

Rightward verb movement: A reappraisal

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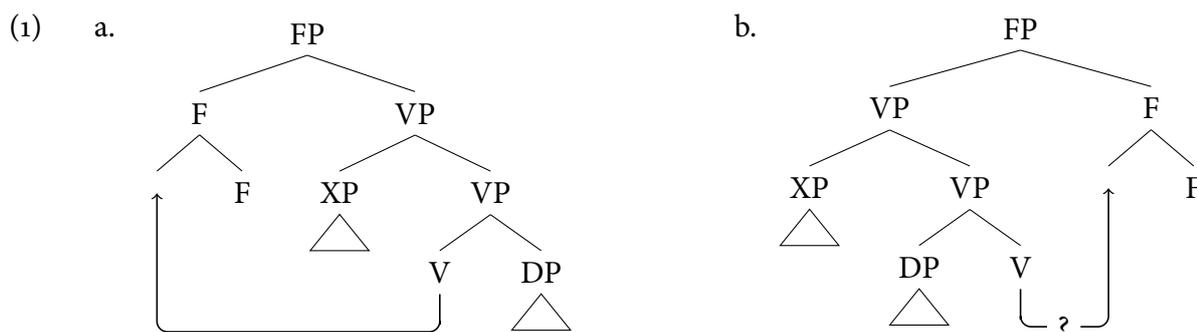
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Abstract

A well-known problem for head-final languages is diagnosing rightward head movement. For Germanic OV-languages such as German and Dutch, it has been claimed that there is no evidence for rightward movement of the verb, as well as arguments against it. This paper aims to reassess this claim with a focus on German and ultimately argue in favour of head movement to the right. First, I show that the objections raised by Haider against movement to rightward head positions do not provide conclusive evidence against rightward verb movement. Then, I aim to provide arguments in support of rightward verb movement, in particular based on particle verbs.

1 Introduction

Cross-linguistically, various structural positions in the clause have been proposed for finite verbs. These include functional heads such as T/Agr (Pollock 1989; Bobaljik & Thráinsson 1998), v (Larson 1988; Johnson 1991; also Adger 2003:131ff.) and C (Emonds 1976; den Besten 1983; Chomsky 1986). The main evidence for verb movement to such positions comes from visible effects on word order, whereby the moved verb comes to precede structurally higher elements such as adverbs, negation or arguments (e.g. subject, indirect object). This can be seen clearly in uncontroversially head-initial languages such as French and English, yet is notoriously difficult to replicate in head-final languages. This problem can be seen in the abstract representations in (1). In a head-initial language, movement of the verb to some higher functional head F can be diagnosed by a change in word order relative to the phrase XP (1a). In a head-final language, however, the same head movement process is string-vacuous and therefore not readily observable.



Researchers working on head-final languages such as Japanese have put forward both empirical and conceptual arguments for V-to-T movement (e.g. Otani & Whitman 1991; Koisumi 2000; Miyagawa 2001; Han et al. 2007; Funakoshi 2014; Hayashi & Fujii 2015; Sato & Hayashi 2018), however this still remains a matter of controversy. In head-final Germanic languages such as German and Dutch, this issue has received comparatively less attention. While some authors have assumed that there is string-vacuous verb movement to a head-final position (such as T, for example) (e.g. Grewendorf 1990; Sabel 1996, 2000; Zeller 2001*b*), the prevailing view for German (Haider 1993, 2010, 2013; Vikner 2005, 2020) and Dutch (Reuland 1990; Travis 1991; Zwart 1997) appears to be that there is no movement of the verb to any rightward head position.¹ Furthermore, some have suggested that the ordinarily string-vacuous nature of such movement renders it an essentially untestable hypothesis (e.g. Vikner 1995:156; Koopman 1995:138; Rohrbacher 1999:36; Koenenman 2000:85; Hinterhölzl 2000:295f.; Koenenman & Zeijlstra 2014:604). Others have taken a firmer stance. For German in particular, Hubert Haider has repeatedly argued that not only is there no evidence for rightward verb movement in German, there are good reasons to reject it on empirical grounds (e.g. Haider 1993, 1997, 2001, 2003, 2005, 2010, 2013).

The aim of this paper is to reassess this situation and claim that there is a case to be made for rightward verb movement in German. First, I will reconsider three oft-repeated arguments that have been presented against rightward verb movement and show that these do not hold up to closer scrutiny and therefore fail to provide conclusive evidence against rightward verb movement (section 3). Furthermore, I will argue that ordinarily string-vacuous rightward verb movement does in fact become visible in certain contexts. In particular, I identify a small class of particle verbs which can optionally project rightward specifiers, thereby making head movement to the right visible (section 4). Thus, the conclusion will be that not only are Haider's arguments against rightward verb movement in German inconclusive, but that rightward movement can provide new insights into particle verbs, complex prefields, and backward gapping. It is important to note, however, that in many cases the precise position targeted by head movement in German will be difficult to discern and I will generally remain open about whether this is T, *v* or some other functional head. Nevertheless, it can be shown that there do seem to be contexts in which it is reasonable to assume that the verb is not in its base position.

2 Rightward verb movement

2.1 German clause structure

German is known to have two main positions for the verb in declarative clauses: verb-second in matrix clauses (2a,b) and verb-final in embedded clauses (2c,d).

¹Note that this is related to, but still independent of the question of whether Germanic languages have a functional head position such as T in the extended projection of the verb. In particular, Hallman (2000) propose an analysis which involves verb movement to left-headed functional projection (with possible subsequent remnant movement; see Nilsen 2003 for a similar analysis).

- (2)
- a. Er kaufte das Buch gestern
he bought the book yesterday
'He bought the book yesterday.'
 - b. Das Buch kaufte er gestern
the book bought he yesterday
'The book, he bought yesterday.'
 - c. dass er gestern das Buch kaufte
that he yesterday the book bought
'that he bought the book yesterday'
 - d. dass er gestern das Buch gekauft hat
that he yesterday the book bought has
'that he bought the book yesterday'

The traditional approach to the structure of German clauses divides the linear string of a sentence into so-called 'topological fields' (i.e. *topologische Felder*; e.g. Drach 1937; Reis 1980; Höhle 1986; Askedal 1986). The basic idea is that a sentence has two positions for the verb, the left sentence bracket (*linke Satzklammer*) and the right sentence bracket (*rechte Satzklammer*). The finite verb in verb-initial and verb-second clauses occupies the left bracket (3a,b) with the initial constituent in the prefield (*Vorfeld*). In verb-final clauses, the left bracket contains the complementizer, while the finite verb (and any other verbal material) occupies the right bracket (3c,d).

(3)

	Vorfeld (prefield)	Linke Satzklammer (left bracket)	Mittelfeld (middle-field)	Rechte Satzklammer (right bracket)	Nachfeld (postfield)
a.	er	kaufte	gestern das Buch		
b.	das Buch	kaufte	er gestern		
c.		dass	er gestern das Buch	kaufte	
d.		dass	er gestern das Buch	gekauft hat	

Between the two sentence brackets, there is the middle-field (*Mittelfeld*) containing non-fronted objects, subjects and adverbs. The postfield (*Nachfeld*) hosts extraposed material (see section 3.2). While more descriptively-oriented, the topological field model captures an important insight about German word order, namely the complementary distribution of overt complementizers and V2 order. If the left bracket is 'filled' by the complementizer *dass*, there is no room for the verb. The right bracket, on the other hand, is assumed to be able to host multiple elements.

The same insight has been captured in X-bar theoretic analyses by assuming movement of the verb to C from an underlying head-final position (4) (Thiersch 1978; den Besten 1983; Grewendorf 1988; von Stechow & Sternefeld 1988; Sternefeld 2006; Bayer 2008). This provides one of the main motivations for analyzing German as an OV language.

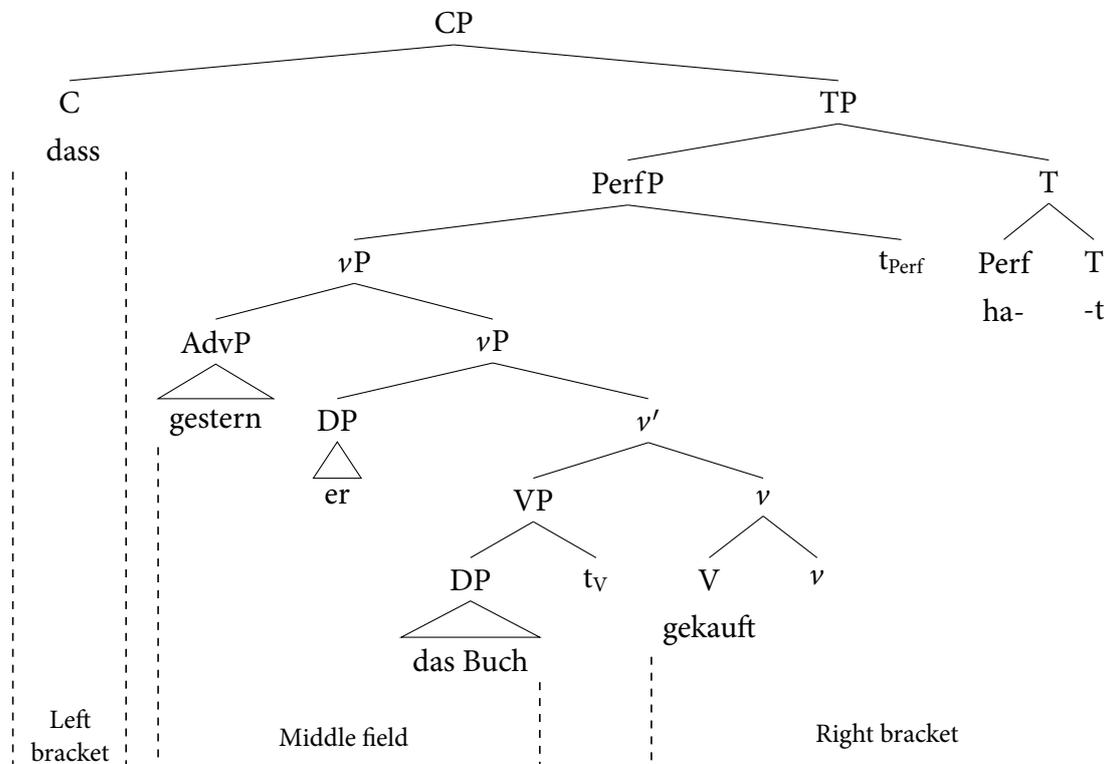
- (4) $[_{CP} \text{er}_1 [_{C'} \text{kaufte}_2 \dots [_{VP} \text{t}_1 [_{VP} \text{das Buch } \text{t}_2]]]]$

Thus, the C position therefore corresponds to the *Linke Satzklammer* ('left sentence bracket') in the traditional topological field model, and the *Vorfeld* to Spec-CP.

The positions corresponding to the other topological fields are less clear. This holds in particular

of the right bracket. If we adopt the standard clausal architecture assumed for English (see e.g. Adger 2003), we would arrive at something like the structure in (5) for German (also see Jäger 2008:227). Focusing on the right bracket, the lexical verb *gekauft* moves to v , while the finite auxiliary *hat* would also move to T from its base position in PerfP.

(5) Contemporary analysis of verb-final word order in German:



While each of these movement operations is well-motivated in a head-initial language such as English by the position of the verb relative to other overt elements such as indirect objects and negation, head movement to v and T in (5) is entirely string-vacuous and therefore empirically unsupported. This is one of the main movement puzzles posed by head-final languages: Is there any evidence that verbs move to a rightward head position?

2.2 Head Movement Constraint

In the absence of clear empirical evidence, one could try to make a conceptual argument for rightward head movement of the verb.² For example, one could reason that, since German clearly has V-to-C movement, any intervening clausal-final head positions between V and C would also have to be targeted by movement given the *Head Movement Constraint* (Travis 1984). If one can motivate such functional projections on independent grounds, then rightward head movement through these positions would follow.

This line of argumentation proves problematic, however, in light of Mainland Scandinavian languages such as Danish, Swedish and Norwegian, which differ from German and Dutch being VO

²That said, some authors have tried to rule out rightward verb movement (across objects) precisely for conceptual reasons (see e.g. Ross 1970:257; Kayne 1994:51; Ackema & Neeleman 2002).

languages (see Bobaljik & Thráinsson 1998). Like other Germanic V2-languages, they exhibits V-to-C movement, as the following Danish examples show (6).

(6) *Danish has V-to-C movement* (Sailor 2018:862):

- a. Om morgenen har₁ Peter ofte [_{AuxP} —₁ drukket kaffe]
in the.morning has Peter often drunk coffee
‘Peter has often drunk coffee in the morning.’
- b. Om morgenen drikker₁ Peter ofte [_{VP} —₁ kaffe]
in the.morning drinks Peter often coffee
‘Peter often drinks coffee in the morning.’

However, Vikner (1995) has shown that there is no clear evidence for V-to-T movement in Danish. In embedded clauses, we observe that finite verbs must follow negation (7a) and adverbs (7c), suggesting that the verb has not moved.

(7) *No V-to-T in Danish* (Vikner 1995:40f., 145):

- a. Jeg spurgte hvorfor Peter ikke [_{AuxP} havde læst den]
I asked why Peter not had read it
- b. *Jeg spurgte hvorfor Peter havde₁ ikke [_{AuxP} —₁ læst den]
I asked why Peter had not read it
‘I asked why Peter had not read it.’
- c. Jeg tror ikke at Peter ofte [_{VP} spiser tomater]
I think not that Peter often eats tomatoes
- d. *Jeg tror ikke at Peter spiser₁ ofte [_{VP} —₁ tomater]
I think not that Peter eats often tomatoes
‘I don’t think that Peter often eats tomatoes.’

Since TP is head-initial in Danish, it seems that Danish lacks V-to-T movement, whilst still clearly displaying V-to-C movement. Danish therefore serves to show that having V-to-C movement does not entail having V-to-T movement. If there is a functional head such as T in Danish, it does not seem to be a possible target for head movement.³ This casts doubt on the legitimacy of a conceptual argument for verb movement through rightward functional head positions in German based on the availability of V-to-C movement alone.

2.3 Is there rightward verb movement?

Thus, the current picture about rightward movement in OV Germanic languages is rather unclear. While some have explicitly argued against the existence of rightward verb movement, others adopt the rather defeatist position that this question is essentially unanswerable. So far, there have, how-

³However, as a reviewer points out, this might come down to the question of the trigger for head movement. One option is that the trigger for head movement is at the landing site. In Danish, we could say that C is an attractor for V, whereas T is not. Assuming the Head Movement Constraint, however, V-to-C would still require movement through any intervening functional heads (including T). Nevertheless, this complication simply means that this conceptual argument would become more or less unfalsifiable, since a head movement step can be posited even in the clear absence of its overt counterpart. If we instead assumed that verb movement is triggered by a feature on V itself (e.g. Georgi & Müller 2010), then the Danish facts seem more problematic, since we would have to stipulate that V-to-T is blocked, unless the head is going to move further to C.

ever, been very few attempts to make the case in favour of rightward head movement in Germanic languages (but see [Sabel 2000](#)). This is the goal of the remainder of this paper. First, section 3 addresses the three main arguments against rightward head movement in German put forward by [Haider \(1993, et seq.\)](#). As we will see, these arguments are either inconclusive or based on incorrect premises. Subsequently, section 4 goes on to develop an argument in favour of rightward head movement based on certain particle verbs such *mit-nehmen* ('to take with') that allow for a PP argument to intervene between the particle and the verb. It will be argued that this involves movement to a rightward head position across the PP in a rightward specifier of V (8).

- (8) ... wenn man das Kind *mit-*___ ins Büro *nimmt*
 if one the child PRT in.the office takes
 '... if one takes their child with them to the office'

It is the idiosyncratic property of verbs belonging to this class that allows for this exceptional placement of the PP, thereby making movement of the verb visible. This analysis will be briefly defended in light of a potential alternative involving a complex PP structure in section 5. Finally, two further potential arguments for rightward verb movement will be presented in section 7.

3 Haider's arguments against rightward verb movement

Since the early 90s, Hubert Haider has repeatedly argued against the existence of clause-final functional heads in German, and consequently, movement to these positions (e.g. [Haider 1993, 1997, 2001, 2003, 2005, 2010, 2013](#)). The theoretical motivation for this comes from the incompatibility of head-final positions with his *Basic Branching Constraint* (9), which states that functional heads in an extended projection give rise to right-branching structures only (see [Haider 2013:211ff.](#) for a comparison with [Kayne's \(1994\) Linear Correspondence Axiom](#)). A consequence of the assumed absence of clause-final heads is the impossibility of movement to such positions.

- (9) *Basic Branching Constraint* ([Haider 1993:28; 1997:20; 2013:3](#)):
 The structure build-up (*merger*) of phrases (and their functional extensions) is universally *right-branching*.



The evidence that Haider presents against movement to rightward head positions in German comes in the form of three empirical arguments: (i) mandatory scope of head movement, (ii) extraposition, (iii) verbs that fail to undergo verb-second. The following sections will review and discuss these arguments in detail. However, we will see that they ultimately all fail to provide a conclusive and convincing argument against verb movement to the right. In fact, in the case of (iii), we can even

view it as an argument in favour of rightward movement.

3.1 Mandatory scope

The first of Haider's arguments against rightward head movement involves verbs such as *verdreifachen* ('to triple'), which he views as scope-bearing verbs (Haider 1995:253; 1997:24; 2010:64f.). In (10), the verb can surface in clause-final position (10a), however verb-second order is ungrammatical (10b) (even though this verb can undergo V2-movement in other contexts).

- (10) *No verb-second with verdreifachen 'to triple'* (Haider 1997:24):
- a. Der Wert hat sich mehr als (bloß) verdreifacht
the value has REFL more than (simply) tripled
 - b. *Der Wert verdreifachte₁ sich mehr als (bloß) —₁
the value tripled REFL more than (simply)
'The value has more than (simply) tripled in the last few days.'

In examples such as (10), Haider argues that the verb must stay within the scope of the comparative *mehr als (bloß)* ('more than (simply)') in order to derive the scopal relation (*more* > ×3). Haider assumes that the comparative operator is VP internal (Haider 2010:64; Haider 2013:79) and that 'in a comparative construction, the target of comparison must be in the c-command domain of the comparative expression' (Haider 2010:64). Thus, the explanation for the grammaticality of (10a) offered by Haider is that 'the finite verb must be VP-internal, hence *in situ*. If it were to rise to a clause-final functional head position, it would leave the scope domain of the operator element and would be predicted to be ungrammatical' (Haider 2013:79). Thus, failure to remain within the scope of the comparative is what rules out the verb-second example in (10b).⁴ By the same logic, if (10a) were to involve string-vacuous movement to some head-final position outside the VP, it should be equally ungrammatical (contrary to fact). He concludes that verb-final clauses in German must therefore have the structure in (11a) without string-vacuous verb movement out of the VP. Otherwise, we would expect verb-final clauses in (11b) to violate the scope requirement in the same way as the verb-second clauses (11c).

- (11) a. [_{CP} C [_{TP} [_{VP} *more than* [_{VP} ... *triple* ...]] T]]
 b. [_{TP} [_{VP} *more than* [_{VP} ... t₁ ...]] T+*triple*₁]
 c. * [_{CP} C+*triple*₁ [_(TP) [_{VP} *more than* [_{VP} ... t₁ ...]] (T)]

⁴This does not explain why head movement cannot reconstruct below negation, as it seems to generally have this option (as mentioned by Haider 1997:24). For example, the modal *können* in (ia) can optionally reconstruct (given rising to ambiguity), whereas the NPI-modal *brauchen* must reconstruct (ib) (also see Lechner 2006; Iatridou & Zeijlstra 2013).

- (i) a. Man kann₁ es nicht sehen —₁
one can it not see
'One is not able to see it/It is possible not to see it.'
 b. Man braucht es *(nicht) zu sehen
one needs it not to see
'One does not need to see it.'

Haider simply makes the *post hoc* conclusion that reconstruction must not be possible in (10b) (Haider 1997:24; 2010:65), however the reason for it remains unclear if reconstruction of verbs in second position is generally available in German.

Haider concludes from this that there is no evidence for movement to a clause-final functional head position in German.⁵

It has been argued, however, that these data have nothing to do with scope (Meinunger 2001, 2006). First, consider that V2-order is still not possible when we replace ‘triple’ with a verb such as *beleidigen* (‘offend’), which is not scope-bearing in the same way as *verdreifachen* (‘triple’). As (12) shows, it has the same distribution as *verdreifachen*. It can occur in final (12a), but not V2-position (12b).

- (12) a. dass er sie mehr als (nur) beleidigte
 that he her more than only offended
- b. *Er beleidigte sie mehr als (nur)
 he offended her more than only
 ‘(that) he more than just offended her’

Furthermore, Meinunger (2001) has shown that the same restriction is also found when the stranded element is not scope-bearing either, e.g. with intensifying modifiers such as *sowas von* (‘in an incredible manner’) (13) and *so gut wie* (‘as good as/all but’) (14).

- (13) *Illicit stranding with sowas von* (Meinunger 2001:734):
- a. Der Besuch hat sowas von geprahlt
 the guest has SOWAS VON boasted
- b. weil der Besuch sowas von prahlte
 because the guest SOWAS VON boasted
- c. *Der Besuch prahlte₁ sowas von —₁
 the guest boasted SOWAS VON
 ‘The guests were boasting in such an incredible manner.’

- (14) *Illicit stranding with so gut wie* (Meinunger 2001:734):
- a. Der Angeklagte hat so gut wie gestanden
 the accused has SO GUT WIE confessed
- b. weil der Angeklagte so gut wie gestand
 because the accused SO GUT WIE confessed
- c. *Der Angeklagte gestand₁ so gut wie —₁
 the accused confessed SO GUT WIE
 ‘The accused all but confessed.’

Since these cases do not plausibly involve a scope relation between two elements, Haider’s account cannot explain why they seem to observe the same restriction. Meinunger (2001, 2006) has instead suggested that we are dealing with an illicit stranding violation. If the modifiers in question attach to the V head directly, then verb movement would strand the modifying expression.⁶ Meinunger (2006) has also suggested that this stranding constraint could actually be phonological in nature.

⁵However, Koopman (1995:139,fn.5) points out that it does not follow from the absence of evidence for movement to some clause-final functional head that such a head position does not exist.

⁶The assumption of a complex constituent is supported by the fact that the entire complex can appear in second position for some speakers (i).

This is supported by the grammatical examples in (15), which are analogous to (13) and (14) (Meininger 2001:735). The presence of overt phonological material in the form of a low clause-final adverb (15a) or a verbal particle (15b) allows for the verb to appear in second position.

- (15) a. Der Angeklagte gestand so gut wie —₁ gar nicht
the accused confessed SO GUT WIE PRT not
‘The accused didn’t as much as confess.’
- b. Unser Besuch gab sowas von an—₁
our guest gave SOWAS VON ON
‘Our guests were boasting in such an incredible manner.’

Thus, the correct generalization seems to be that these modifiers must precede some overt material. This could be due to a purely phonological stranding restriction, or perhaps even the fact that such modifiers act as focus-sensitive operators that must associate with some overt material following them (see e.g. Buring & Hartmann 2001). The precise explanation is not crucial, what matters is that movement to C is blocked if it creates the relevant undesired surface configuration. Importantly, this data is still compatible with the assumption of rightward movement since it is typically string-vacuous. In light of this, verbs with apparent mandatory scope effects do not provide an argument against verb movement to the right.

3.2 Extraposition

The next argument comes from what is sometimes referred to as *Haider’s Puzzle* (Truckenbrodt 1995:506; Wurmbrand 2007:248). Haider (1993:61) showed that, while both CPs (16a) and PPs (17a) can be extraposed, they cannot target a position between the VP and the finite auxiliary, as in (16b) and (17b).

(16) *CP extraposition cannot intervene between right bracket* (Haider 2003:94):

- a. dass er [_{DP} jenen —_{CP}] etwas gegeben hat, [_{CP} die ihn darum gebeten haben]
that he those something given has who him there.on asked have
‘that he gave something to those who asked for it.’
- b. *dass er [_{DP} jenen —_{CP}] etwas gegeben [_{CP} die ihn darum gebeten haben] hat
that he those something given who him there.on asked have has
‘that he gave something to those who asked for it.’

(17) *PP extraposition cannot intervene between right bracket* (Haider 2013:80):

- a. dass er nicht mehr [_{VP} —_{PP} gesprochen] hat [_{PP} mit ihr]
that he not more spoken has with her
- b. *dass er nicht mehr [_{VP} —_{PP} gesprochen] [_{PP} mit ihr] hat
that he not more spoken with her has
‘that he hasn’t spoken to her since’

- (i) a. ?Hans [mehr als verdreifachte] seinen Profit — letztes Jahr
Hans more than tripled his profit last year
‘Hans more than tripled his profit last year.’

(Fanselow 2004:20)

However, as originally noted by Haider (1990:95), an extraposed PP may be topicalized along with the VP constituent it has been adjoined to (18).

(18) *Extraposition with a fronted VP* (Haider 2013:80):

[_{VP} [_{VP} —_{PP} Gesprochen] [_{PP} mit ihr]] hat er nicht —_{VP}
 spoken with her has he not
 ‘He has not spoken with her.’

Haider’s Puzzle therefore pertains to why extraposed phrases cannot intervene between the VP edge and the finite verb in (16) and (17), since (18) shows that extraposition can target the VP edge in principle. If the finite verb moved to some higher head above the extraposition site, we would expect examples like (16b) and (17b) to be grammatical. One conclusion that has been drawn from this is that the impossibility for intervention in these cases must be due to the absence of rightward movement of the finite verb *hat* to a position outside the minimal VP (Haider 1993:60f.; Haider 2010:67f.; Haider 2013:80). Consequently, Haider takes this to be an argument that there is no rightward movement in verb-final clauses in German.

There is an alternative account for Haider’s Puzzle, however. As pointed out by Wurmbrand (2007:251f.), we can follow Truckenbrodt (1995) in assuming that extraposition is actually a prosodically-constrained process (also see Hartmann 2013; Féry 2015) and this is what rules out (16b) and (17b) (cf. Buring & Hartmann 1997:29 on a syntactic alternative).

To see this, let us first consider how prosodic structure relates to syntactic structure. It is widely assumed that there is some mapping procedure that derives the former from the latter. In other words, different parts of a syntactic representation are matched with corresponding parts of the prosodic hierarchy (e.g. Selkirk 1984, 2009, 2011; Truckenbrodt 1999; Elfner 2012). Canonically, syntactic heads are mapped to prosodic words (ω), syntactic phrases (XPs) are mapped to prosodic phrases (ϕ) and clauses are mapped to intonation phrases (I). Furthermore, Truckenbrodt (2006, 2007, 2017) suggests that the correct assignment of phrase-level stress in German can be captured by Gussenhoven’s (1983; 1992) *Sentence Accent Assignment Rule* (it could also be captured by the constraint Stress-XP; Truckenbrodt 2007:446).

(19) *Sentence Accent Assignment Rule* (SAAR) (Gussenhoven 1983:391; Gussenhoven 1992:84):

If focused, every predicate, argument, and modifier must be accented [on the p-phrase level], with the exception of a predicate that, discounting unfocused constituents, is adjacent to an argument.

In addition, the main stress in a sentence is derived by a rule that we can call *final strengthening*, given in (20) (Uhmman 1991:179 calls it the *Regel der Endakzentstärkung*).

(20) *Final strengthening* (Uhmman 1991:179; Truckenbrodt 2007:446):

In an intonation phrase, the rightmost stress of the level of the p-phrase is strengthened.

Truckenbrodt (2006) illustrates how this correctly captures the distribution of phrasal stress in German when the VP-internal material is new, such as in an answer to the question *Was hat Hans gestern gemacht?* (‘What did Hans do yesterday?’). Let us assume that accents are assigned at different levels

in a metrical grid (21) (cf. Liberman & Prince 1977). In (21a), word level accents are assigned to each lexical item in the VP (we disregard the pronoun and auxiliary here). Given the SAAR (19), the accent of *Linguistik* is projected to the level of the p-phrase. At the level of the intonation phrase, the rightmost accent on the p-phrase level is strengthened following (20), becoming the primary stress. With the adverbial phrase in (21b), however, stress is assigned again at the word-level to the verb and *Tag* inside the AdvP. Since *den ganzen Tag* is an adjunct to VP, it constitutes a distinct XP from the VP and therefore forms its own p-phrase with a projected accent. Now, final strengthening will project the accent of the verb (phrase) since it is in the rightmost p-phrase accent.

(21) Sentence accent assignment in German (Truckenbrodt 2006:574):

a.	(	x	)	I	int. phrase level		
	(	x	)	φ	p-phrase level		
	(x)	ω	(x)	ω	word level
	er hat	[_{VP}	Linguistik	]	unterrichtet]		
	he has		linguistics		taught				
b.	(		x	)	I	int. phrase level
	(		x	)	φ	p-phrase level
	(x)	ω	(x)	ω	word level
	er hat	[_{AdvP}	den ganzen Tag]	[_{VP}	unterrichtet]		
	he has		the whole day			taught			

This becomes relevant when we consider examples with a complex right sentence bracket. We see that the presence of additional modal or auxiliary verbs does not affect accent assignment. In each example in (22), final strengthening applies to the direct object *Linguistik*, suggesting that its accent is the rightmost on the level of the p-phrase, despite additional syntactic projections corresponding to the auxiliaries/modals. If either the auxiliary or modal were grouped in its own p-phrase, it would be subject to final strengthening, analogous to (21b).

(22)	a.	(	x	)	I										
		(	x	)	φ										
		(x)	ω	(x)	ω	(x)	ω				
		dass er	Linguistik	studiert	hat												
		that he	linguistics	studied	has												
	b.	(	x	)	I										
		(	x	)	φ										
		(x)	ω	(x)	ω	(x)	ω	(x)	ω
		dass er	[_{VP}	Linguistik	studiert]	haben	muss									
		that he		linguistics	studied		have	must									

This suggests, as Wurmbbrand (2007:252) also notes, that ‘a series of clause-final verbs and auxiliaries that belong to one clausal domain is mapped onto one single prosodic phrase.’ Truckenbrodt (1995)

and Wurmbrand (2007) provide further evidence for this from boundary tones. We can therefore capture the uniform prosodic mapping of this domain with (23).

(23) *Contiguity of the right sentence bracket:*

All heads in the right sentence bracket belonging to the same extended projection are mapped onto a single prosodic phrase together with the minimal ν P.

Returning to Haider's Puzzle, recall that extraposition of a PP argument cannot target a position between the VP and a finite auxiliary (24).

(24) *dass niemand mehr [VP —PP gesprochen] [PP mit ihr] hat
 that nobody more spoken with her has
 'that nobody has spoken to her since'

With (23) in place, this restriction can now be derived by adopting the constraint on extraposition in Truckenbrodt (1995) in (25) (also see Wurmbrand 2007).

(25) *Prosodic constraint on extraposition* (Truckenbrodt 1995:503):

Let XP be a syntactic category that is canonically mapped into the prosodic category π upon extraposition (where π is either the phonological phrase or the intonational phrase in the following). Then extraposition (from NP) will take XP as far as out of a prosodic constituent of the same category π .

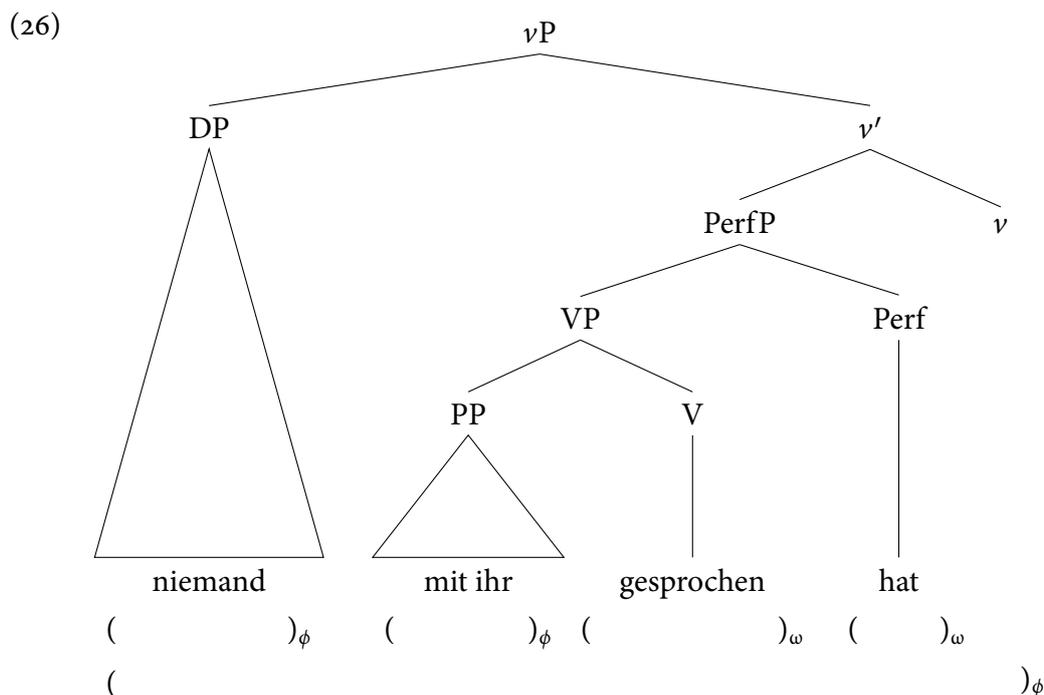
$$(\dots XP \dots)_\pi \rightarrow (\dots t_i \dots)_\pi (XP_i)_\pi$$

This constraint requires that XPs (which are mapped to prosodic phrases) must at least move out of the prosodic phrase in which they are immediately contained. Given (23), the ν P domain and any clause-final auxiliaries/modals in an example such as (24) are mapped to a single prosodic phrase, as shown in a somewhat simplified form in (26).⁷

⁷Note that the inclusion of the (base position of the) external argument is important since extraposition from subjects is possible in German (i) and must also be constrained in the same way.

(i) *Extraposition from subject in German* (Müller 1995:216f.)

- a. dass [DP eine Frau —PP] den Raum betreten hat [PP mit blauen Augen]
 that a woman the room entered has with blue eyes
 'that a woman with blue eyes entered the room.'
- b. Den Wolfgang hat [DP die Tatsache —CP] interessiert, [CP dass neue Möbel kommen]
 the.ACC Wolfgang has the fact interested that new furniture come
 'The fact that new furniture is arriving has interested Wolfgang.'



Since extraposition is constrained in such a way that it must target a position outside the prosodic phrase in which it is contained, the extraposition site must necessarily follow any clause-final verbal material in functional heads up to T (27a). The illicit cases of extraposition that constitute Haider’s Puzzle involve extraposition that is ‘too short’ in not leaving its local p-phrase (27b).⁸

- (27) a. (... (mit ihr)_φ (gesprochen)_ω (hat)_ω)_φ → (... (gesprochen)_ω (hat)_ω)_φ (mit ihr)_φ
 b. *(... (mit ihr)_φ (gesprochen)_ω (hat)_ω)_φ → (... (gesprochen)_ω (mit ihr)_φ (hat)_ω)_φ

Further support for the importance of extended projections in the definition of (23) comes from restructuring contexts. In (28a), possibility of nominative case on the object is indicative of an optional process of restructuring/clause-union (Aissen & Perlmutter 1983; Wurmbrand 2001) resulting in a ‘long passive’. Note that, in the absence of restructuring, an extraposed phrase can intervene between the embedded verb *einzuwerfen* and the matrix verb *vergessen* (28b). In a restructuring context (indicated by nominative on the object), this extraposition site is ungrammatical (28c). In both cases, extraposing the CP past the final verb is grammatical (28d).

(28) Compactness of complex predicates (Haider 2010:334):

- a. weil [_{DP} de{-r/-n}] Brief [_{CP} der hier liegt]] ein-zu-werfen vergessen wurde
 because the{-NOM/-ACC} letter that here lies in-to-throw forgotten was
 ‘since it was forgotten to post the letter that is lying here’
- b. weil [_{DP} den Brief ____{CP}] ein-zu-werfen, [_{CP} der hier liegt], vergessen wurde
 because the.ACC letter in-to-throw that here lies forgotten was
- c. *weil [_{DP} der Brief ____{CP}] ein-zu-werfen, [_{CP} der hier liegt], vergessen wurde
 because the.NOM letter in-to-throw that here lies forgotten was

⁸Given the prosodic nature of the constraint in (25), Truckenbrodt (1995) assumes that extraposition must be a PF process. Wurmbrand (2007) argues that this same insight can still be captured if extraposition is syntactic movement. The constraint in (25) would then be a restriction on copy pronunciation, rather than PF movement itself. For the purposes of the present paper, either of these views can be adopted.

- d. weil [DP de{-r/-n} Brief —_{CP}] ein-zu-werfen vergessen wurde, [CP der hier
because the{-NOM/-ACC} letter in-to-throw forgotten was that here
liegt]
lies

This follows if restructuring involves both the embedded and matrix verbs forming a single extended projection (i.e. a complex predicate), however this is achieved technically (see e.g. Roberts 1997; Wurmbrand 2001, 2004b, 2015; Bobaljik & Wurmbrand 2005; Keine & Bhatt 2016). Given the contiguity condition in (23), both of the verbs in (28c) would be mapped to a single prosodic phrase that the extraposed relative clause must move out of. In (28b), the minimal p-phrase containing the target of extraposition would only contain the embedded verb *einzuwerfen* and thus allows for short extraposition of the CP to a position immediately following it.

The consequence of this view of extraposition is that we have an independent explanation for why extraposition cannot target a position between the VP and the finite verb. This solution to Haider's Puzzle is independent of whether there is movement to a clause-final functional head position. As such, this argument against rightward verb movement loses any force.

As a final note, there are some putative exceptions to Haider's Puzzle discussed by Sabel (2000) in which it seems that a so-called R-pronoun PP (van Riemsdijk 1978) can intervene between the VP and the finite verb (29).

(29) 'Intervention' by pronominal adverbs (Sabel 2000:88):

- a. dass viele Menschen heutzutage —_{PP} bedroht [PP da-von] sind
that many people nowadays threatened there-of are
'that many people are threatened by it nowadays'
- b. dass niemand —_{PP} überzeugt [PP da-von] war
that nobody convinced there-of was
'that nobody was convinced of it'

Sabel (2000:89) notes that one could view this as support for a phonological approach to extraposition, since it seems that phonologically-lighter PPs are more acceptable in a position intervening in the right sentence bracket (perhaps because they are only prosodic words and therefore do not violate the constraint on extraposition in (25)). However, it seems that cases such as (29) have been wrongly analyzed as instances of extraposition. The confound here is that the examples in (29) are structurally ambiguous and can also be viewed as adjectival/stative passives as the complement of an ordinary copula verb (see e.g. Rapp 1996; Kratzer 2000; Gehrke 2013; Alexiadou et al. 2014; Bruening 2014). In (29), *überzeugt* and *bedroht* would be analyzed as predicative adjectives, which always take their complements to their right (30). On this view, the PP is not an extraposed *by*-phrase of passivized verb, but in fact the complement of a head-initial adjective phrase.

- (30) a. dass viele Menschen heutzutage [VP [AP bedroht [PP davon]]] sind]
that many people nowadays threatened there.of are
'that many people are threatened by it nowadays'
- b. dass niemand [VP [AP überzeugt [PP davon]]] war]
that nobody convinced there.of was
'that nobody was convinced of it'

This view is supported by the fact that examples such as (30) seem to be unacceptable with the auxiliary *werden* ('to become') that is used in true verbal passives (31).⁹

- (31) a. *dass viele Menschen heutzutage ---_{PP} bedroht $[\text{PP } \text{davon}]$ werden
 that many people nowadays threatened there.of become
 b. *dass niemand ---_{PP} überzeugt $[\text{PP } \text{davon}]$ wurde
 that nobody convinced there.of became

It therefore seems that pronominal adverbs such as *davon* are equally subject to the constraint on extraposition in (25).

3.3 Verbs that fail to undergo V2

The final (and arguably most prominent) argument against rightward head movement comes from verbs with multiple prefixes. This was originally identified as a problem for rightward verb movement by Höhle (1991/2018) and was further discussed by Haider (1993:62; 2010:58ff.; 2013:76f.) for German, Koopman (1995) for Dutch and Vikner (2005) for other Germanic languages. There are particle verbs such as *ur-auf-führen* ('to perform for the first time') (32), which contain a separable prefix *auf* and an inseparable prefix *ur-*. While such multiply-prefixed verbs can occur clause-finally (32a), movement to second position is impossible either with stranding of the prefix(es) (32b,c) or without (32d).

- (32) a. dass sie das Stück *ur-auf-führen*
 that they the piece PRT-PRT-lead
 'that they are performing the piece for the first time.'
 b. *Sie führen₁ das Stück *ur-auf-* ---_1
 they lead the piece PRT-PRT-
 'They are performing the piece for the first time.'
 c. *Sie *auf-führen*₁ das Stück *ur-* ---_1
 they PRT-lead the piece PRT-
 'They are performing the piece for the first time.'
 d. *Sie *ur-auf-führen*₁ das Stück ---_1
 they PRT-PRT-lead the piece
 'They are performing the piece for the first time.'

This can also be seen with another apparently multiply-prefixed verb *vor-an-melden* ('to pre-announce'),

⁹ Sabel (2000) provides the following example which he judges as '?'. However, the speakers I have consulted do not find it grammatical (also see Haider 2010:62 for the same sentiment).

- (i) *dass niemand viel ---_{PP} gelernt $[\text{PP } \text{dafür}]$ hat
 that nobody much studied there.for has
 'that nobody studied much for it'

Zeller (1997:299) presents examples such as (ii), whose status also seems similarly controversial.

- (ii) *(?)dass Peter sich da₁ ganz gut aus $[\text{PP } t_1 \text{ mit}]$ kannte
 that Peter REFL there quite good PRT with knew
 'that Peter was quite knowledgeable about it.'

which consists of the separable prefix *an-* and the inseparable variant of *vor-*. As with *ur-auf-führen*, this verb can occur in clause-final position (33a). However, its prefix cannot be stranded (33b,c), and the entire verb with its prefixes may not move to second position (33d).

- (33) a. dass sie ihre Bestellung *vor-an*-meldeten
 that they their reservation PRT-PRT-announced
 ‘that they announced their reservation in advance’
- b. *Sie meldeten₁ ihre Bestellung *vor-an*- ____₁
 they announced their reservation PRT-PRT-
- c. *Sie an-meldeten₁ ihre Bestellung *vor-* ____₁
 they PRT-announced their reservation PRT-
- d. *Sie *vor-an*-meldeten₁ ihre Bestellung ____₁
 they PRT-PRT-announced their reservation
 ‘They announced their reservation in advance.’

Koopman (1995) also shows that the same pattern holds for Dutch verbs such as *her-uit-geven* (‘to re-publish’) that has a separable prefix *uit-* and an inseparable prefix *her-* (‘re-’). This particle verb cannot be split (34b) and also cannot undergo V2 (34c).

- (34) *No verb-second of multiply prefixed verbs in Dutch* (Koopman 1995:140):
- a. omdat deze uitgeverij zulke boeken vandaag de dag niet *her-uit*-geeft
 because this editor such books today not PRT-PRT-gives
 ‘because this company does not presently republish such books’
- b. *Vandaag geven₁ ze het *her-uit*-____₁
 today give they it PRT-PRT-
- c. *Vandaag *her-uit*-geven₁ ze het ____₁
 today PRT-PRT-give they it
 ‘They are republishing it again today.’

Haider’s argument is that the immobility of these verbs results from the conflicting requirements imposed by the two particles (also see Koopman 1995 for similar arguments). For example, with *ur-auf-führen*, the inseparable prefix *ur-* cannot be stranded under V-to-C movement. The separable particle *auf-*, on the other hand, must be stranded in V2 contexts. As such, there is no way for the demands of the two particles to be satisfied simultaneously. Haider (2013:77) therefore concludes that ‘the conflicting structural requirements – *strand the particle* and simultaneously *do not strand* – can be avoided only if the trigger of the conflict, namely movement, is avoided’. If correct, this would mean that a verb in clause-final position could not have undergone string-vacuous rightward movement since this would also be subject to the same stranding paradox.

This account for the immobility of multiply-prefixed verbs is not satisfactory, however. For one thing, there are multiply-prefixed verbs such as *be-ein-drucken* (‘to impress’) and *be-auf-tragen* (‘to commission’) in German which consist of an inseparable prefix *be-* and a separable prefix *ein-/auf-* (Vikner 2005:105). Such verbs can readily undergo V2 in German, despite having prefixes with the same apparently conflicting requirements as verbs like *ur-auf-führen*. What is more, Vikner (2005) shows that multiply-prefixed verbs in Danish consisting of separable *op-* (‘up’) and insepa-

able *gen-* ('re-') also resist stranding (35a,b), but differ from their Dutch counterparts in being able to undergo V2 (35c).

(35) *Multiply-prefixed verbs can undergo verb-second in Danish* (Vikner 2001:115; 2005:111):

- a. *I maj blussede₁ stridighederne *gen-op-* ___₁ met fornyet styrke
in May kindled hostilities re-up- with renewed force
- b. *I maj *op-blussede*₁ stridighederne *gen-*___₁ met fornyet styrke
in May up-kindled hostilities re- with renewed force
- c. I maj *gen-op-blussede*₁ stridighederne ___₁ met fornyet styrke
in May re-up-kindled hostilities with renewed force
'In May, the hostilities broke out again with renewed force.'

It has been repeatedly argued in the literature that what is really at stake with 'verbs that fail to undergo V2' is that they are derived by a morphological process of backformation (see Stiebels & Wunderlich 1994; Stiebels 1996; Zifonun 1999; Sabel 2000; McIntyre 2001; Zeller 2001b; Vikner 2005; Fortmann 2007; Freywald & Simon 2007). Vikner (2005) argues that multiply-prefixed verbs in Danish can undergo V2 since they are not formed by backformation, unlike their Dutch and German equivalents. One reason to believe that it is backformation, and not multiple prefixation, which results in the impossibility of V2 with some verbs is that we find a similar aversion to V2 with backformed verbs that do not involve multiple prefixes, such as *schutz-impfen* ('to vaccinate', Lit. 'protection-inoculate'), *berg-steigen* (Lit. 'mountain-climb') and *bau-sparen* ('to save with a building society', Lit. 'build-save') (see Vikner 2005:88ff. and Eisenberg 2013:326 for comprehensive lists of such verbs). These are verbs that are formed by reanalysis (i.e. backformation) from nominal compounds such as *Berg-steig-er* ('mountain-climb-er') and *Schutz-impf-ung* ('protection-innoculate-NMLZ'). Some more representative examples of such verbs showing their inability to undergo V2 are given in (36). The verb *wett-rennen* ('to run competitively') is backformed from the compound *Wett-rennen* ('foot race' Lit. 'bet-run'). This verb is similar to multiply-prefixed verbs of the *urauf-führen*-type in being able to occur in V-final clauses (36a), but not in V2-clauses (36b). Furthermore, even the verb *rück-bilden* ('to back-form') is itself a backformation and shows the same aversion to V2 (36d).

(36) *Backformed verbs cannot undergo V2* (Fortmann 2007:6, 10):

- a. Wenn Eberhardt *wett-rennt*, verliert er in der Regel
when Eberhardt bet-race loses her in the rule
'When Eberhardt races, he usually loses.'
- b. *Eberhardt *wett-rennt*, um stets nur zu verlieren
Eberhardt bet-race PRT always just to lose
'Eberhardt races just go to and lose.'
- c. Wenn man ein Nomen *rück-bildet*, erhält man ein Verb
if one a noun back-forms gets one a verb
'If you backform a noun, you get a verb.'
- d. *Wir *rück-bilden* Nomen, um Verben zu erhalten
we back-form nouns PRT verbs to get
'We backform nouns in order to get verbs.'

Backformation is a morphological rebracketing operation that ‘re-analyses’ parts of complex nominal. This is shown in (37) for some of the verbs discussed above. The nominal prefix *ur-* (meaning ‘original/for the first time’) can attach to the nominalized particle verb *Auf-führ-ung* (‘performance’). Consequently, *Ur-aufführung* is reanalyzed as a verb *urauf-führen* meaning ‘to perform for the first time’ (37a). A similar process applies to a nominal compounds such as *Wett-rennen* (‘foot race’), consisting of nouns *Wett(e)* (‘bet’) and *Rennen* (‘race’) (37c). The backformed verb is then reanalyzed as an inseparable particle verb where *rennen* is a verb and *wett-* now forms a prefix. The same is true of *rück-bilden* (‘to backform’) (37d).

(37) *Backformation of particle verbs:*

- a. [N Ur- [N [V auf-führ] -ung]] → [V [V [PFX urauf-] [V führ]] -en]
- b. [N Vor- [N [V anmeld] -ung]] → [V [V [PFX voran-] [V meld]] -en]
- c. [N [N Wett(e)] [N rennen]] → [V [V [PFX wett-] [V renn]] -en]
- d. [N Rück [N [V bild] -ung]] → [V [V [PFX rück-] [V bild]] -en]

If the verbs that fail to undergo V2 are uniformly derived by backformation, we could conclude that it is actually some idiosyncrasy of this process that results in their inability to appear in second position, and not a principled paradox posed by multiply-prefixed verbs. We will return to what exactly this idiosyncrasy could be below. At this point, we could still ask ourselves whether Haider’s basic argument against rightward verb movement still holds, even if he was not correct about why these verbs fail to undergo V2. If a verb is immobile for movement to C by virtue of being a backformation, should this not also be equally true for movement to potential clause-final heads such as T? The fact that such verbs can occur in clause-final position (36a,c) could still be viewed as an argument against rightward verb movement, as intended by Haider.

The answer to this of course depends on how we diagnose head movement of the verb to a clause-final position. Due to its often string-vacuous nature, this is not always a straightforward task. That said, it has been argued that movement to a right-peripheral functional head is required for morphological reasons. For example, the placement of the infinitival marker *zu* (‘to’) has been claimed to be due to movement to T (Grewendorf 1990:103f.; Grewendorf & Sabel 1994:268; Sabel 2000; Zeller 2001b:72; but see Salzmann 2019 on verb clusters). With certain kinds of particle verbs, we observe that *zu* is placed between the prefix and the verb, e.g. with *ab-schließen* (‘to lock’).

- (38) Peter versucht, die Tür *ab-zu-schließ-en*
 Peter tries the door PRT-to-close-INF
 ‘Peter tries to lock the door’ (Zeller 2001b:72)

This placement of *zu* correlates reliably with whether a particle verb is separable or not. Thus, separable verbs such as *ab-schließen* (‘to lock’) have *zu* between the particle and the verb (38), whereas *zu* must precede inseparable verbs such as *be-schließen* (‘to decide’).

- (39) Die Regierung versucht, ein Gesetz zu *be-schließen*
 the government tries a law to PRT-close
 ‘The government is trying to pass a law.’

The correlation between separability and the placement of infinitive-*zu* is elegantly captured if the placement of the infinitival marker is derived by movement of the verb, stranding its prefix when possible. We could assume, for example, that strandable particles are actually complements to the verb, rather than part of a complex head (Grewendorf 1990; Wurmbbrand 1998:283; Zeller 2001b:53). In the analysis of (38) proposed by Zeller (2001b:72), the verb *schließen* undergoes rightward movement to T, where the infinitival morphology is located (40).

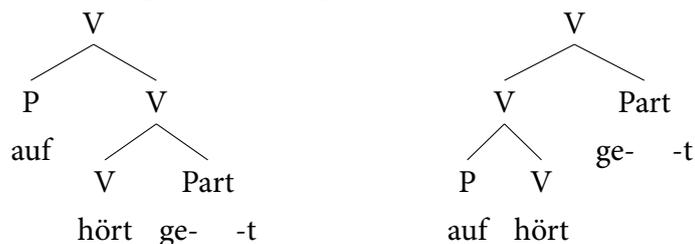
- (40) [TP PRO [T' [VP die Tür [V' [PP ab] t_i]] [T⁰ zu [V⁰ schließen_i]]]
 PRT the door PRT to close

Another morphological argument for rightward movement comes from participial formation. In German, participles are typically derived by a circumfix *ge-* *-t* that attaches to the verbal root (41a). With separable particle verbs such as *auf-hören* ('to stop'), however, this circumfix seems to just attach the verbal root (41b).

- (41) a. Peter hat das Lied *ge-hör-t*
 Peter has the song PART-hear-PART
 'Peter has sung the song.'
 b. Peter hat mit dem Rauchen *auf-ge-hör-t*
 Peter has with the smoking up-PART-hear-PART
 'Peter has stopped smoking.'

This presents us with an apparent bracketing paradox (Lüdeling 2001; Müller 2002, 2003), since we have good reason to believe that the circumfix takes scope over the entire particle verb, despite the particle appearing to be outside of it.¹⁰ This means both of the structures in (42) are motivated, the left one by form and the right one by meaning.

- (42) 'Bracketing paradox' with particle verbs:



Arguably, the simplest way of resolving the bracketing paradox is with movement (Zeller 2001b:73; Bruening 2018:e69f.; but see Geilfuß-Wolfgang 1998, Müller 2003 and Newell 2005 for possible alternatives). Movement naturally gives rise to two distinct representations, a base-generated one and a derived one (also see Pesetsky 1985). As with the infinitival marker *zu*, we can therefore assume that the verb moves rightwards to combine with the *ge-t*-circumfix in the head of PartP (43).

- (43) [PartP [VP mit dem Rauchen [V' [PP auf] t_i]] [Part⁰ ge- [V⁰ hör_i] -t]]

¹⁰ As Müller (2003) points out, this can be seen particularly clearly with the nominalizing circumfix *Ge-* *-e*. A particle verb like *herum-rennen* ('to run around', Lit. around-run) is nominalized as *Herum-ge-renn-e* ('repeated instances of aimless running around'). Here, it must be the case that the nominalizing circumfix takes scope over the entire particle verb.

Assuming that both pre- and post-movement representations are accessible at the interfaces (i.e. via reconstruction), then the problem of conflicting representations in (42) does not arise.

This is relevant for the discussion of verbs derived by backformation because such verbs do allow for placement of *zu* and intervention by the circumfix (to varying degrees). For example, the backformed particle verb *urauf-führen* ('to perform for the first time') can be split by both infinitive-*zu* (44a) and the participial circumfix (44b).

- (44) a. Sie versprochen, das Stück *urauf-zu-führen*
 they promised the play URAUF-to-lead
 'They promised to perform the play for the first time.'
- b. Sie haben das Stück *urauf-ge-führ-t*
 they have the play URAUF-PART-lead-PART
 'They have performed the play for the first time.'

Haider (2010:61) points to this fact as a problem for a rightward movement account of infinitive-*zu*, since these immobile verbs do not allow for movement to C, so should therefore also equally disallow movement to T. The same argument would also in principle apply to movement to Part. The facts are actually more subtle, however. There is actually a high degree of variation in the morphological flexibility of backformed particle verbs. (see e.g. Stiebels & Wunderlich 1994:946; Sabel 2000:90; Vikner 2005:99ff.). As (45) shows, there are some V2-incompatible backformations such as *urauf-führen* and *not-laden* which can be split by *zu* or the *ge- -t*-circumfix. However, there are also many others such as *wett-rennen*, which also resist *zu*-placement and participial formation.

- (45) Flexibility of backformed particle verbs:
- | | | | |
|---------------------|--------------------------|---------------------------|------------------------------|
| <i>urauf-führen</i> | <i>urauf-zu-führen</i> | <i>urauf-ge-führ-t</i> | 'perform for the first time' |
| <i>not-landen</i> | <i>not-zu-landen</i> | <i>not-ge-land-et</i> | 'to emergency land' |
| <i>wett-rennen</i> | ?? <i>wett-zu-rennen</i> | * <i>wett-ge-rann-t</i> | 'run competitively' |
| <i>sonnen-baden</i> | * <i>sonnen-zu-baden</i> | * <i>sonnen-ge-bade-t</i> | 'to sunbathe' |

The latter kind are actually what we expect if rightward movement is involved in the morphological formation of particles and infinitives, since movement to both C and clause-final heads such as T is constrained in the same way. As we might expect, some backformed particle verbs are completely regular and do not seem to exhibit any of the above restrictions. Relevant examples of these include *probe-fahren* ('to test-drive'), *korrektur-lesen* ('to proof-read') and *rad-fahren* ('to ride a bike'), which are actually separable under V2 despite being instances of backformation (Stiebels & Wunderlich 1994:921):

- (46) a. Die königliche Kutsche fährt schon mal Probe
 the royal carriage drives already PRT practice
 'The royal carriage is already going for a test-drive.'
- b. Gereon fährt täglich Rad
 Gereon drives daily bike
 'Gereon rides a bike every day.'

The question now is how to account for cases such as *urauf-führen* in (44), which show an apparent

asymmetry between rightward and leftward movement. We can attribute this to the idiosyncrasy in the backformation process. To be precise, we can posit at the least three degrees of morphosyntactic transparency of backformations in (47) (also see [Stiebels & Wunderlich 1994:946](#)).

(47) *Three degrees of backformation:*

- a. No restrictions
- b. The verb and particle must be in the same minimal prosodic phrase
- c. The verb and particle must be string adjacent

Some backformed verbs, such as *probe-fahren* (46a), are subject to no particular restrictions (47a) and can move both leftward and rightward. Backformations of the *wett-rennen* type in (45) come with an additional strict phonological adjacency requirement (47c), as suggested by [Zeller \(2001b:78\)](#), which prohibits both V2 and morphologically-motivated movement to a clause-final head, since each of these disrupt adjacency between the particle and the verb. For final *uraufführen*-type, I propose that they are subject to the slightly weaker phonological requirement in (47b) that the particle and the verb be in the same minimal prosodic phrase, but not necessarily adjacent. This restriction will allow them to undergo rightward, but not leftward head movement.

To see this, recall from (23) in section 3.2, repeated as (48), that there is independent evidence from both stress and extraposition that all heads in the right sentence bracket are mapped to the same prosodic phrase.

(48) *Contiguity of the right sentence bracket:*

All heads in the right sentence bracket belonging to the same extended projection are mapped onto a single prosodic phrase together with the minimal *vP*.

If this is the case, then movement to a head-final position for infinitive-*zu* (49a) or participial formation (49b) will not violate the weaker phonological constraint on backformations in (47b), since the particle and the verb are still within the same minimal ϕ -phrase, albeit not adjacent. Movement of the verb to second position (i.e. to C), however, will take the verb out of this minimal prosodic domain and thereby violate the aforementioned constraint (49c).

- (49) a. Sie versuchen $($ $)_{\phi}$
they try $[_{TP} [_{VP}$ das Stück $[_{V'}$ *urauf-* t_1 $]] [_{T^0}$ zu $[_{V^0}$ *führen*₁ $]]$ $)_{\phi}$
the play URAUF- to lead
‘They are trying to perform the play for the first time.’
- b. Sie haben $($ $)_{\phi}$
they have $[_{TP} [_{PartP} [_{VP}$ das Stück $[_{V'}$ *urauf-* t_1 $]] [_{Part^0}$ ge- $[_{V^0}$ *führ*₁] -t $]] [_{T^0}$] $)_{\phi}$
the play URAUF- PRT- lead -PRT
‘They have performed the play for the first time.’
- c. *Sie $($ $)_{\phi}$
they lead $[_{V^0}$ *führen*₁] $[_{TP} [_{VP}$ das Stück $[_{V'}$ *urauf-* t_1 $]] [_{T^0}$] $)_{\phi}$
the play URAUF-
‘They are performing the play for the first time.’

On this view, the impossibility of some backformed verbs to undergo V2 does not provide an argu-

ment in rightward movement in general, since it is apparent that there is a high degree of variation and idiosyncrasy involved the process of backformation. In fact, the way it presented here, the variation we find among backformations can be better understood if we appeal to morphologically-motivated rightward movement. Positing two degrees of phonological dependency with certain types of backformed verbs, (i) strict adjacency and (ii) co-occurrence in the same minimal p-phrase, can account for why verbs of the *uraufführen*-type can seemingly undergo rightward, but not leftward movement.

3.4 Interim summary

In this section, we have revisited Haider's arguments against rightward head movement. However, we have seen that none of them are conclusive or convincing arguments against movement of the verb to the right. The first argument based on an apparent scopal interaction between movement and a comparative operator turns out to have nothing to do with scope, and instead results from the inability to strand certain elements. The second argument came from Haider's Puzzle about extraposition and was shown to be the result of a prosodic constraint on extraposition (Truckenbrodt 1995), and is thus equally uninformative about the existence rightward verb movement. The third argument we discussed involved verbs that fail to undergo V2. It was argued that there is ample reason to believe that the relevant restrictions are due to the idiosyncrasy of backformation and, as such, cannot be used to argue against rightward movement more generally.

With much of the force of the prominent arguments against rightward verb movement lost, the remainder of this paper will focus on potential arguments in favour of it. The main argument comes from a pattern shown by a particular class of particle verbs, which make ordinarily string-vacuous rightward verb movement visible.

4 Rightward verb movement: Evidence from particle verbs

In this section, I will present a new argument in favour of rightward movement based on particle verbs. This involves a particular alternation found with certain particle verbs that take a (directional) PP complement. In (50a), the particle verb *mit-nehmen* ('to take (with oneself)') occurs in final position, preceded by its DP and PP complements, respectively.¹¹ However, (50a) shows that it is

¹¹ It should be noted that these are not instances of 'adverbial *mit*' (Zifonun 1996, 1997, 1999; Bücken 2012; Bücking 2019). The particle *mit* does seem to be sometimes used a phrasal adverb. Stiebels & Wunderlich (1994:926) dismiss cases such as (i), which bear a striking similarity to the examples in (48), as instances of an adverbial usage of *mit*, presumably adjoined to VP, rather than a particle verb usage.

- (i) weil er *mit* in die Oper fuhr
because he PRT in the opera travelled
'because he went with (someone) to the opera.'

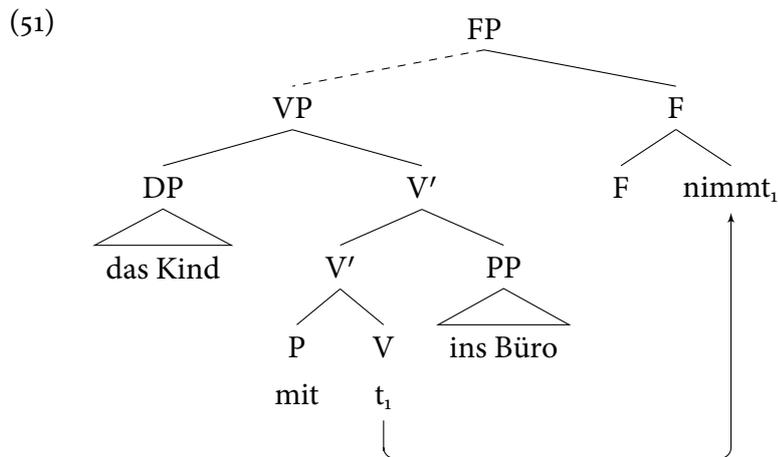
For the relevant examples in this paper, it is possible to disambiguate particle *mit* from adverbial *mit*. For example, the position of adverbial *mit* is much more restricted. While particle *mit* can follow the complement(s) of the verb, this is not always possible adverbial *mit* in (iib).

- (ii) *Restrictions on the position of adverbial mit* (Zifonun 1996:220):

also possible for the verb and its particle to be split up by its complement PP *ins Büro* ('to this office').

- (50) a. ... wenn man das Kind *ins Büro mit-nimmt*
 if one the child in.the office PRT-takes
 b. ... wenn man das Kind *mit ins Büro nimmt*
 if one the child PRT in.the office takes
 '... if one takes their child with them to the office'

It will be argued that the word order in (50b) can be analyzed as particle stranding under rightward movement, as shown in (51).



While rightward movement, as previously noted, normally suffers from the problem of being string-vacuous, I will argue that a particular class of particle verbs can project their directional PP complements in a rightward specifier. This has the result that rightward movement is no longer string-vacuous. We will see that the verbs with this property form a homogeneous class of particle verbs with a directional PP complement.

- a. weil er *mit* auf den letzten Gast wartete
 because he PRT on the last guest waited
 b. *weil er auf den letzten Gast *mit* wartete
 because he on the last guest PRT waited
 'because he was also waiting for the last guest.'

Another, somewhat simpler, diagnostic here is whether or not *mit* is obligatory. Adverbial *mit* should, by virtue of being an adverb, be optional (iia). This contrasts with the cases at hand, such as the verb *mit-nehmen*, where *mit* is obligatory for many speakers.

- (iii) a. weil er (*mit*) in die Oper fuhr
 because he (PRT) in the opera travelled
 'because he went (with someone) to the opera.'
 b. wenn man das Kind %*(*mit*) *ins Büro nimmt*
 if one the child %*(PRT) in.the office takes
 'if one takes their child with them to the office'

4.1 Stranding with directional particle verbs

The following examples attested online illustrate that the placement of a PP between a verb and its particle is possible with a number of other verbs. These seem to belong to the same broad class of verbs with ‘directional’ particles such as *hinein-* (‘into’), (*he*)*raus-* (‘out of’) and *hinauf-* (‘onto’).¹²

(52) *etw. PP_{DIR} mit-nehmen* (‘to take something somewhere’):

- a. Wer seinen Hund **mit** ins Büro **nimmt**, sollte ihn gut im Auge behalten
 who his dog PRT in.the office takes should him good in.the eye hold
 ‘Whoever takes his dog to the office should keep an eye on him.’
- b. Aber ist es erlaubt, das Baby **mit** zum Wählen zu **nehmen**?
 but is it allowed the baby PRT to.the voting to take
 ‘But is it allowed to take your baby with you when you vote?’

(53) *etw. aus etw. raus-holen* (‘to take something out of somewhere’):

Bei Sonnenbrand oder Verdacht auf Sonnenbrand sollte das Baby sofort **raus** aus
 with sunburn or suspicion on sunburn should the baby immediately PRT out
 der Sonne **geholt** werden
 the sun taken become
 ‘In case of sunburn or suspicion of sunburn, the baby should be moved out of the sun immediately.’

(54) *aus etw. raus-kommen* (‘to get out of something’):

DAS kannst du tun um **raus** aus der Friend Zone zu **kommen**
 this can you do in.order PRT out the friend zone to come
 ‘This is what you can do to get out of the friend zone.’

(55) *in etw. rein-springen* (‘to jump into something’):

Am Steg bin ich immer mit Anlauf und Spucke mit dem Fahrrad drüber gesaust und
 on.the jetty am I always with run.up and spit with the bicycle over sped and
rein in den See **gesprungen**
 PRT in the lake jumped
 ‘I always rode my bike across the jetty with a decent run-up and jumped into the lake.’

(56) *jmd. in etw. hinein-ziehen* (‘to pull somebody into something’):

... gelingt es Lewinsky von Beginn an spielerisch leicht, den Leser mitten **hinein** in
 succeeds it Lewinsky from beginning on playfully easily the reader middle PRT in

¹²The examples are taken from the following sources (all originally accessed 20.09.17):

(52a) (<http://www.stadthunde.com/magazin/lifestyle/hunde-mit-jobs/hunde-im-buero-special.html>),

(52b) (<http://www.fr.de/frankfurt/gute-frage-zur-wahl-duerfen-kinder-mit-in-die-wahlkabine-a-1355603>),

(53) (<https://www.9monate.de/baby-kind/gesundheit-entwicklung/sonnenbrand-beim-baby-id146935.html>),

(54) (<http://www.virtualnights.com/magazin/das-kannst-du-tun-um-raus-aus-der-friend-zone-zu-kommen.45940>),

(55) (<http://sz-designs.de/news.html>), (56) (<https://www.amazon.de/Wille-Volkes-Kriminalroman-Charles-Lewinsky-ebook/dp/B0714GFPSY>), (57) (<http://www.aachener-zeitung.de/lokales/region/eltern-erschlagen-samurai-taeter-muss-in-die-psychiatrie-1.1123065>), (58) (<http://www.ioco.de/tag/orchester/page/330/>), (59)

(<http://www.eurogamer.de/articles/2012-10-11-dishonored-loesung-und-tipps-alle-runen-knochenartefakte-sokolov-gemaelde-und-geist?page=13>), (60) (Kai Meyer, *Herrin der Lüge* via Google Books),

(61) (<http://www.alpentourer.de/reiseberichte/graubuenden1/graubuenden2/graubuenden2.html>), (62)

(<https://www.canesance.de/blog/31-training-nach-cumcane.html>).

diese Schweizer Welt zu **ziehen**

this Swiss word to pull

'From the very beginning Lewinsky manages with playful ease to draw the reader into this Swiss world.'

- (57) *in etw. hinein-rutschen* ('to slide into something'):

Der 36-Jährige war im Herbst 2014 immer weiter tief **hinein** in den Wahn **gerutscht**

the 36-year.old was in autumn 2014 always further deep PRT in the delusion slid

'In autumn 2014, the 36 year-old began to slide deeper and deeper into delusion.'

- (58) *sich in etw. hinein-graben* ('to delve into sth.'):

und ihn immer wieder da-zu einlädt, sich **hinein** in ihre Tiefenstrukturen zu **graben**

and him always again R-to invites REFL PRT in its deep.structures to dig

'and invites him again and again to delve into its deep structures.'

- (59) *in etw. hinein-flitzen* ('to dash into something'):

und dann im Schleichschritt direkt **hinein** in das Gebäude zu **flitzen**

and then in sneak.step directly PRT in the building to dash

'and then to dash into the building directly while crouching.'

- (60) *auf etw. hinauf-steigen* ('to climb up to something'):

wie der Mönch, der einmal aus dem Kloster in den Sümpfen zu Marias Hof

like the monk who once out the monastery in the swamps to Maria's courtyard

herüber-gekommen, **hinauf** aufs Dach **gestiegen** war, und einen halben Tag lang wie ein

over-come PRT onto roof climbed was and a half day long like a

Hahn gekräht hatte.

rooster crowed had

'like the monk who once came from the monastery across the swamps to Maria's courtyard, climbed onto the roof and crowed like a rooster for half of the day.'

- (61) *zu etw. hinüber-gehen* ('to go across to something'):

Es lohnt sich die paar Schritte **hinüber** zu dem kleinen See zu **gehen**

it rewards REFL the few steps PRT to the small lake to go

'It is worth going to the few steps over to the small lake.'

- (62) *von etw. weg-rennen* ('to run away from something'):

Vielleicht wäre sie nicht **weg** von uns **gerannt**, sondern hätte sich bei uns versteckt

maybe would she not PRT from us ran but had REFL by us hidden

'Maybe then she wouldn't have run away from us but would have instead hidden'

Not all separable particle verbs allow for this kind of PP placement, however. The following examples show that some other separable particle verbs with PP complements such as *mit etw. an-fangen* ('to start something') (63), *etw. in etw. um-wandeln* ('to turn something into something') (64) and *etw. in etw. einschließen* ('to lock something away in something') (65) do not allow for intervening placement of the PP.

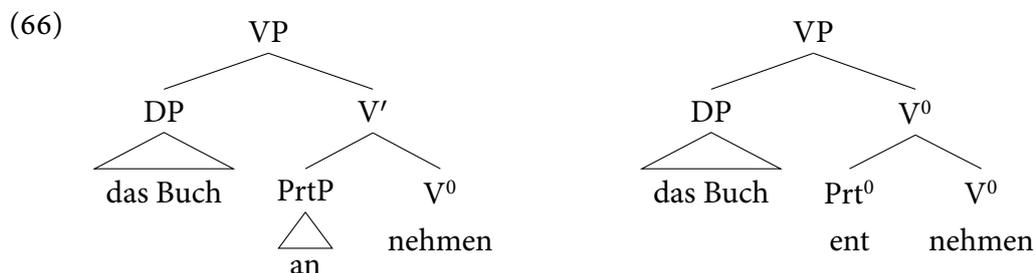
- (63) a. weil bloß einer [_{PP} mit den Aufgaben] **an-fing**
because only one with the exercises PRT-caught

- b. *weil bloß einer *an* [PP mit den Aufgaben] *fang*
 because only one PRT with the exercises caught
 ‘because only one started the exercises.’ (cf. Haider 2010:64)
- (64) a. dass er den Frosch [PP in einen Prinz(en)] *um-wandelt*
 that he the frog in a prince PRT-changes
 b. *dass er den Frosch *um* [PP in einen Prinz(en)] *wandelt*
 that he the frog PRT in a prince changes
 ‘that he turns the frog into a prince.’
- (65) a. dass ich die Tasche [PP in den Schrank] *ein-schließe*
 that I the bag in the cupboard PRT-close
 ‘that I locked the laptop away in the cupboard’
 b. *dass ich die Tasche *ein* [PP in den Schrank] *schließe*
 that I the bag PRT in the cupboard close
 ‘that I locked the laptop away in the cupboard’

Thus, it seems that we can distinguish between two classes of separable particle verbs. The former type of ‘directional’ particle verbs allow for this intervening placement of the PP, while the other set of particle verbs do not. It seems reasonable, therefore, to conclude that the possibility for the PP to appear after the particle is a particular idiosyncrasy of this relatively small class of directional particle verbs. The following section will discuss how this can be analyzed.

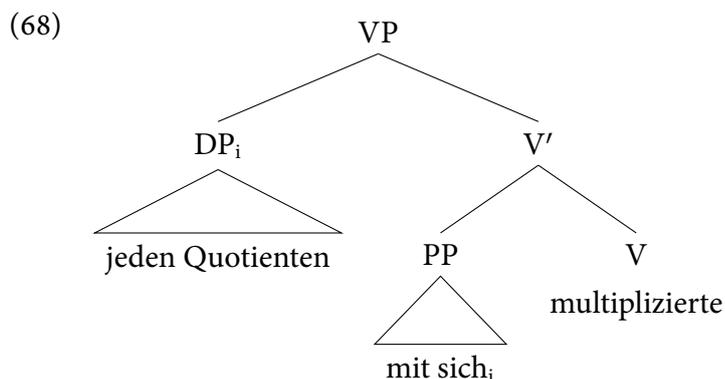
4.2 Deriving particle stranding

I follow previous proposals in assuming that separable particle verbs take the particle as their complement, whereas inseparable prefixes form a complex V head with the verb (e.g. Wurmbrand 1998; Zeller 2001b; Vikner 2005), as shown in (66). This means that head movement will target just the verb *nehmen* in separable *an-nehmen* (‘accept’), whereas the entire V⁰ constituent *ent-nehmen* (‘remove’) containing the inseparable prefix *ent-* must be moved, if excorporation from a complex head is prohibited (see Baker 1988; Roberts 1991).

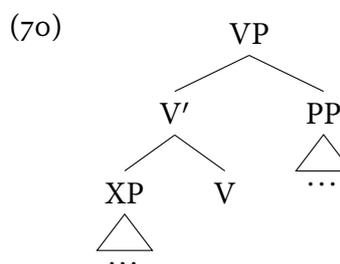
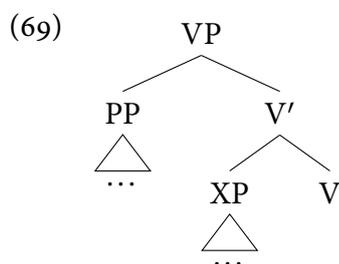


Motivated by the binding facts in (67), we adopt the binary branching structure in (68) for ditransitive verbs, where the direct object c-commands the PP complement (see Bruening 2001, 2010 for a similar proposal about English prepositional dative constructions).

- (67) dass er [DP jeden_i Quotienten] [PP mit sich_i] multiplizierte
 that he each quotient with REFL multiplied
 ‘that he multiplied each quotient by itself.’



Finally, although specifiers of V are typically linearized to the left (69), I will assume that, as an idiosyncratic lexical property of the directional particle verbs identified above, their (sometimes optional) PP argument can be projected to the right (70).¹³



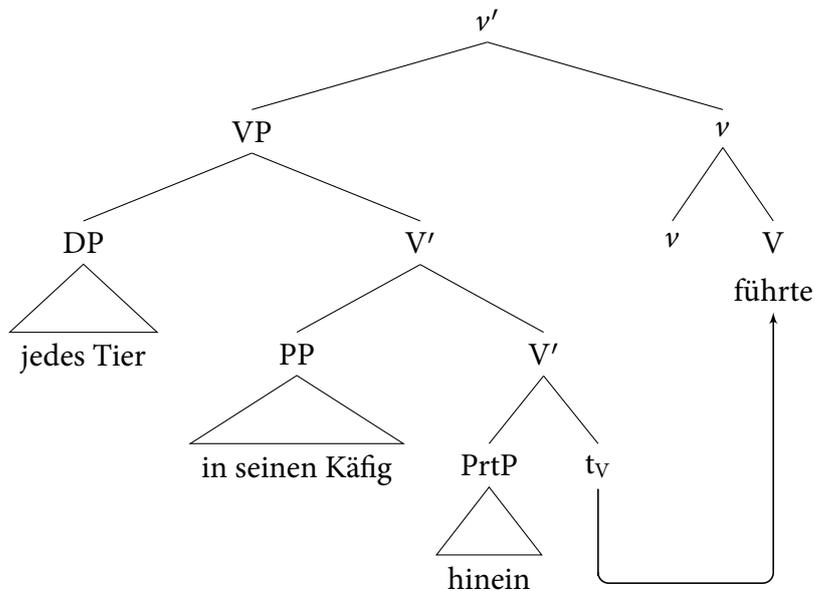
As shown in (66), we assume that separable particle verbs merge the particle as their complement. Consequently, the other two arguments will be merged as specifiers. As we have seen, there is a small set of particle verbs identified in section 4.1 that allow for a PP to intervene between a verb and its associated particle. Recall that directional particle verbs such as *hinein-führen* in (71) belong to this class, with the intervening placement in (71b) being possible.

- (71) a. dass sie jedes_i Tier in seinen_i Käfig *hinein-führte*
 that she every animal in its cage PRT-lead
- b. dass sie jedes_i Tier *hinein* in seinen_i Käfig *führte*
 that sie every animal PRT in its cage lead
 'that she led every animal into its cage'

We can account for this by assuming that these verbs constitute a small class which allows for its associated PP to be linearized to the right. On this view, the placement in (71a) corresponds to the structure in (72). Since both specifiers are linearized to the left, movement of the verb is string-vacuous in this case.

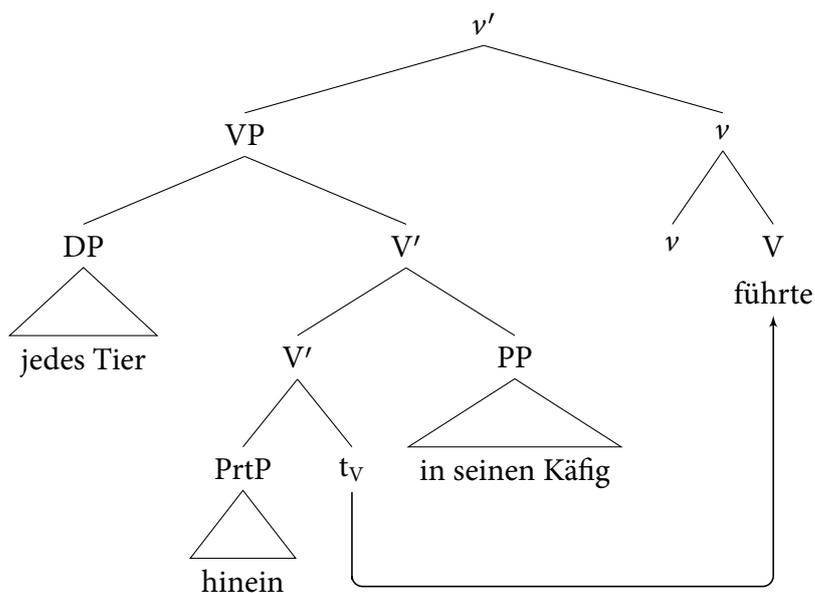
¹³For present purposes, I will leave open how exactly this lexical idiosyncrasy can be codified in the grammar. One option is that linearization statements are (at least partially) encoded in the syntax (see e.g. Sheehan 2013; Richards 2016), perhaps by means of a diacritic on the selectional feature.

(72)



If the PP is projected in a rightward specifier, however, movement of the verb will cross it, thereby giving rise to the intervening configuration (73). Thus, ordinarily string-vacuous movement becomes visible only with the particular class of verbs that allow for this linearization of the PP.

(73)

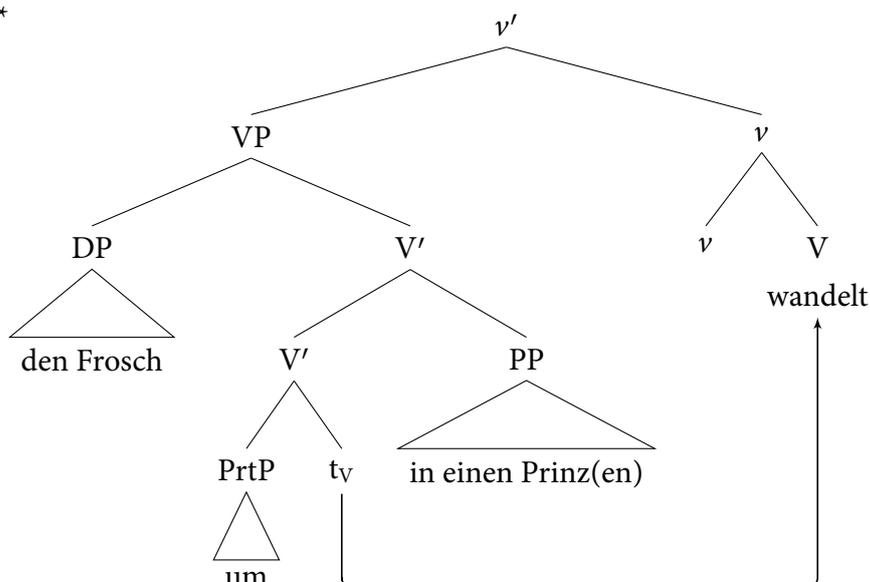


For other separable particle verbs that do not belong to the class, such as *umwandeln* ('to transform'), the PP cannot intervene between the verb and its particle (74b).

- (74) a. dass er den Frosch [_{PP} in einen Prinz(en)] *um-wandelt*
 that he the frog in a prince PRT-changes
 b. *dass er den Frosch *um* [_{PP} in einen Prinz(en)] *wandelt*
 that he the frog PRT in a prince changes
 'that he turns the frog into a prince.'

In order to derive (74b), the PP would have to be projected as a rightward specifier as in (75). However, this is not an option for particle verbs outside of the idiosyncratic directional class.

(75) *



The only way to have the PP in this intervening position would be through rightward extraposition of the PP. This is also the case for PP adjuncts in examples such as (76).

- (76) *dass Peter ---_{PP} das Heu *ab* [$_{PP}$ mit der Heugabel] *lädt*
 that Peter the hay PRT with the pitchfork loads
 ‘that Peter loads down the hay with a pitchfork’ (Zeller 2001b:81)

As discussed in Section 3.2, extraposition of PP cannot target this position due to a prosodic constraint on rightward displacement.

Finally, it is important to note that there are some verbs that only seem to only allow rightward linearization of the PP. An example of this is the verb *abgehen* + PP (‘go off to’), which only allows placement of the particle before the PP (77a), corresponding to a rightward specifier in this analysis. The same is true of directional particle verbs such as *hinaufsteigen* when they take a DP rather than a PP complement (77b), though we assume that the same analysis also applies here.

- (77) a. dass ich *ab* ins Bett (**ab*) *gegangen* bin
 that I PRT in bed (*PRT) gone am
 ‘that I went off to bed’
 b. dass ich (**hinauf*) die Treppe *(*hinauf*) *gestiegen*
 that I (*PRT) the stairs *(PRT) climbed
 ‘that I climbed the stairs’

In summary, this section has shown that, while movement of the verb to a rightward head position such as *v* or T is normally string-vacuous (and therefore difficult to detect), there is a small class of particle verbs that can exceptionally host their second argument (usually a PP) in a rightward specifier. This renders rightward verb movement no longer string-vacuous. On the analysis outlined above, this class of particle verbs provide an argument that the verb does indeed move rightward.

5 Against alternative analyses

The previous section argued that the PRT-PP order we find with certain particles verbs can be taken as an argument for rightward verb movement. There is, however, an alternative view on which the particle and PP form a complex constituent that is the complement of the verb. I will consider two variants of this analysis. In the first, the particle constitutes a head in the extended projection of P (78a). The other treats the particle as a phrasal constituent inside the PP (78b).

- (78) a. [_{pP} [_p hinein] [_{PP} in das Haus]]
 b. [_{PP} [_{PRT} hinein] [_{PP} in das Haus]]

Ultimately, I will try to show why neither of these alternative analyses is desirable.

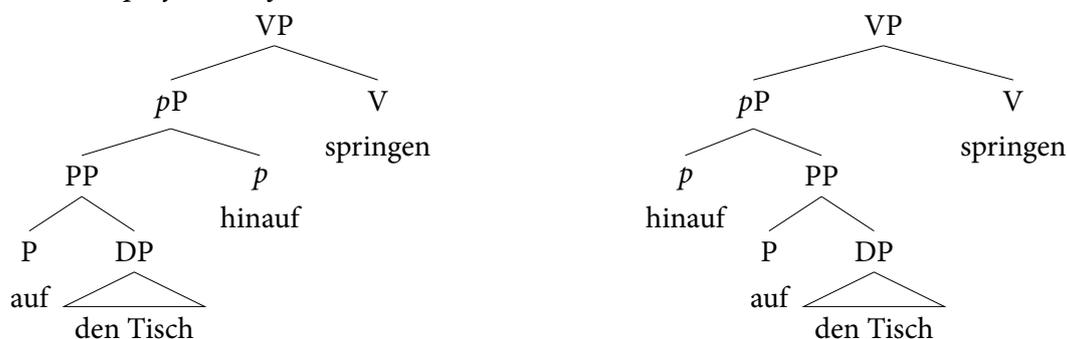
5.1 Particles as heads

What we have so far treated as verbal particles, such as *hinauf* and *hinein*, have also been analyzed as postpositions belonging to a complex adpositional phrase (e.g. van Riemsdijk 1990, 1998; Olsen 1999; Koopman 2000; Zeller 2001a,b; McIntyre 2001; van Riemsdijk & Huijbregts 2007). Consider an example such as (79) where the directional particle *hinauf* can in principle be placed either before or after the prepositional phrase.

- (79) dass die Katze (herauf) auf d-en Tisch (herauf) gesprungen ist
 that the cat (PRT) on the-ACC table (PRT) jumped is
 'that the cat jumped up onto the table'

While the preceding section argued that this pre-PP placement is the result of rightward verb movement across a rightward specifier, van Riemsdijk (1990) in particular has argued that such cases involve a complex PP with *hinauf* as the head of little *p* projection (also see Svenonius 2003, 2010). Thus, one could try to account for the word order variation in (79) as PP-internal, with *p* being optionally head-initial or head-final as in (80).

- (80) *Extended projection of P:*



Although this view has been relatively widely adopted, it is not clear that it is the correct analysis of these particles. In what follows, I will discuss some reasons to be skeptical of this analysis.

5.1.1 Stranding

Consider first that German generally does not allow stranding of either prepositions or postpositions, with the latter shown in (81).

- (81) *No postposition stranding* (Haider 2010:94):
- a. *Des Geldes_i hat er sie [_{pP} t_i wegen] nicht geheiratet
the money.GEN has er she because not married
‘He didn’t marry her because of money.’
 - b. *Dem Freund_i hat er es [_{pP} t_i zuliebe] nicht erwähnt
the friend has he it ZULIEBE not mentioned
‘He didn’t mention it for his friend’s sake.’

Against this background, we would expect that, if particles were realizations of a head in the extended projection of P, then they would also not allow for extraction of their complements. As (82a) shows, however, the putative complement PP of the particle *hinein* can indeed be moved. This is perhaps even clearer for particles that take apparent DP complements (82b), as *hinauf* would probably have to be classified as genuine P in these cases.

- (82) a. [_{PP} In welches Haus] ist er [_{pP} —_{PP} hinein] gegangen ?
in which house is he PRT gone
‘Which house did he go into?’
- b. den Berg, [_{DP} den] wir [_{PP} —_{DP} hinauf] gestiegen sind
the mountain which we PRT climbed are
‘the mountain that we climbed up’

Following Abels (2003, 2012), we can assume that the ban on stranding comes from the phasehood of PP combined with an Anti-Locality constraint on movement. There are at least two distinct types of Anti-Locality constraints: (i) *Comp-to-Spec Anti-Locality* (e.g. Abels 2003), (ii) *Spec-to-Spec Anti-Locality* (Erlewine 2016, 2017). Both of these types of Anti-Locality constraints can be subsumed under a more general condition that movement must cross the maximal projection of the phrase in which it is immediately contained (83) (cf. Deal 2019:408).

- (83) *Generalized Anti-Locality*:

Movement of a phrase merged with X (i.e. complement or specifier) must cross a maximal projection other than XP.

Assuming that *p* is the phase head, this rules out both movement of PP to the phase edge (84a) as well as movement of the complement P (84b). In each case, these only cross the maximal projection they are immediately contained in.

- (84) a. [_{pP} PP [_{p'} —_{PP} p]]
- b. [_{pP} DP [_{p'} [_{PP} P —_{DP}] p]]

With this in mind, it is unexpected that the complement of the putative *p* head *hinein* can be

stranded in examples such as (82a). If we treat *hinein* as a particle belonging to the verb *gehen*, on the hand, the mobility of the PP is entirely unsurprising due its status as the complement of the verb.

A further example of this potential miscategorization of verbal particles as postpositions comes from *entlang* ('along'). According to Wunderlich (1984), *entlang* can be a preposition assigning genitive case (85a) or a postposition assigning accusative (85b).

- (85) a. [PP entlang de-s Fluss-es]
 along the.GEN river-GEN
 b. [PP de-n Fluss entlang]
 the-ACC river along

However, despite the general impossibility of adposition stranding in German, the putative postpositional variant in (85b) allows its complement to be extracted (86a), whereas its prepositional counterpart does not (86b). This makes sense if *entlang* in (85b) is actually a verbal particle with the accusative DP as the complement of the verb. Thus, only (86b) actually involves (illicit) adposition stranding.¹⁴

(86) No 'postposition' stranding with *entlang* (Wunderlich 1984:90):

- a. Den Kanal_i ging-en wir [VP t_i entlang-t_V]
 the.ACC canal went-3PL we ENTLANG
 'We walked along the canal.'
 b. *Des Kanal-s_i steh-en die Bootshäuser [VP [PP entlang t_i] t_V]
 the.GEN canal-GEN stand-3PL the boat.houses ENTLANG
 'The boathouses stand along the canal.'

Although directional particles in particular are frequently analyzed as part of a complex PP, asymmetries with extraction strongly suggest that they are actually in many cases verbal particles.

5.1.2 Nominalizations and verbless directives

In support of the status of particles as adpositions, van Riemsdijk (1990:234f.) also cites the fact that these putative directional PPs can surface in contexts where there does not seem to be a verb, namely as 'complements to N' (87a) and in the [PP with NP] construction (87b).

¹⁴ A similar ambiguity also arises with relativization. van Riemsdijk (1990:235) discusses the following asymmetry where it seems that the putative PP *am Fluss entlang* ('along the river') can be pied-piped under relativization with the verb *bauen* (ia), but not with the verb *gehen* (ib).

- (i) a. der Fluss, [PP an dem entlang] ein Fusspfad gebaut werden wird
 the river at which along a footpath built be will
 'the river along which a footpath is going to be built'
 b. ?*der Fluss, [PP an dem entlang] er ging
 the river at which along he went
 c. der Fluss, [PP an dem] er entlang ging
 the river at which he along went
 'the river he walked along'

Again, this follows if *entlang* in (ib) is actually a verbal particle, unlike the postpositional use in (ia). Thus, only its PP complement can be relativized (iic). The contrast results from the fact that *entlang-gehen* ('walk along') is a particle verb, whereas **entlang-bauen* ('build along') is not.

- (87) a. der Weg [PP ins Tal hinunter]
the way in.the valley down
‘the way down to the valley’
b. [PP Den Berg hinauf] mit dir!
the mountain up with you
‘Up the mountain with you’

However, both of these examples can still be plausibly analyzed as involving particle verbs. While (87a) is a challenge for the view that *hinunter* is a verbal particle rather an adposition inside the PP, this example could be treated as a nominalization of a VP headed by the particle verb *hinuntergehen* (‘go down’). As sketched in (88), this could involve movement of the verb root *geh-* (‘go’) to *n* (e.g. Marantz 1997; Alexiadou 2001; Bruening 2013) and with contextual allomorphy of *geh-* as *Weg*. Assuming that this nominalization contains (at least) the remaining VP, this approach is compatible with the particle verb analysis.

- (88) [DP der [NP [_n geh- n] [VP [PP ins Tal] [V' [PrTP hinunter] t_V]]]] xxxWeg

As for the [PP with NP]-construction, Müller (2011) provides a non-constructional analysis of these so-called ‘verbless directives’ (contra Jacobs 2008), in which they are derived from the corresponding imperative, which would be something like (89) in this case.

- (89) [CP Steig [_{VP} (du) [_{VP} den Berg [V' hinauf t_V]]]] !
climb you the mountain PRT
‘Climb up the mountain!’

The leading idea of Müller’s approach is that there is a valency reducing process that demotes an argument of the verb such that it is realized as an optional PP (a kind of (anti-)passive). Furthermore, the verb is elided in initial position and a lower constituent must be moved to a position above the subject (this could also potentially be movement to the prefield, see Fries 1992 on limited fronting in imperatives). In the case of (87b), the subject has been demoted and is realized as an (optional) PP in its base position. Furthermore, there is ellipsis of the verb in C and movement of VP (90).¹⁵

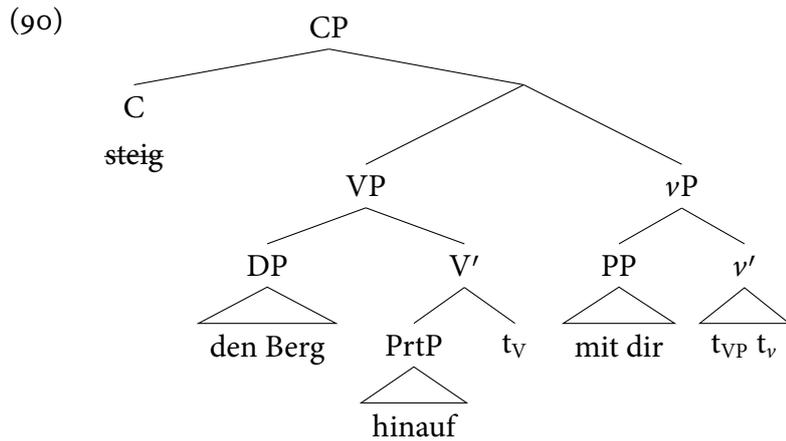
¹⁵For Müller (2011), this obligatory deletion is actually failure of insertion due to the lack of an appropriate Vocabulary Item for this verb form, which he identifies as antipassive in constructions such as (i).

- (i) In den Müll mit diesen Klamotten!
in the trash with these clothes
‘Throw these clothes into the trash!’ (Müller 2011:216)

In (i), the direct object is realized as the PP, hence the assumption of an antipassive here. The examples such as (87b) highlight the fact that this demotion must also be able to affect the external argument too.

Additionally, the scrambled element in this construction need not necessarily be the VP. The following examples are highly suggestive of the fact that it could be either of the other moveable constituents, namely the DP or the PrTP (thanks to a reviewer for providing these examples).

- (ii) a. Hinauf mit dir den Berg!
PRT with you the mountain
b. ?Den Berg mit dir hinauf!
the mountain with you PRT



The important point here is that this is still compatible with the particle verb analysis of directional particles such as *hinauf*.

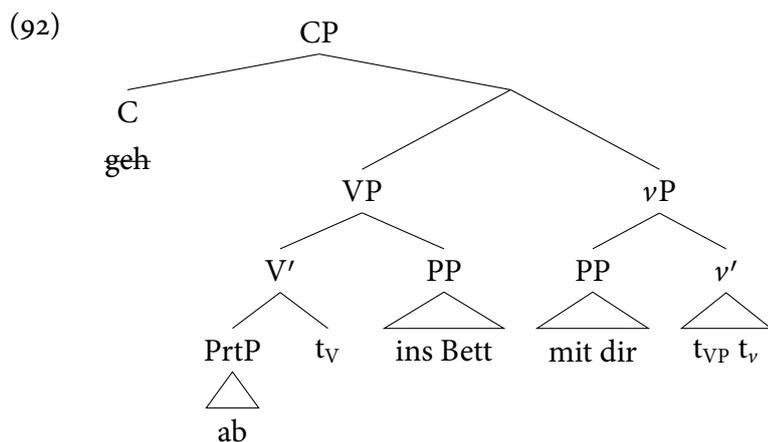
This analysis is also relevant for an issue raised by a reviewer. They point out that, in Dutch, the verbal particle *mee* ('with') must precede the PP *naar school* ('to school') in directives like *Mee (naar school)!/*Naar school mee!* ('Come to school (with me)!'). There are similar examples in German, too (91).

- (91) Ab ins Bett (*ab) (mit dir)!
 PRT in.the bed (*PRT) with you
 'Off to bed!'

Such examples can be readily accommodated under the current analysis. Recall from (77a) that this particular particle verb+PP combination only allows a rightward specifier, hence capturing the ordering restriction.¹⁶

¹⁶ The Dutch case is more complicated, as the reviewer notes, since the particle *mee* associated with the verb *meekomen* ('come with') can precede or follow the PP in declaratives, unlike *ab* in (77a). Something additional would have to be said here, assuming that this analysis of verbless directives can be extended to Dutch. It is also worth noting that analogous directional particles in German, which typically allow both Prt+PP orders, do not seem to have the restriction noted for Dutch, with both orders being possible in a verbless directive:

- (i) a. Hinein in die Tonne mit diesem Müll!
 PRT in the bin with this rubbish
 b. In die Tonne hinein mit diesem Müll!
 in the bin PRT with this rubbish
 'Throw this rubbish into the bin!'



5.1.3 Verb clusters

A final argument that has been advanced in favour of the status of particles as heads involves incorporation into verb clusters. [van Riemsdijk & Huijbregts \(2007\)](#) argue that examples such as (93b) show that a postposition can incorporate into a verb cluster, presumably via head movement. Furthermore, the fact that only the structurally-higher postposition *hinüber*, but not the preposition *auf* (93c) can move would follow from Relativized Minimality or the Head Movement Constraint. They argue that this supports a structure where the postposition is structurally higher than the PP.

(93) *Particle incorporation in verb clusters* ([van Riemsdijk & Huijbregts 2007:360](#)):

- a. weil er [_{PP} [_{PP} auf das Dach] *hinüber*] [hätte springen können]
because he on the roof across had jump could
- b. weil er [_{PP} [_{PP} auf das Dach] —] [hätte *hinüber* springen können]
because he on the roof had across jump could
- c. *weil er [_{PP} [_{PP} — das Dach] *hinüber*] [hätte *auf* springen können]
because he the roof across had on jump could
'because he could have jumped across the roof.'

However, notice that genuine postpositions such as *zuliebe* ('for the sake of') cannot appear inside a verb cluster (94b).

- (94) *dass Maria [_{PP} dem Peter —₁] hätte *zuliebe*₁ gehen müssen
that Maria the.DAT Peter had ZULIEBE leave must
'that Maria should have left for the sake of Peter.'

Furthermore, it is far from clear that incorporation into a verb cluster involves head movement, since the kind of 1-3-2 clusters we find in (93) can also include phrasal material of various kinds (95) (see [Wurmbrand 2017](#) for discussion), thereby suggesting a potential alternative derivation in terms of rightward VP movement (cf. Verb Projection Raising; [Haegeman & van Riemsdijk 1986](#)).

(95) *Phrasal material in verb clusters*:

- a. dass er das Buch — [hätte *genau* durchsehen sollen]
that he the book had exactly look.through should
'that he should have looked through the book carefully'

([Zwart 1996:237](#))

- b. ob sie — [hett *d* *Prüeffig* besto chöne]
 whether she had the exam pass can
 ‘whether she would have been able to pass the exam’ (Wurmbrand 2017:4646)
- c. dass Peter — [hätte *ins* *Schwimmbad* gehen sollen]
 that Peter had in.the swimming.pool go should
 ‘that Peter should have gone to the swimming pool’ (Martin Salzmann, p.c.)

Since incorporation into the verb cluster is not a diagnostic for head status, the data in (93) are also compatible with the analysis of particle verbs defended here.

Thus, it seems there is no really compelling evidence for the status of verbal particles as adpositions, and some to the contrary. The situation is confounded even further by the often-held assumption that putative postpositions such as *hinauf* can optionally incorporate into the verb to form a particle verb. For example, van Riemsdijk (1990:234) claims that ‘the postpositional element may sometimes be or become a verbal particle, perhaps through some process of incorporation’ (also see Pretorius 2017 and Biberauer 2017 on Afrikaans). As we have seen above, even when such particles appear to precede the relevant PPs, they do not behave as they were suddenly prepositions rather than verbal particles.

5.2 Particles as phrases

While the preceding section has argued that particles such as *hinauf* and *mit* do not constitute heads in the extended projection of P, an alternative approach that is still consistent with the view that they form a constituent with the PP would be to treat the particle as a phrase inside the PP.¹⁷ In this alternative structure, the particle is treated as a phrasal projection that combines with the PP either by means of adjunction, selection as a specifier, or some kind of small clause predication. As the structures in (96) show, the particle could be adjoined to or selected by the PP, or vice versa. This leads to the resulting projection having either the category P_{rt} or P.¹⁸

- (96) a. [PP/P_{rt} [PP in das Haus] [P_{rt} hinein]]
 b. [PP/P_{rt} [P_{rt} hinein] [PP in das Haus]]

¹⁷Thanks to three anonymous reviewers for suggesting different versions of this approach.

¹⁸A reviewer points out the interesting paradigm in (i). They argue that the ability to undergo extraposition could be a diagnostic for argumenthood. A directional PP cannot readily extrapose (ia), however it can do so in the context of a directional particle such as *hinein* (ib). Both the particle and PP cannot extrapose together, regardless of their respective order (ic).

- (i) a. *weil Hans — gesprungen ist [in den Teich]
 because Hans jumped is in the pond
 b. weil Hans hinein — gesprungen ist [in den Teich]
 because Hans P_{RT} jumped is in the pond
 c. weil Hans — gesprungen ist ??[hinein in den Teich] / *[in den Teich hinein]
 because Hans jumped is P_{RT} in the pond in the pond P_{RT}
 ‘because Hans jumped in the pond’

Based on the behaviour of directional PPs in Dutch, Hoekstra & Mulder (1990:9) view inextraposition as indicative of directional PPs being complements. An analysis that is compatible with the particle verb view pursued here is that it is only PP-complements that cannot extrapose (ia). On the particle verb analysis, the PP in (ib) is a non-complement (i.e. a specifier) and can therefore extrapose. The impossibility of extraposition in (ic) would be due to the fact that we would require remnant VP extraposition or multiple extraposition (neither option seems possible in German).

In what follows I discuss some challenges for this kind of analysis.

5.2.1 Word order

One potential challenge for the adjunction view comes from word order asymmetries. Recall that particles can appear on either side of the PP, shown for the complex constituent analysis in (97).

- (97) Er ist [PP (hinauf) auf den Tisch (hinauf)] geklettert
 he is PRT on the table PRT climbed
 'He climbed up onto the table.'

However, we find a different distribution with PP-internal adjuncts. For example, I assume *mitten* in (98a) and *direkt* in (98b) to be PP-internal modifiers (also see Radford 1988:246). Here, we see that such adjuncts cannot follow the PP. These data suggest that PP-internal adjunction is only leftward, which could not capture the grammaticality of the post-PP placement in (97).

- (98) a. Der Ball hat ihm [PP (mitten) ins Gesicht (*mitten)] getroffen
 the ball has him middle in.the face hit
 'The ball hit him right in the face.'
- b. Sie ist [PP (direkt) ins Zimmer (*direkt)] gegangen
 she is direct in.the room went
 'She went straight into the room.'

Furthermore, if particles were PP-internal adjuncts, we might expect their placement to be free with regard to other PP-adjuncts such as those in (98). The order in (99a) is acceptable because *direkt* can also adjoin to the particle (the PP *ins Zimmer* can be omitted here). However, notice that the reverse order in (99b) is ungrammatical. As (98b) shows, left adjunction to PP is possible, yet it is not in (99b). This ordering restriction is puzzling if we assume that both are adjoined to PP, for example.

- (99) a. ?dass er [[direkt hinein] [ins Zimmer]] gegangen ist
 that he direct PRT in.the room went is
- b. *dass er [hinein [direkt [ins Zimmer]]] gegangen ist
 that he PRT direct in.the room went is
 'that he went straight into the room'

5.2.2 Matching requirements

Another reason to be skeptical of this approach is that there is a matching requirement on particle and the head of the PP. For example, *hinein* generally requires a PP headed by *in* and *hinauf* requires a PP headed by *auf*, etc. This is a case of what Pesetsky (1995:135) calls *l-selection*. Furthermore, the P head that is selected by a particle must also be the variant that assigns accusative, rather than dative case (see Abraham 2010:278). While *l-selection* typically holds between a head a phrase, it is less clear how it can be a property of an adjunction or predication structure where the PP is merged with a particle phrase. This is unproblematic, however, if we view both the PP and the particle as co-arguments of a single verb. On this view, it is the verb itself that would have the *l-selectional*

property of requiring a particular particle (e.g. *hinein*) and a PP headed by a matching preposition (e.g. *in*).

5.2.3 Prosody

A further potential problem for the complex constituent analysis can be seen when we take prosody into consideration. Recall from section 3.2 that sentence accent assignment in German involves projecting the rightmost phrasal stress in the VP. Note that the particles in question, such as *hinein*, are the ones that bear main stress in discourse-neutral contexts (100a). In this way, they differ from the typical examples of postpositions (100b).

- (100) a. dass er [in das Haus hinEIN] gegangen ist
 that he in the house PRT went is
 ‘that he went into the house’
- b. dass er [Peter zufolge] geGAngen ist
 that he Peter according.to went is
 ‘that according to Peter he left’

Under the verb particle analysis, we correctly predict that the particle *hinein*, by virtue of being an argument inside the VP, should bear phrasal stress and that this will be projected to the main sentence stress as the rightmost accent in the VP (101) (see Hoekstra & Mulder 1990:9 for a similar argument from Dutch).

- (101) ((x))
 (x) (x)
 [VP [PP in das Haus] [V' [PrtP hinein] gegangen]

In the complex constituent analysis, the determination of sentential stress would depend on what element bears the main stress within the complex XP containing the particle and the PP. To see this, we need to know where stress falls in the Prt+PP constituent in isolation. One potential way of testing this is by looking at fragment answers, where the answer would correspond to exactly this putative constituent. In a discourse-new context, the main stress actually falls on the object of the preposition rather than the particle, as in B’s answer in (102).

- (102) A: Wohin ist er gegangen?
 where is he gone
- B: In das HAUs hinein / *In das Haus hinEIN
 in the house PRT in the house PRT

Given the final strengthening rule in (20), the complex constituent analysis would incorrectly predict that the stress on *Haus* is projected from the Prt+PP constituent to the main sentence stress in (100a).

5.2.4 Nominal complements

A final challenge for the complex constituent view comes from the fact that these kind of directional particles can also combine with DPs as well as PPs (103) (e.g. Noonan 2017:234).

- (103) a. dass er den Baum hinunter-geklettert ist
 that he the.ACC tree PRT-climbed is
 ‘that he climbed down the tree’
 b. dass ich den Berg hinauf-gefahren bin
 that I the.ACC mountain PRT-driven am
 ‘that I drove up the mountain’

While PPs do seem to be possible adjuncts independently, this is far less plausible for these kind of DPs. Furthermore, if the particle adjoins to the DP object (or vice versa), then it is not clear how the DP is assigned accusative case. On the particle verb view, however, the verb *fahren* in (103b) would be able to take either a DP or a PP as its specifier (in addition to the particle). What is more, recall from (77) that DP complements to particle verbs may not follow the particle in cases such as (103). Again it is unclear, how this directionality restriction can be made to follow on the complex constituent account since particles like *hinauf* would still have to have the option of merging to the left or right of their complements when they combine with a PP, unlike when they combine with a DP. On the particle verb analysis, we can simply say that the lexical entries for a particle verb like *klettern* selecting a particle and a DP argument project uniformly leftward specifiers like most ditransitive verbs. It is the subcategorization requirement of the PP-selecting variant of this verb that is linked to the optional projection of a rightward specifier.

6 A negative puzzle

So far, I have argued that both pre- and post-particle placement of a directional PP corresponds to the same structure (involving a particle verb) and the difference is purely a matter of linearization of the specifier of V. However, a reviewer points out an interesting difference between these two placement possibilities with regard to the availability of negative quantifiers. While the negative indefinite *kein* is possible in the PP-Prt order, as shown by (104a) and (105a), the corresponding post-particle placement of the PP is far less acceptable when it contains a *kein*-phase (104b), (105b).

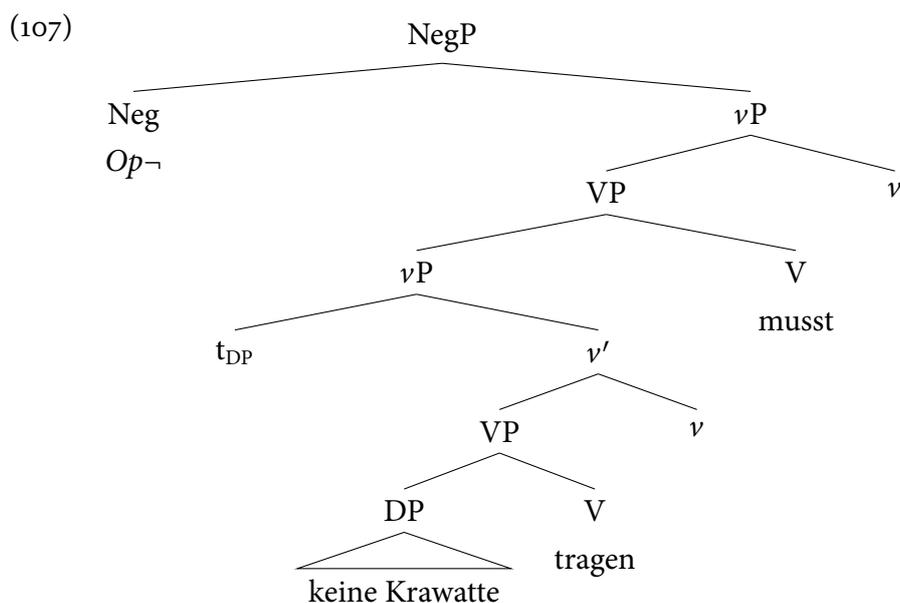
- (104) a. wenn man sein Kind [PP auf keine Reise] mit-nimmt
 if one his child on no journey PRT-takes
 b. *wenn man sein Kind mit [PP auf keine Reise] nimmt
 if one his child PRT on no journey takes
 ‘if one doesn’t take their child on any journey’
 (105) a. dass er [PP in keinen See] hinein-springen wollte
 that he in no lake PRT-jump wanted
 b.?*dass er hinein [PP in keinen See] springen wollte
 that he PRT in no lake jump wanted
 ‘that he didn’t want to jump into any lake’

While one could conclude that this is evidence that the two word orders actually involve different structures (with one somehow blocking the negative quantifier from scoping out), I argue that this asymmetry follows under the analysis proposed here if we adopt some already well-motivated assumptions about negative indefinites in German.

One of the most-discussed properties of negative indefinites is that they can give rise to so-called ‘split scope’ readings (e.g. [Bech 1955/1983](#); [Jacobs 1980, 1991](#); [Penka 2011](#); [Abels & Martí 2010](#); [Zeijlstra 2011](#)). Under the most salient reading of (106), the logical negation associated with *kein* is split from the existential quantifier by the modal.

- (106) Du musst keine Krawatte tragen
 you must no tie wear
 ‘It is not the case that you have the obligation to wear a tie.’ ($\neg > \square > \exists$)

It has been noted that this is a challenge for the view that *kein* is simply a negated existential quantifier ($\neg\exists$). Instead, it has often been argued that the negative and existential components occupy distinct structural positions in the clause (e.g. [Jacobs 1980, 1991](#); [Kratzer 1995](#); [Rullmann 1995](#); [Penka 2011](#); [van Craenenbroeck & Temmerman 2017](#)). On this view, the example in (106) would be analyzed as in (107), which transparently captures the split scope reading if *kein* is treated as an existential quantifier.



While some authors assume some kind of morphological fusion between sentential negation and an indefinite ([Rullmann 1995](#); [Kratzer 1995](#)), [Penka \(2011\)](#) follows [Zeijlstra \(2004\)](#) in treating the licensing of negative indefinites as similar to negative concord in languages like Spanish. The left edge of the *kein*-phrase must be adjacent to the Neg head occupied by the abstract negator $Op\bar{\neg}$, shown in (107), which contributes semantic negation ([Penka 2011:109](#)).

Supporting evidence for this comes from cases where a negative indefinite does not occur in its licensed position right-adjacent to Neg and is therefore ruled out. One example of this comes from subjects of individual-level predicates. [Diesing \(1992a,b\)](#) argued that there are two positions for bare plural subjects, corresponding to different interpretations. The ν P-internal position gives rise to an

existential interpretation, whereas the ν P-external position leads to a generic interpretation (108).

(108) [DP_(generic) ... [ν P DP_(existential) ... [ν P ...]]]

Diesing also argued that bare plural subjects of stage-level predicates like *be visible* can occupy either of these positions (with the corresponding reading). Subjects of individual-level predicates (e.g. *be intelligent*), on the other hand, can only occur in the higher position with a generic interpretation. This can be seen particularly clearly in German, if we assume that modal particles like *ja doch* demarcate the ν P boundary. As the following data from Diesing (1992a:37of.) show, the bare plural subjects of stage-level predicates are interpreted generically when in the higher position (109a), and existentially in the lower one (109b). With an individual-level predicate like *intelligent sein* ('be intelligent'), only the higher position is available (109c), since the subjects of these kind of predicates are incompatible with the existential interpretation associated with the lower position (109d).

- (109) a. weil *Haifische*₁ **ja doch** t_1 sichtbar sind
because sharks PRT PRT visible are
'because sharks are visible' (generic)
- b. weil **ja doch** *Haifische* sichtbar sind
because PRT PRT sharks visible are
'because sharks are visible' (existential)
- c. weil *Wildschweine*₁ **ja doch** t_1 intelligent sind
because wild.boars PRT PRT intelligent are
'because wild boars are intelligent' (generic)
- d.*weil **ja doch** *Wildschweine* intelligent sind
because PRT PRT wild.boars intelligent are
'because wild boars are intelligent' (existential)

Building on these observations, Kratzer (1995) has points out that negative indefinite plural subjects are possible with stage-level (110a), but not individual-level predicates (110b).

- (110) a. weil keine Ärzte verfügbar sind
because no doctors available are
'because no doctors are available' (Jacobs 1991:1311)
- b. *weil keine Ärzte altruistisch sind
because no doctors altruistic are
'because no doctors are altruistic' (Kratzer 1995:146)

This follows if NegP is merged directly above ν P as in (107). If a predicate permits its subject to stay within ν P, then it can be right-adjacent to Op_{\neg} and satisfy the licensing requirements of *kein*. Since individual-level predicates require their subjects to be ν P-external, they are necessarily above NegP and can therefore not be negative indefinites.

Another argument for the right-adjacency condition comes from scrambling. While a definite DP can normally scramble above the subject (111a), negative indefinites cannot (111b) (von Stechow 1992:241). If adjacency of the *kein*-phrase to Neg is required, then this can account for why scram-

bling above the subject is ruled out.¹⁹

- (111) a. weil [DP diese Kraniche] ein Kunststudent t_{DP} fotografiert hat
 because these cranes an art.student photographed has
 ‘because an art student photographed these cranes’
 b. *weil [DP keine Kraniche] ein Kunststudent t_{DP} fotografiert hat
 because no cranes an art.student photographed has
 ‘because an art student photographed no cranes’

Evidence of this kind lends further support to the adjacency requirement of *kein*.

However, Penka (2011:130) notes that right-adjacency to Neg in the surface syntax alone is not sufficient as a licensing condition because negative indefinites can occur PP-internally and therefore non-adjacent to Neg, also with a split scope interpretation (112) (also see Jacobs 1991:595).

- (112) Du darfst [PP mit keinem Fremden] sprechen
 you may with no stranger talk
 ‘It is not the case that you are allowed to talk to a stranger.’ (¬ > ◇ > ∃)

What Penka (2011:131f.) proposes to account for this is that the [NEG]-feature of *kein* percolates to the level of the PP (assuming that they are in the extended projection of N; Grimshaw 1991), analogous to percolation of a [WH]-feature with pied-piping wh-movement. On this view, the [NEG]-feature that has percolated to PP can satisfy the adjacency condition if the PP is right-adjacent to Neg.²⁰

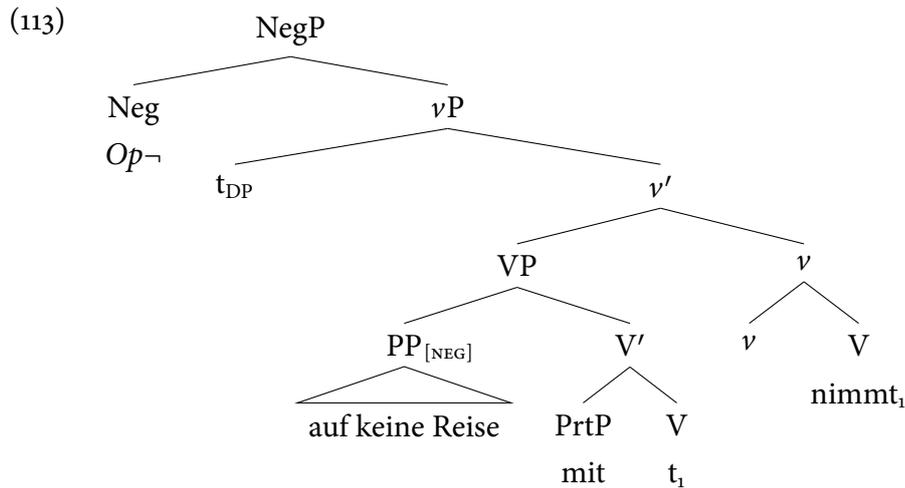
With this in mind, we can now return to examples such as (104). Recall that, under the particle verb analysis, the PP-Prt order involves the PP being projected in a leftward specifier. In this structure, the adjacency condition is satisfied since the PP containing *kein* is right-adjacent to NEG in the surface syntax (113).

¹⁹Negative indefinites are possible under movement to the prefield (Spec-CP), however. Penka (2011) assumes that there is an additional high Neg-licenser for such *kein*-phrases. Presumably, such a licenser is lacking in the middle field, which is what rules out scrambling.

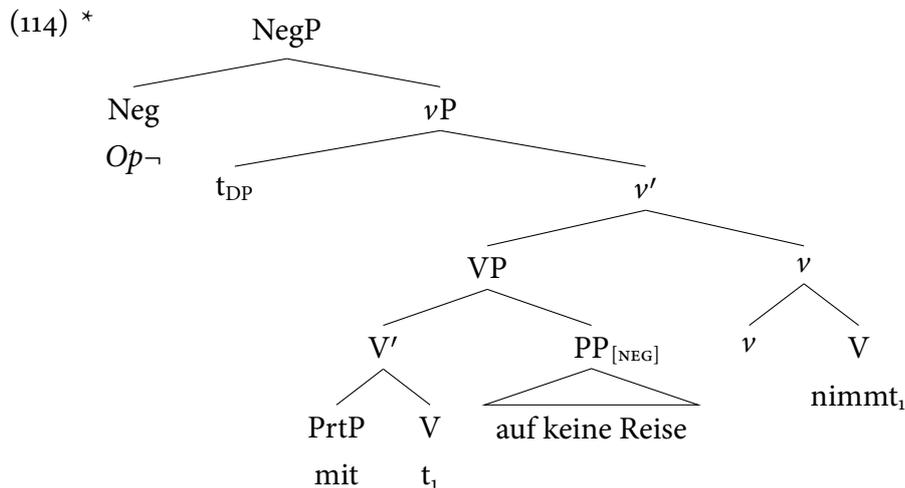
²⁰ As a reviewer points out, a challenge for Penka’s adjacency condition comes from the fact that PP-internal adverbs such as *mitten* seem to block adjacency in the way that a preposition does not:

- (i) dass er [PP mitten in die/*keine Lacke springen] wollte
 that he middle in the/*no puddle jump wanted
 ‘that he wanted to jump right in the/*no puddle’

One option is that adverbs block percolation for reasons which, at present, remain unclear. An alternative would be to analyze these adverbs as PP-external after all. For now, I leave this to future research.



The Prt-PP order, on the other hand, is derived by projecting the PP in a rightward specifier (114). In this configuration, the PP is not right-adjacent to the Neg head and thus, the licensing condition on negative indefinites is not satisfied.²¹



Note that if we assumed that the particle forms a constituent with the PP in Prt-PP configurations, then we might expect that the [NEG]-feature will percolate up to the maximal projection containing them both and thus satisfy the adjacency condition in cases such as (114), contrary to fact.

²¹Note that the only way surface adjacency could be ensured would be if the intervening particle could scramble above NegP. However, it can be shown independently that this kind of particle does not scramble. However, this option is available for other scramblable interveners such as indirect objects, as (i) shows.

- (i) dass er [_{DP} dem Hund] [_{νP} Op¬ [_{VP} t_{DP} keinen Knochen geben]] wollte
 that he the.DAT dog no bone give wanted
 'that he didn't want to give the dog a bone'

7 Further arguments for rightward movement

7.1 Complex prefields

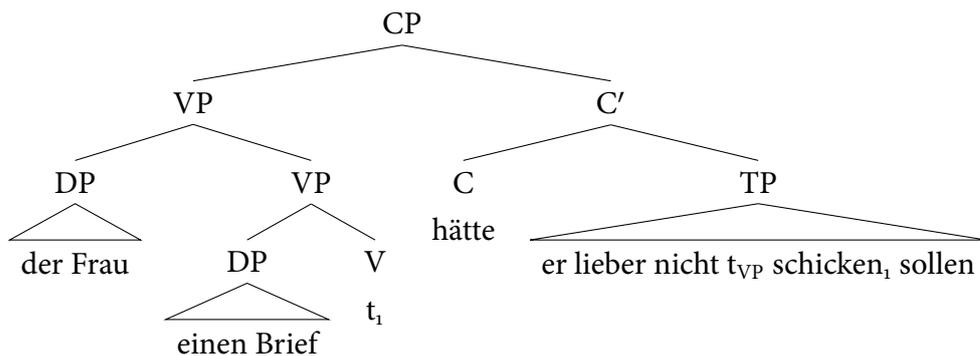
A supporting argument for the analysis of rightward verb movement in particle stranding comes from complex prefield constructions such as (115). Here, it would appear that more than one constituent occupies the prefield (*Vorfeld*) or Spec-CP position, in violation of the verb-second requirement.

(115) *Complex prefield V₃ construction* (Fanselow 1993:66):

[_{DP} Der Frau] [_{DP} einen Brief] hätte er lieber nicht —_{DP} —_{DP} schicken sollen
 the woman a letter had he rather not send should
 ‘He probably shouldn’t have sent the woman a letter.’

The consensus in the literature is that what is actually fronted is a single VP constituent with a silent head (Fanselow 1991, 1993; S. Müller 2005; G. Müller 2018; Blix 2019; though see Müller 2004 for a possible alternative). In transformational approaches, this is remnant VP movement, with prior evacuating movement of the verb (116).

(116)



In (116), this involves movement of the participle *geschrieben* to some higher head outside of VP, perhaps related to participle formation (see section 3.2).²² Supporting evidence for the single-constituency view comes from the fact that the fronted elements are subject to a clausemate restriction, i.e. they must be arguments of the same verb (117).

(117) *Clausemate condition on complex prefields* (Fanselow 1993:66):

- a. Ich glaube dem Linguisten nicht [einen Nobelpreis gewonnen zu haben]
 I believe the.DAT linguist not a.ACC nobel.prize won to have
- b. *Dem Linguisten₁ einen Nobelpreis₂ glaube ich —₁ nicht [—₂ gewonnen zu haben]
 the.DAT linguist a-ACC nobel.prize believe I not won to have

²² Anke Himmelreich (p.c.) has provided me with the following corpus example that also illustrates this point with an idiomatic VP. In (i), the arguments of the ditransitive idiom *den Bock zum Gärtner machen* (‘to put the fox in charge of the henhouse’) are fronted without the associated participle *gemacht*.

- (i) [_{VP} Den Bock zum Gärtner t₁] hat offensichtlich ein privater Wachdienst —_{VP} gemacht₁
 the ram to.the gardener has clearly a private guard made
 ‘Clearly, a private guard put the fox in charge of the henhouse.’

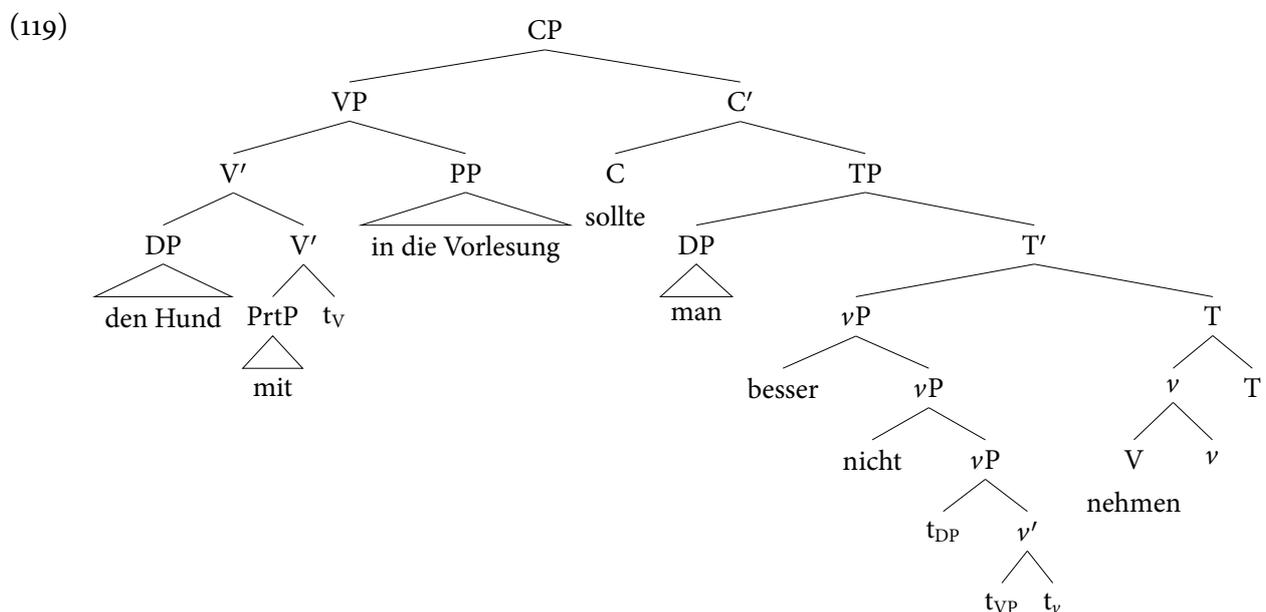
(I04/JAN.02318 Tiroler Tageszeitung, 13.01.2004, S. 11; Langfinger beim Wachdienst tätig)

‘I don’t believe the linguist to have won a nobel prize.’

With this in mind, consider the example in (118). Here, we have a complex prefield constituent containing the internal argument DP and PP of the verb *mit-nehmen*, as well the verbal particle *mit* itself.

- (118) [Den Hund mit in die Vorlesung] sollte man besser nicht nehmen
 the dog PRT in the lecture should one better not take
 ‘It is better not to take your dog with you to the lecture’

Given the structure proposed in section 4.2, this is what we would expect to find. The verb moves out of the minimal VP to a rightward head position stranding its separable particle. Subsequently, the resulting remnant VP is moved to the prefield position in Spec-CP (119).



Thus, the complex prefield construction provides evidence for the kind of remnant VP constituent created by rightward movement, even for morphologically-motivated movement with non-finite verbs (as argued for in section 4.2). For the complex constituent view of particles discussed in the previous section, we would still be faced with the challenge of how to incorporate an accusative DP as an adjunct in (119), as well as how to unify putative complex PartP constituents with the more general cases of headless VP fronting in (117) that do not involve any particles or PPs.²³ This unification follows naturally if they are all instances of (remnant) VP movement.

7.2 Backward gapping

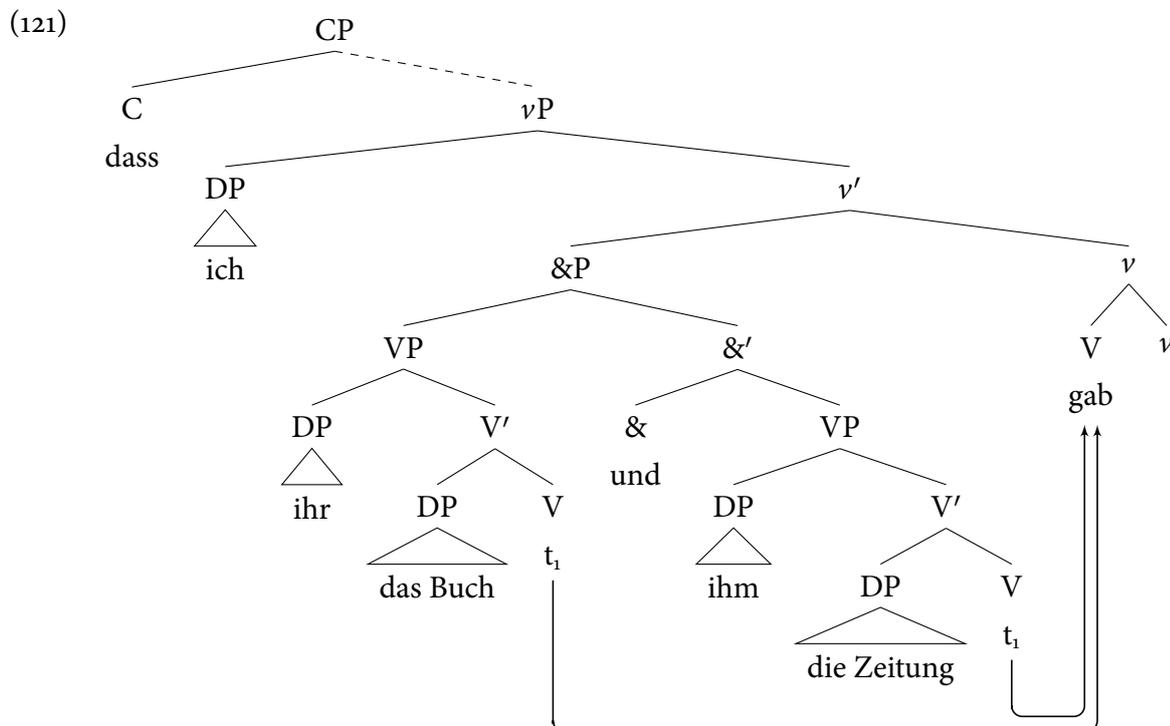
Another argument for rightward movement comes from what I will refer to as ‘backward gapping’. Going back to Ross (1970), it is known that some head-final languages permit deletion of the verb

²³That said, some have argued for a general constraint about movement of headless XPs (Haider 1990; Takano 2000; Funakoshi 2012). This conclusion would not be applicable to the present analysis of apparent multiple fronting in German, recently defended in (Müller 2018). It is possible that some of the apparent restrictions on moving headless XPs can be derived by other constraints, such as anti-locality (see e.g. Wurmbrand 2004a).

in the first conjunct of a coordinate structure (deletion in the first conjunct is also known as *Right-Node Raising*; e.g. Hartmann 2000). One way of deriving the effect of deletion is by means of low coordination and ATB-movement, as Johnson (2009) does for English. Koisumi (2000) argues that backward gapping in Japanese provides evidence for rightward movement. In the example in (120a) from Koisumi (2000:229), the verb in the first conjunct is not realized. Similar structures can be found in German (120b) (Eisenberg 1973:417f.).

- (120) a. Mary-ga [_{VP} suupaa-de piza-o 2-mai katta] to [_{VP} sakaya-de
 Mary-NOM supermarket-at pizza-ACC 2-CL and liquor.store-at
 wain-o 3-bon katta] katta (koto)
 wine-ACC 3-CL bought (fact)
 ‘Mary bought two pizzas at a supermarket and three bottles of wine at a liquor store.’
- b. dass ich [_{VP} ihr das Buch gab] und [_{VP} ihm die Zeitung gab] gab
 that I her.DAT the book and him.DAT the newspaper gave
 ‘that I gave her the book and him the newspaper’

This can be analyzed, as suggested by Koisumi (2000) for Japanese, as low coordination of VPs and rightward ATB-movement (121). If movement to *v* is obligatory, then both verbs must move in order not to violate the *Coordinate Structure Constraint* (Ross 1967). Although movement of the second verb is string-vacuous, movement from the first conjunct gives the impression of deletion of the first verb.



Further evidence for this analysis comes from particle verbs. First, consider that the separable prefix *auf-* in *aufteilen* (‘divide’) can be separated under V2-movement, while the inseparable prefix *ver-* in *verteilen* (‘distribute’) cannot (122b).

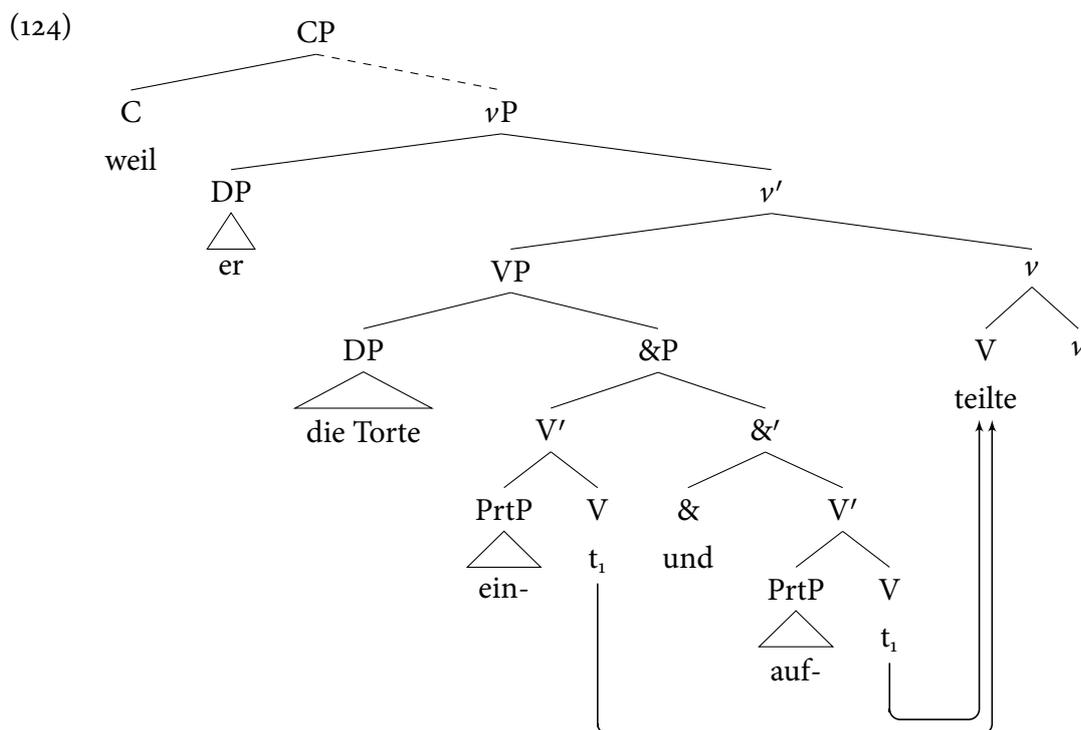
- (122) a. dass er die Torte *auf*-teilte / *ver*-teilte
 that he the cake PRT-divided PRT-divided
 b. Er teilte die Torte *auf*- / **ver*-
 he divided the cake PRT *PRT-
 'that he divided up/*distributed the cake'

Wurmbrand (1998) notes that backward gapping is possible with separable particle verbs such as *auf*-/*ein*-*teilen* (123a), but not with inseparable prefix verbs like *ver*-/*zer*-*teilen* (123b).

(123) *Backward gapping tracks separability* (Wurmbrand 1998:292):

- a. weil er die Torte gerecht *ein*-teilte und *auf*-teilte
 because he the cake fairly PRT-divided and PRT-divided
 'because he divided and split the cake fairly'
 b. ??weil er die Torte gerecht *zer*-teilte und *ver*-teilte
 because he the cake fairly PRT-divided and PRT-divided
 'because he split and distributed the cake fairly'

Again, if we assume low coordination and rightward ATB-movement, only separable verbs will be able to undergo ATB-movement while satisfying the identity requirement on ATB movement (see e.g. Munn 1999; Citko 2006).²⁴



Inseparable verbs will not be able to split the identical part, that is *teilte* in (123b), from the prefix

²⁴ An alternative approach to these data would be to treat them as a morphological process of coordination reduction (see e.g. Booij 1985; Wiese 1996; Wurmbrand 1998). To account for the data in (123), we could assume that only V⁰s can be deleted. On this approach, the correlation between whether a particle verb can be deleted and whether or not it can split under V₂ would not be directly correlated, unlike in the ATB-movement approach. Furthermore, we would have to constrain this special kind of backward X⁰-ellipsis to not apply to other heads such as D⁰ or P⁰ in the first conjunct of a coordinate structure (e.g. *~~in~~ Berlin und in Paris). On the movement-based account, this restriction follows if only verbs undergo rightward movement to a position outside the coordination phrase, which these other heads do not.

and thus will not be able to undergo ATB-movement to ν in low coordination structures. The link between separability and the ability to be gapped makes sense if both of these processes are indicative of movement.

8 Conclusion

This paper sought to reassess the status of rightward head movement in head-final Germanic languages such as German. The prevailing view that has emerged in the literature so far is that either the string-vacuous nature of such movement makes it an untestable hypothesis, or Haider's view that there are good empirical reasons to disregard it completely.

In the first part of the paper, I revisited the arguments advanced by Haider (1993, et seq.) against rightward head movement based on scope, extraposition and verbs that fail to undergo V2. It was shown that the first two arguments have plausible alternative explanations or are therefore simply irrelevant to the question of rightward movement. The third argument based on verbs that do not undergo V2 was shown not only to be an inconclusive argument, but actually that it can be turned into an argument in favour of rightward movement if we assume that certain morphological processes require head movement.

With the frequent objections to rightward verb movement dismissed, the second part of the paper aimed to provide a new argument for rightward movement based on particle verbs. It was shown that there is a class of particle verbs which allow for a PP argument to intervene between the particle and its associated verb. This was argued to follow from the assumption that such verbs exceptionally allow for the PP to occupy a rightward specifier of V. The result of this is that ordinarily string-vacuous movement to ν , for example, now overtly crosses this PP. I considered alternative approaches where the particle and PP forms a complex constituent, but also argued that these come with their own potential drawbacks. Finally, some further arguments for rightward verb movement were presented based on complex prefield and backward gapping.

In sum, this paper has argued that not only is the skepticism about rightward movement in German misplaced, but that it can offer solutions to certain constructions involving particle verbs and beyond. The consequence of this is that it legitimizes the assumption of rightward movement, even if it happens to more often than not be string-vacuous. While this conclusion speaks in favour of rightward movement of the verb to *some* clause-final position, it still remains rather difficult to diagnose the exact height of movement. The present proposal here is compatible with the verb moving to a position at least as high as ν , but it is agnostic about whether it moves higher. Much of this would depend on the strength of the morphological arguments for movement to heads such as Part or T/Inf to form participles and *zu*-infinitives, which are somewhat more theory-internal in nature. The continued search for relevant phenomena and diagnostic tools will hopefully lead to further insights about whether the finite verb in German moves rightward to ν , T or some position in between.

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