P.
- The scrambling strategy is used for many other cases of non-subject-initial clauses (adverb-initial, various kinds of PP-initial, and, as we'll see, VP-initial).

### 2.4 Why do this?

#### a. The extension condition

Unlike head movement in its traditional, head-adjointing form, this sort of movement does not violate the extension condition.

- This is taking Chomsky's (2001) suggestion pretty far, but notice that what it does: The  $[\ast\nu\ast]$  feature on  $C^\circ$  can no longer drive  $\nu^\circ$ -to- $C^\circ$  movement, only phrasal movement of  $\nu$ P.
- Still, that  $[\ast\nu\ast]$  feature is what's driving V2.
- We eliminate verb movement entirely, so anything that looks like head movement must be recast. But at what cost?

#### b. $\nu$ P edges

Müller claims that the only material that can occur in first position is material that can be edge material in a  $\nu$ P phase.

- This approach would seem to require this.
- However, I'm not sure that this approach makes any different predictions from a normal phase-based approach that assumes all material that moves to SpecCP must pass through Spec $\nu$ P.

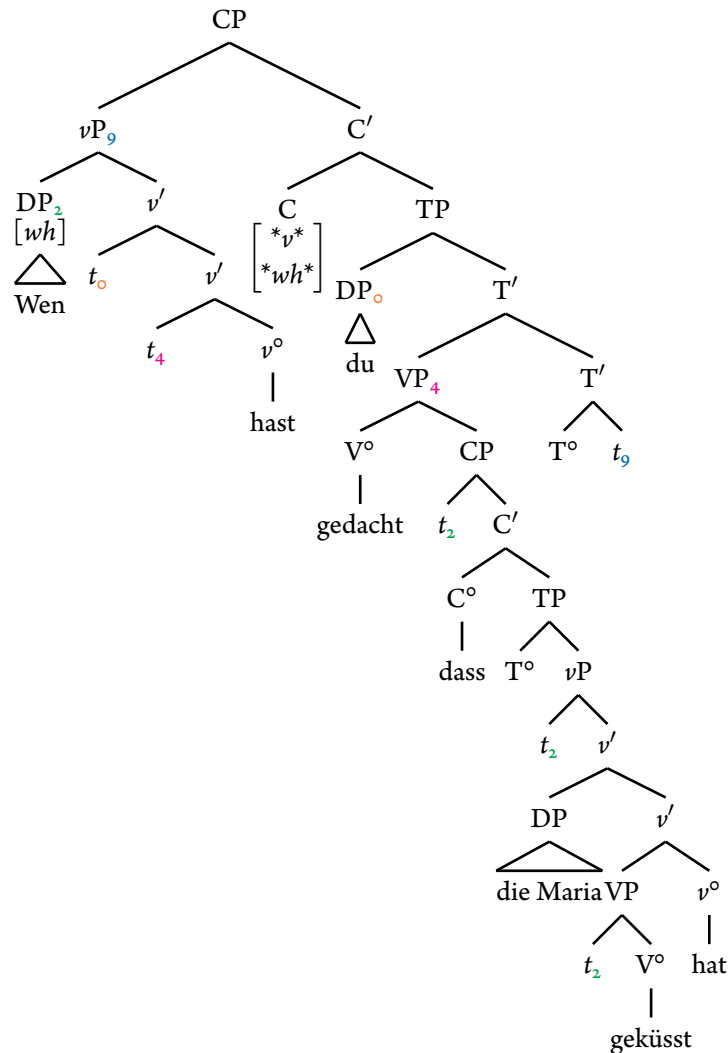
### 3 An obligatory case: *wh*-movement

- In sentences with *wh*-movement, the *wh*-element must be in first position.
- As above, this means that *wh*-elements must wind up in the edge domain of  $\nu$ P.
- Fortunately, this is something already assumed by most phase-based theories of movement.
- The interesting cases are those where *wh*-movement proceeds out of an embedded clause.

- (1) Wen<sub>2</sub> hast du gedacht [dass die Maria t<sub>2</sub> geküsst hat]?  
 whom.ACC have you thought that the Maria.NOM kissed has  
 'Who do you think Maria has kissed?'

- Notice that the lower clause is not a V<sub>2</sub> clause. This means that  $\nu$ P is not in SpecCP and the *wh*-word may pass through it.
- Once the *wh*-element passes through SpecCP, it moves to the edge of Spec $\nu$ P in the matrix clause.
- The assumption is then that the *wh*-element can check a [*\*wh\**] feature on C<sup>o</sup> from Spec $\nu$ P (Chomsky 1993).

When  $\nu$ P occupies SpecCP, no further movement may pass through this position. This is why, under this approach, V<sub>2</sub> clauses are islands.



- Long-distance topicalizations should behave similarly to this.

#### 4 Some things that don't happen

The place where the correlation between first-position and scrambling appear clearest are how it handles unstressed pronouns and object CPs.

##### 4.1 Pre-verbal weak pronouns

Recall that weak/unstressed pronouns cannot be topicalized in German.

- (43c) \* Es hat Maria gelesen.  
 it has Maria read  
 'Maria has read it.'

Müller reports however that weak pronouns cannot scramble in German, and therefore cannot move to Spec $\nu$ P. This, under his analysis, would prevent them from appearing in first position unless they are initially merged there.

Compare this, for instance, with Travis's (1984) claim that weak/unstressed pronouns simply cannot undergo movement to SpecCP.

## 4.2 Object CPs

Only certain types of object CPs can appear in initial position. This depends on the verb that selects them.

- Both *wissen*, ‘to know’ and *sich ärgern*, ‘to feel angry’, take finite CP complements.

(46a) weil Maria nicht weiß [<sub>CP</sub> dass Fritz schläft].  
because Maria not knows that Fritz sleeps.

(47a) weil Maria sich ärgert [<sub>CP</sub> dass Fritz schläft].  
because Maria self feels.angry that Fritz sleeps.

- Only *wissen* permits scrambling of the CP object; *sich ärgern* does not.

(46b) weil [<sub>CP</sub> dass Fritz schläft] Maria nicht weiß.  
because that Fritz sleeps Maria not knows.

(47b) \*weil [<sub>CP</sub> dass Fritz schläft] Maria sich ärgert.  
because that Fritz sleeps Maria self feels.angry

- Likewise, only *wissen* permits movement of the CP object to first position in V<sub>2</sub> clauses; *sich ärgern* does not.

(46c) [<sub>CP</sub> Dass Fritz schläft] weiß Maria nicht.  
that Fritz sleeps Maria knows not.

(47c) \* [<sub>CP</sub> Dass Fritz schläft] ärgert Maria sich.  
that Fritz sleeps Maria feels.angry self

## 5 Some (possible/apparent) problems

### 5.1 (Remnant) VP fronting

There are two kinds of VP fronting in German, one in which a full verb phrase is fronted, as in (20), and one where just a verb has been fronted (23).

(20) [Den Fritz geküsst] hat die Maria gestern.  
the Fritz kissed has the Mary yesterday  
‘Kiss Fritz Mary did yesterday.’

(23) [Geküsst] hat den Fritz die Maria.  
kissed has the Fritz the Maria  
‘Mary has kissed Fritz.’

- Under the traditional analysis, what separates (23) from (20) is that an object (*den Fritz* above) scrambles out of VP before VP moves to the left periphery. Under this approach, both of these elements should be allowed to scramble. The claim is that VP can do so:

(22) ? dass [<sub>VP</sub> den Fritz geküsst]<sub>3</sub> die Maria gestern sicher nicht *t*<sub>3</sub> hat.  
that the Fritz kissed the Maria yesterday surely not has.



- Presumably this is not embedded topicalization: The complementizer *dass* is present, and the finite verb is in its sentence-final position.
- However, the same cannot be done with remnant VPs:

(25) \* *dass* [ $\nu$ P  $t_2$  geküsst] den Fritz<sub>2</sub> die Maria gestern sicher nicht  $t_3$  hat.  
 that kissed the Fritz the Maria yesterday surely not has

- This outwardly seems to follow the rules of remnant movement. *Den Fritz* would have had to have scrambled out of VP before VP scrambled.
- As one might expect, Müller proposes another constraint to account for this:

x. *Unambiguous Domination*:  
 An  $\alpha$ -trace must not be  $\alpha$ -dominated.

- $\alpha$  is a variable over movement types. Thus, the trace of a scrambled element should not be dominated by an element that itself bears a scrambling feature.
- This should follow from locality conditions on movement if movement is feature driven, which scrambling is in this system.

What this means is that *den Fritz* could never precede the remnant VP.

## 5.2 Verb-initial clauses

The EPC, as worded, does not seem to rule out the possibility that a  $\nu$ P without anything in its specifier:

- *Edge Domain Pied Piping Condition*:  
 A moved  $\nu$ P contains only the edge domain of its head.

However, Müller indicate (p. 224) that verb-initial clauses (as in *yes-no* questions) would violate the EPC.

- It's not clear to me this is really true. Müller says (p. 184) that 'edge domains are often two-membered', not that they must be two-membered. As long as the left edge of  $\nu$ P can be evacuated, this should not be a problem.
- Müller suggests a null operator may occupy the edge of  $\nu$ P. Null operators in V1 contexts are not a new suggestion, but it's troubling he
- I think a more troubling question if one wanted to avoid a null operator account (a question that Müller does not note) is what would possibly drive movement of *all* of the material in SpecVP out.
  - Much of the movement out of  $\nu$ P is driven by the EPC itself.
  - But the EPC can only drive movement of all but one phrase out of  $\nu$ P.
  - If that last remaining phrase is instead moved out by, say, feature driven movement, then the EPC might drive out something else instead (see, e.g., subject movement in object-initial cases).
  - Getting everything out of  $\nu$ P is sort of the problem he set out to solve, but it looks like in the case of verb-initial clauses, the system cannot obviously do this.

### 5.3 V2 in other languages

- The analysis here relies on German scrambling to the edge of  $\nu$ P to VP-internal material into first position.
- The trouble with this is that the Scandinavian languages lack scrambling, having instead the relatively feeble object shift. Object shift can only move definite DPs in Icelandic, and only pronouns in the mainland Scandinavian languages.
- I don't think this is fatal for the analysis. In phase-based analyses, anything moving to SpecCP would have to pass through Spec $\nu$ P as well, so whatever does that in traditional approaches should be usable here.
- There's a claim that moving material to the first position does not have the same discourse effects in German as it does in the Scandinavian languages. But it's remarkable, then, that they should all display such similar syntactic behavior when it comes to fronting material.

We'll be talking about object shift soon, since it is tied directly to the availability of verb movement.

I think this is what Müller means to suggest on p. 227.

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