

# On the syntax of locative and directional adpositional phrases

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## ABSTRACT

On the basis of a detailed empirical investigation of the syntax of locative and directional adpositional phrases in Dutch and German, this paper seeks to establish the structure of the lexical and extended functional projections of  $P_{\text{Loc}}$  and  $P_{\text{Dir}}$  and its parallels with the lexical and functional structure of clauses and nominal phrases, thereby bringing the adpositional domain fully in line with the verbal and nominal domains *qua* structural hierarchitecture. Among other things, the paper (i) lays out in detail the base structure and syntactic derivation of locative and directional pre-, post- and circumpositional phrases, (ii) discusses the restrictions on movement inside and out of the (extended) projections of  $P_{\text{Loc}}$  and  $P_{\text{Dir}}$ , (iii) sheds new light on the relationship between P and case, (iv) analyses the distribution of modifiers in adpositional phrases, (v) addresses the status of particles in relation to adpositions, and (vi) presents a strong case for the existence of adpositions as a *lexical* category.

## 1 Introduction

Koopman's (1997) investigation of the structure of Dutch PPs is a significant milestone in generativists' thinking about adpositions.<sup>1</sup> By showing that there is quite a bit more to the structure of the PP than had previously been assumed,<sup>2</sup> giving P a full-fledged functional extended projection, Koopman explicitly assimilated P to the uncontroversial lexical categories A, N and V, thereby making P a thoroughbred member of the class of lexical categories, and she simultaneously replicated in the adpositional domain most of the functional skeleton familiar from the extended projections of verbs and nouns, furthering the research program that has it that all lexical categories basically have the same array of functional categories in their backyard. Koopman's study has its limitations, though. It is based on just one language (Dutch), and, more seriously, it is too sketchy in many places to really nail down the points that it is striving to make.

Taking Koopman's seminal work as its point of departure, this paper seeks to flesh out the structure of the adpositional phrase in full detail, taking its cue not just from the Dutch facts (which will be substantially amplified beyond Koopman's observations) but also from German. The outcome of this investigation will end up strongly supporting Koopman's research program, developing it in several important ways. Specifically, the paper will — among other things — isolate counterparts to Aspect, Tense and Comp in the adpositional domain, will identify both locative and directional Ps as lexical categories ( $P_{\text{Loc}}$  and  $P_{\text{Dir}}$ , resp.), each with its own array of functional categories in its extended projection, and will make a case for the idea that these various functional categories are *selectively* present, in an 'ever increasing circles' kind of way. That is, P will always project its own lexical projection, PP, but beyond that, it can 'decide' to be merged directly with a higher lexical category, forgoing all functional structure of its own, or to merge with just one of the functional categories in its extended projection (the lowest one), or to merge with two, etc., or all of its functional associates. Functional structure, then, is called upon selectively, not omnipresent (*contra* Cinque 1999, for instance).

1 The traditional term 'adposition' is a cover-all for pre-, post- and circumpositions; since, however, its initial coincides with that of adjectives, and since arguably all adpositional phrases are underlyingly prepositional, the label 'P' will be used throughout.

2 Van Riemsdijk (1990) is an early plea for the existence of functional prepositions projecting functional structure outside the lexical PP.

The paper is organised as follows. Section 2 will start out by reviewing Koopman's (1997) analysis of the Dutch PP and consider some of its successes and limitations. Section 3 will subsequently develop the typology of locative and directional PP structures, still mostly with reference to Dutch facts. Section 4 then launches into a detailed analysis of German PPs, looking carefully at the case properties of locative and directional PPs and the distribution of particle-like elements in the course of the investigation. In section 5 we return incorporation and 'government transparency' effects as well as the distribution of pseudo-passives. Section 6 concludes the paper.

## 2 The structure of Dutch PPs revisited

### 2.1 Locative PPs

Let me start the discussion of the structure of the Dutch PP by presenting the key facts about locative PPs and Koopman's (1997) analysis of these facts. With that analysis in place, I will then move on to directionals.

#### 2.1.1 The basics

Dutch locative PPs are always *prepositional*, except if P's complement is one of the (in)famous 'R-words' (cf. Van Riemsdijk 1978).<sup>3</sup> The examples in (1), featuring *naast* 'beside', are illustrative for the entire class.

- (1) a. Jan zat <\*het meisje/\*de deur> naast <het meisje/de deur>  
 Jan sat the girl/the door beside the girl/the door  
 b. Jan zat <\*haar> naast <haar>  
 Jan sat her beside her  
 c. Jan zat <er>naast <\*er>  
 Jan sat there<sub>[+R]</sub>-beside there<sub>[+R]</sub>

Although Dutch is otherwise quite happy to incorporate material of the category P (postpositions, particles) into the verbal cluster (see below for extensive illustration), locative Ps are *never* incorporable into the verbal cluster (not even when their complement is an R-word), and, with the exception of R-words, the complement of locative Ps never extracts from out of the locative PP.

- (2) a. ik geloof dat Jan <naast> dat meisje wil <\*naast>zitten  
 I believe that Jan next.to that girl wants next.to-sit  
 b. ik geloof dat Jan er<naast> wil <\*naast>zitten  
 I believe that Jan there<sub>[+R]</sub>-next.to wants next.to-sit  
 (3) a. \*welk meisje/wie heeft Jan naast gezeten?  
 which girl/who has Jan next.to sat  
 b. waar heeft Jan naast gezeten?  
 where<sub>[+R]</sub> has Jan next.to sat

3 'R-word' is Van Riemsdijk's (1978) label for those neuter pronominal arguments of P that obligatorily surface to the left of P (even when the P in question is otherwise strictly prepositional) and have the option of extracting from PP (something which no other P-complement can ever do). The term 'R-word' was transparently chosen on account of the fact that all members of the class of R-words in Dutch have an *r* in them: *er* 'there', *daar* 'there', *waar* 'where', *hier* 'here', *ergens* 'somewhere', *nergens* 'nowhere', *overal* 'everywhere'. Obviously, though, that is by no means a defining characteristic of R-words (cf. *haar* in (1b), which likewise has an *r* in it but does not behave like an R-word).

Modification of locative PPs with the aid of phrases like *twee meter* ‘two metres’ is freely possible, the modifier showing up to the left of P in garden-variety prepositional locative PPs, and either to the left or to the right of the R-word in locative R-word PPs.<sup>4</sup>

- (4) a. [twee meter naast de deur] zat Jan  
       two metre next.to the door sat Jan  
       b. [<twee meter> er <twee meter> naast] zat Jan  
           two metre there<sub>[+R]</sub> two metre beside sat Jan

### 2.1.2 Koopman’s account in a nutshell

Koopman (1997) accounts for the facts summarised in section 2.1.1 with the aid of a structure of the extended projection of the locative P as in (5).

- (5)  $[_{CP(Place)} (er) [C(Place) [_{DegP(Place)} (twee\ meter) [Deg(Place) [_{PlaceP} (er) [Place$   
 $[_{AgrP} \text{non-R-pronoun} [Agr [_{PP} P_{Loc} DP]]]]]]]]]]]$

The lexical core of the structure in (5) is formed by the lexical PP. DP-complements of P are assumed to stay *in situ*, while pronominal complements of P must raise.<sup>5</sup> The landing-site of the pronominal object depends on its nature: non-R-pronouns raise to a SpecAgrP position immediately outside PP,<sup>6</sup> while R-pronouns raise higher, minimally to the specifier position of what Koopman calls ‘PlaceP’ and maximally to SpecCP(Place), the highest specifier in the extended projection of P. With the modifier *twee meter* ‘two metres’ placed in the specifier of a DegP(Place) in between CP(Place) and PlaceP, this will immediately help

4 I chose examples featuring topicalisation of the entire adpositional phrase here to make sure, for the R-word cases, that the R-word is still physically inside the PP and has not been extracted from it.

5 There is an obvious connection here to the facts of Object Shift in the Mainland Scandinavian languages: only pronominal objects are eligible for Object Shift; full-DP objects must stay *in situ*.

6 Koopman resorts to movement to SpecAgrP in an attempt to account for Q-float facts: *met ons allemaal* ‘with us all’ is assumed to result from movement of *ons* ‘us’ to a higher A-position, stranding the quantifier *allemaal* ‘all’ along the way (as in Sportiche’s 1988 analysis of Q-float). The Q-float argument, when taken seriously, will actually require more than just an AgrP between Place and PP. Q-float stranding quantifiers in complement positions is generally impossible (*\*I saw the men all*, same in Romance; cf. Sportiche 1988), for whatever reason; so if *allemaal* in *met ons allemaal* ‘with us all’ is a floating quantifier, it cannot have been stranded in P-complement position: instead, it must have been stranded in a low specifier position, with the pronoun raising up further to the next specifier. The situation then comes to parallel what we find in clauses in Dutch: *all* complements (whether pronominal or full-nominal) raise to some VP-external specifier position; weak pronouns take an additional step beyond that point, to a higher specifier that is still in the ‘middle field’. Viewed this way, and assuming that movement to a specifier is tantamount to movement to a *functional* specifier position (given that lexical categories cannot serve as attractors — they have no ‘EPP property’, in current terminology), the Q-float facts in PPs would diagnose *two* functional projections between Place and PP.

However, there is reason to believe that in PPs like *met ons allemaal* ‘with us all’ we are *not* in fact dealing with Q-float. The key fact here is that ‘Q-float’ remains possible with heavy stress on the pronoun (*met ONS allemaal, niet met HEN allemaal* ‘with US all, not with THEM all’): we know independently that stressed pronouns behave like full DPs, hence are not expected to take the additional movement step beyond SpecAgrP that weak pronouns are obliged to take. The fact that ‘Q-float’ is still possible with stress on the pronoun then suggests that it is *not* the result of stranding of Q under raising of the pronoun; instead, the [pronoun Q] order is presumably the result of a local movement operation *within* the confines of the pronoun’s maximal projection. And if that is what is going on in the derivation of *ons allemaal* ‘us all’, the ‘Q-float’ facts show us nothing about the extended projection of P.

us understand the facts in (4b): when *twee meter* precedes the R-word, *er* is in SpecPlaceP, but when it follows the R-word, *er* has raised up to SpecCP(Place). From this latter position, the R-word is free to escape from PP altogether (cf. (3b)). And since non-R-word complements of P never reach the SpecCP(Place) position, they will never have a chance to extract out of the locative P's extended projection (cf. (3a)).

Having accommodated the placement of P's dependents and modifiers, let us now say a few words about the placement of P itself *vis-à-vis* its internal argument. The fact that locative PPs are systematically *prepositional* except in R-word cases is taken care of by the assumption that P must raise to Place (thereby ending up to the left of non-R-pronouns and DPs, but still remaining to the right of R-words) and can raise no higher than Place (hence can never surface to the left of R-words). That latter point is also instrumental in the account of the fact that locative Ps cannot incorporate into the verbal cluster: since P<sub>Loc</sub> can raise no further than Place, it can never get to a position local to the verb selecting CP(Place), hence incorporation is out of the question.

One last thing before we move on to directional PPs, which are quite a bit more exciting than locative PPs. The topicalisation cases in (4) result from pied-piping movement of the entire locative PP. On a simple-minded analysis of adpositional phrases, this is quite simply a reflex of the constituency of the lexical PP. But for Koopman, there is obviously more to be said. From the fact that (4b) with the R-pronoun placed to the left of *twee meter* (concretely, *er twee meter naast*) is grammatical, we can conclude that pied-piping movement of the entire CP(Place) is possible. That much is straightforward. But it would seem that the other examples in (4) are ambiguous, nothing else said, between fronting of just DegP(Place), or topicalisation of the entire CP(Place). And of course there are maximal projections below DegP(Place) as well which one might imagine moving as a constituent. For instance, we might imagine moving just the lexical PP and leaving everything else behind. For PPs with a pronominal internal argument, that would result in a surface output in which the only thing that physically ends up at the left edge of the sentence is the P itself: everything else is stranded in the extended projection of P, which is not pied-piped. For PPs featuring a full-DP internal argument, the result would look more like PP topicalisation on the surface — but still, modifiers of PP would be left behind if all that was topicalised was the lexical PP.

- (6)
- a. \*[naast het meisje/de deur] zat Jan twee meter  
beside the girl/the door sat Jan two metre
  - b. \*[naast] zat Jan twee meter haar  
beside sat Jan two metre her
  - c. \*[naast] zat Jan <er> twee meter <er>  
beside sat Jan there<sub>[+R]</sub> two metre there<sub>[+R]</sub>
  - d. ?[naast] heeft Jan er nog nooit gezeten  
beside has Jan there<sub>[+R]</sub> yet never sat

The examples in (6a–c) are all crashingly bad.<sup>7</sup> And this is not because *naast* cannot be fronted all by itself alone: a sentence like (6d), with *er* extracted from the adpositional phrase, is grammatical (albeit not brilliant).

7 One might suspect that this is trivially the case because P has failed to raise to Place, which Koopman argues is obligatory. Note, however, that, with P raising to Place in overt syntax and PP (which contains a copy of the raised P as its head) topicalising, the copy of P in the topicalised PP actually becomes the *highest copy* in the chain. C-command is an issue here; but certainly PP c-commands the P-copy in Place, and I will assume that, since PP shares its features with its head, this is sufficient to force deletion of the copy of the locative P sitting in Place. The only copy of P that will actually surface, then, is indeed the one inside the topicalised PP — even though, prior to PP's topicalisation, this copy was in fact the lowest copy in the chain.

To capture the facts in (6), it seems, then, that movement of any of the maximal projections embedded inside CP(Place) must be forbidden. And this is effectively what Koopman assumes: she hypothesises that, while CP(Place) is indeed pied-pipable (incontrovertibly so), lower (extended) projections of P cannot be moved.<sup>8</sup>

(7) CP(Place) is pied-pipable; lower projections cannot be moved

This takes care of (6a–c) immediately. And (6d) still comes out grammatical thanks to the fact that the R-word has left the CP(Place) altogether, topicalisation here involving the entire remnant CP(Place).<sup>9</sup>

With this hypothesis in place, we are basically done with the locative PP for the time being. The directional PP is a much harder nut to crack, though. Let us see what the problems are, and how they can be solved.

## 2.2 Directional PPs

### 2.2.1 A (partial) distributional generalisation and its roots

While the Dutch *locative* PP is systematically *prepositional* (except, of course, when there is an R-word involved), Dutch *postpositional* PPs are always *directional* (with the same proviso made for R-words). But there is no correlation between directionality and postpositionality: directional PPs often, though by no means always, vacillate between prepositional and postpositional word orders. The examples in (8)–(11) give some illustrations.

- |     |    |  |   |                                    |
|-----|----|--|---|------------------------------------|
| (8) | a. | Jan sprong in de sloot<br>Jan jumped in the ditch  | → | ambiguous: locative or directional |
|     | b. | Jan sprong de sloot in<br>Jan jumped the ditch in  | → | unambiguous: directional only      |
| (9) | a. | Jan klom op de berg<br>Jan climbed on the mountain | → | ambiguous: locative or directional |
|     | b. | Jan klom de berg op<br>Jan climbed the mountain on | → | unambiguous: directional only      |

8 There is apparently no parallel with the verbal domain here. After all, Dutch is famous (cf. Den Besten & Webelhuth 1987) for its ‘remnant topicalisation’, apparently involving fronting of the bare VP. It is likely, however, that even the barest cases of remnant topicalisation (cf. e.g. *geven zou Jan Marie dat boek waarschijnlijk nooit* ‘give would Jan Marie that book probably never’) do not instantiate fronting of the lexical VP but instead involve topicalisation of some functional projection dominating VP from which all arguments have been extracted. Whatever the exact nature of the node undergoing remnant topicalisation in such examples, however, it seems fairly plain that this node is not CP — after all, one would be hard pressed manoeuvring all non-verbal material outside CP, even on a highly sophisticated, ‘Italianate’ outlook on the cartography of the left periphery. It does seem to be possible, therefore, to pied-pipe smaller-than-CP extended projections of *verbs* — and in this respect, Koopman’s (1997) hypothesis in (7) certainly does seem to introduce a breakdown of parallelism between the verbal and prepositional domains.

9 We are not done with (6d), though. Nothing else said, we now seem to predict that it should be possible to front a modifier like *twee meter* along with the adposition, as in (i) — but unfortunately, (i) is entirely impossible, for reasons that are very difficult to fathom, not just from Koopman’s perspective but quite in general. I have no solution to offer for this problem, which I would like to put high on the agenda of future research into the syntax of PPs.

(i) \*[twee meter naast] heeft Jan er nog nooit gezeten  
two metre beside has Jan there<sub>[+R]</sub> yet never sat

- |      |    |  |   |                               |
|------|----|--|---|-------------------------------|
| (10) | a. | Jan liep/rende in het bos<br>Jan walked/ran in the woods | → | unambiguous: locative only    |
|      | b. | Jan liep/rende het bos in<br>Jan walked/ran the woods in | → | unambiguous: directional only |
| (11) | a. | de weg in het bos<br>the road in the woods               | → | unambiguous: locative only    |
|      | b. | de weg het bos in<br>the road the woods in               | → | unambiguous: directional only |

Koopman (1997) generalises over a subset of these facts when she says:

- (12) *prepositional directional PPs are only allowed when selected by motion verbs*

It will be clear that this immediately captures the fact that no directional interpretation is available for the prepositional PP in (11a), which is selected by a noun (*weg* ‘road’).<sup>10</sup> It should also be clear, however, that this generalisation is unable, as it stands, to differentiate between the examples in (8a) and (9a), on the one hand, and (10a), on the other — the verbs in all of (8)–(10) are motion verbs; yet only *springen* ‘jump’ and *klimmen* ‘climb’ allow a directional interpretation for the prepositional PP in their complement; *lopen* ‘walk’ and *rennen* ‘run’ do not. But to keep things reasonably simple at this early stage in the exposition, let us gently sweep the problem posed by (10) under the rug and concentrate on the contrast between (8)–(9) on the one hand, and (11) on the other.

Koopman (1997) derives (12) (at least in part) from the assumption that *prepositional directional PPs* have a null functional head ‘Path’ in their extended projection, and that this null Path–head must *incorporate*. On the further assumption that N cannot incorporate  $\emptyset$ Path (‘silent Path must attach to a –N category’<sup>11</sup>), we then rule out a directional interpretation for (11a) while still permitting a directional reading for (8a) and (9a), where the governing head is verbal.

- (13)  $[_{\text{PathP}} \text{Spec} [\text{Path} [\dots]]]$

10 As Peter Slomanson (personal communication) correctly points out, (ia) does have a directional interpretation. (It is in fact idiomatic on that reading: ‘a jump into the big unknown’; the locative reading is not particularly salient.) This casts some doubt on the generality of the ban on directional interpretations for adnominal prepositional PPs. However, it does not seem to be the case that prepositional PPs construed with *sprong* ‘jump’ can *generally* be interpreted directionally — thus, for (ib) and (ic), a directional reading is hard if not impossible to obtain. The idiomaticity of (ia) (in combination with the non-idiomaticity of its postpositional counterpart *een sprong het duister in*, which is well-formed but purely literal) may be what lies beneath its exceptional directionality.

- |     |    |   |   |  |
|-----|----|---|---|--|
| (i) | a. | een sprong in het duister<br>a jump in the darkness   | → | ambiguous: locative (literal) or directional (idiomatic) |
|     | b. | een sprong op de wagen<br>a jump on the wagon         | → | unambiguous: locative only                               |
|     | c. | een sprong achter de kast<br>a jump behind the closet | → | unambiguous: locative only                               |

11 Koopman suggests that Path might belong to the verbal system, which might be why it must attach to a [–N] category. A statement of this specific sort will presumably be superfluous, however: it will arguably suffice, when it comes to blocking incorporation of  $\emptyset$ Path into N, to observe that the complement of N is quite generally impermeable (cf. CNPC effects, and the ban on complementiser deletion in noun-complement clauses; Stowell 1981); see Chomsky (1986) for the hypothesis that the opacity of noun-complement clauses is due to the (stipulated) barrierhood thereof.

The partial structure in (13) forms the backdrop for Koopman’s discussion of Dutch directional PPs in all their surface guises — prepositional, postpositional and circumpositional. Let us review her analysis of these three types of directional PP in some detail now.

### 2.2.2 Prepositional directional PPs

We have already reviewed some of the properties of prepositional directional PPs, but for the sake of getting a complete picture, let me go over their structure once again, filling in the bits and pieces not covered in the foregoing.

Recall from the discussion at the end of the previous subsection that all directional PPs are characterised by the presence, in the extended projection of P, of a functional head Path. In prepositional directional PPs, this Path–head is empty and must incorporate into V — something which provides a partial explanation for the facts in (8)–(11) (partial, because the contrast between (8a)/(9a) on the one hand, and (10a) on the other is not accounted for). The empty Path–head selects a full-fledged CP(Place) as its complement in prepositional directional PPs. The structure underlying prepositional directional PPs thus reads as in (14).

- (14)             $[_{\text{PathP}} \text{Spec} [\text{Path}=\emptyset [\text{CP}(\text{Place}) (er) [\text{C}(\text{Place}) [\text{DegP}(\text{Place}) (\text{twee meter}) [\text{Deg}(\text{Place})$   
     $[\text{PlaceP} (er) [\text{Place} [\text{AgrP non-R-pronoun} [\text{Agr} [\text{pp P DP}}]]]]]]]]]]]]]]]]]]]]]]]$

The derivation of prepositional directionals is assumed to proceed via movement of CP(Place) in its entirety into SpecPathP.<sup>12</sup>

### 2.2.3 Circumpositional directional PPs

Before moving on to postpositional directional PPs of the type illustrated in the b–examples in (8)–(11), it will be profitable to take a look at circumpositional directional PPs first. Two examples of such circumpositional directionals are given in (15).

- (15) a.        Jan liep onder de brug door  
                     Jan walked under the bridge through  
       b.        Jan legde zijn jas over de stoel heen  
                     Jan laid his coat over the chair PRT

Koopman’s (1997) analysis of these constructions deconstructs the circumposition as a combination of a preposition and a postposition, assuming that the postpositional part of the circumposition (*door, heen*) lexicalises the Path–head that, in prepositional directionals, is empty.<sup>13</sup> Since the postpositional part occupies the highest head in the extended projection of P, it may (but does not *have to*) incorporate into V, according to Koopman. She rightly notes (in fn. 33) that there is speaker and lexical variation here (whence the ‘%’ on the incorporated *door/heen* in (16)), but she does not provide an account of this variation within her analysis.

<sup>12</sup>        The movement of CP(Place) to SpecPathP is hard to find concrete evidence for in the case of prepositional directionals; this step is assumed to be taken primarily on the analogy of what happens in circumpositional directional PPs, to be discussed below.

<sup>13</sup>        Koopman considers the possibility that the postpositional part of circumpositions may itself be base-generated as the head of a PP in Path’s complement, but she does not take a clear stand on the issue. We will return to this point further below.



reject (16) with incorporation also reject (18) with incorporation, and *vice versa*). The trick, therefore, will be to find an account for these facts that not only sheds light on the speaker variation *per se* but also manages to relate the two domains of speaker variation in circumpositional PPs to each other. Koopman’s account is poorly equipped for that task. We have already seen that her account of (18) is flawed (see fn. 14); and Koopman has no account for the variation in (16) at all: (i) all speakers allow  $\emptyset$ Path to incorporate into V (since all speakers of Dutch allow directional prepositional PPs in the relevant contexts), (ii) all speakers allow particles to incorporate into V (the postpositional part of circumpositions is homophonous to a particle), and (iii) all speakers allow incorporate into V of postpositions, to which I now turn.

#### 2.2.4 Postpositional directional PPs

In Koopman’s (1997) account of postpositional directional PPs has P raise to Path, a position from which it may then incorporate into the verb (though it does not have to).<sup>15</sup> Since P, which is taken to originate in the same P–head position that prepositions are born in) can apparently reach Path in postpositional PPs, but since we know that P never raises to C(Place) or Deg(Place) (recall the discussion of locative prepositional phrases in section 2.1.2, above), we now deduce that Path in simple postpositional PPs takes (at most) PlaceP as its complement. Thus, we end up with the structure in (20) for simple postpositional PPs.

(20)  $[_{\text{PathP}} \text{Spec} [_{\text{Path}} [_{\text{PlaceP}} (er) [_{\text{Place}} [_{\text{AgrP}} \text{non-R-pronoun} [_{\text{Agr}} [_{\text{PP}} \text{P DP}}]]]]]]]]]$

Since P raises to Path via Place, Koopman predicts that it should be impossible to lexicalise Place with the aid of a place modifier — a prediction which is borne out by the facts in (21). As (22) shows, Deg–modifiers are also impossible in postpositional PPs, which is also as expected: after all, with DegP(Place) necessarily absent from the structure, there is no room for modifiers like *twee meter* ‘two metres’ in the tree.<sup>16</sup>

- (21) a. Jan is (*boven*) in de boom geklommen  
 Jan is up in the tree climbed  
 b. Jan is (*\*boven*) de boom (*\*boven*) in geklommen
- (22) a. Jan is (*vlak*) langs de afgrond gelopen  
 Jan is right along the precipice walked  
 b. Jan is (*\*vlak*) de afgrond (*?vlak*) langs gelopen

To obtain postpositional word order on the basis of a structure like (20), with P raising all the way up to Path, obviously there will need to be movement into SpecPathP, as in circumpositional PPs. For circumpositional PPs, Koopman insisted that the entire complement of Path raise to SpecPathP. But in her discussion of simple postpositional PPs, she offers us a choice: Path attracts either PlaceP in its entirety or some projection contained in PlaceP.

15 Recall from what I said at the end of the previous subsection that unlike in the case of circumpositional PPs, where we found that incorporation of the postpositional part is subject to speaker variation (recall (16)), there is no speaker variation when it comes to the incorporability of simple postpositions: *all* speakers, to my knowledge, allow simple postpositions to incorporate.

16 Though both variants of (21b) are equally bad, the variant of (22b) in which *vlak* appears to the right of the DP is significantly less bad than the one featuring *vlak* to the left of the DP. Koopman (1997:39) herself gives (22b) with *vlak* following *de afgrond* the qualification ‘\*?’ — but this seems to overstate the case; for some speakers, this variant of (22b) is in fact just fine. Clearly, Koopman has no way of accounting for the difference in acceptability between the two variants of (22b): they should both be out, for the simple reason that no DegP(Place) is projected in the structure of postpositional PPs at all.

The case that interests us particularly is that of DP (P’s complement) raising to SpecPathP. This case is interesting because, with DP raising to SpecPathP (skipping SpecPlaceP, the position reserved for R–words — a move made possible by the fact that Place (containing the raised P) raises up to Path, making SpecPlaceP and SpecPathP equidistant;<sup>17</sup> cf. Chomsky 1995), DP becomes eligible for subextraction out of PP. And indeed, subextraction of DP is possible in postpositional directional PPs, as (23a,b) and (24a,b) show.

- (23) a. die boom zou Jan graag <in> willen <in> klimmen  
 that tree would Jan gladly in want in climb  
 b. de boom die Jan <in> is <in> geklommen  
 the tree that Jan in is in climbed  
 c. de boom waar Jan <in> is <in> geklommen  
 the tree where Jan in is in climbed
- (24) a. die berg zou Jan graag <op> willen <op> wandelen  
 that mountain would Jan gladly onto want onto walk  
 b. de berg die Jan <op> is <op> gewandeld  
 the mountain that Jan onto is onto walked  
 c. \*de berg waar Jan <op> is <op> gewandeld  
 the mountain where Jan onto is onto walked

The topicalisation examples in (23a) and (24a) of course plainly involve extraction of the DP out of the postpositional phrase. And the fact that the relative clauses in (23b) and (24b) are headed by a so-called *d*-word (*die*) also indicates that what has extracted from the PP is a DP: noun phrases are relativised with the aid of a *d*-word in Dutch. The facts in (23a,b) and (24a,b) thus lend support for Koopman’s analysis.

Note, however, that things become somewhat trickier when we draw (23c) and (24c) into the picture. Here, what we have attempted to extract from the PP is an R–word (*waar*). And we know that R–words, in Koopman’s (1997) analysis of the Dutch PP, are in SpecPlaceP or SpecCP(Place). For Koopman, who assumes that the complement of Path in directional postpositional PPs is maximally as large as PlaceP, there is no reason to expect R–word extraction from postpositional PPs to be impossible. And indeed, she asserts that R–words can in fact extract from postpositional directional PPs, giving (23c) in support of her claim. But as Helmantel (2002:66) notes, (24c) is ungrammatical,<sup>18</sup> advancing it as an argument against having Path (which she labels ‘Dir’) select PlaceP (as in (25a)). Specifically, Helmantel argues that obligatorily postpositional PPs (i.e., directional PPs which can *only* be postpositional — recall the facts in (10)) have Path select PP directly (as in (25b)).

- (25) a. [<sub>PathP</sub> Spec [Path [<sub>PlaceP</sub> (*er*) [Place [<sub>PP</sub> P DP]]]]]  
 b. [<sub>PathP</sub> Spec [Path [<sub>PP</sub> P DP]]]

The facts in (23c) and (24c) seem to suggest that (25a,b) *both* exist — and the generalisation that emerges is that, in directional contexts, Ps that can only be postpositional (like *op* in (24); cf. (27)) employ the structure in (25b) while Ps that can also be *prepositional* (like *in* in (23); cf. (26)) may employ (25a).

17 It is precisely because of the fact that Place (containing P) raises that DP–movement to SpecPathP becomes a possibility — thus, Koopman manages to confine the option of raising DP to SpecPathP to simple postpositional phrases, successfully ruling it out for prepositional and circumpositional phrases (where Place does not raise). This is a significant result.

18 Hedde Zeijlstra (p.c.) tells me he accepts (24c); he also accepts *Jan is op de berg gewandeld*, which for me (and other speakers I have encountered) is robustly unacceptable. Obviously, for those speakers for whom *Jan is op de berg gewandeld* is good, *op* in this context is not obligatorily postpositional — which then makes the legitimacy of R–words perfectly straightforward.

- (26) a. Jan klom in de boom → ambiguous: locative or directional  
 Jan climbed in the tree  
 b. Jan klom de boom in → unambiguous: directional only  
 Jan climbed the tree in
- (27) a. Jan wandelde op de berg → unambiguous: locative only  
 Jan walked on the mountain  
 b. Jan wandelde de berg op → unambiguous: directional only  
 Jan walked the mountain on

And the structures in (25) will actually help us understand this generalisation. The idea is the following. The presence of Place in the extended projection of P will *allow* P to raise just to Place and no further, and be fully licensed that way as a preposition. Apparently, when there is no further functional structure between Place and Path, Place+P has the *option* of raising on to Path, in which case a postposition results. So (25a) gives rise *either* to a *prepositional* directional PP or to a *postpositional* PP. The structure in (25b), on the other hand, cannot support a prepositional output: there is no Place–head to license P as a preposition; P *must* raise to Path because there is no Place–head for it to raise to. So (25b) delivers exclusively *postpositional* outputs, *and* of course makes R–words strictly impossible (because there is no SpecPlaceP, the lowest position licensing R–words). Thus, we derive a correlation between P’s grammaticality in a *prepositional* directional PP and the grammaticality of R–words — it is precisely those Ps that are happy to be used prepositionally in directional PPs that can accommodate, in their postpositional incarnation, a position for R–words.

This is an interesting result, incorporating Helmantel’s (2002) objection to Koopman’s (1997) analysis into the analysis. But note that, to obtain this result, we do need to revise Koopman’s analysis in two respects: (i) we need to allow *prepositional* directional PPs to feature just a PlaceP in the complement of Path (i.e., we need to pair (14) up with a companion structure in which the complement of  $\emptyset$ Path is PlaceP, not a full-fledged CP(Place)), and (ii) we need to allow the Path–head of *postpositional* directional PPs to take something smaller than PlaceP as its complement (specifically, a naked PP<sup>19</sup>).

19 The question of whether Path can ever select AgrP (which, after all, is in between PP and PlaceP in Koopman’s structure of the extended projection of P) is interesting. The cases to look at should involve [–R] *pronominal* complements of unambiguously postpositional Ps. It turns out that it is pretty difficult to use personal pronouns in such PPs: I find things like (i) basically unacceptable; (i) certainly contrasts with (ii), featuring a non-obligatorily postpositional P, which is perfectly fine.

- (i) ??die berg, ik denk niet dat ik 'm op zou kunnen wandelen  
 that mountain I think not that I him up would can walk  
 ‘that mountain, I don’t think I’d be able to walk up it’
- (ii) die boom, ik denk niet dat ik 'm in zou kunnen klimmen  
 that tree I think not that I him in would can climb  
 ‘that tree, I don’t think I’d be able to climb into it’

If indeed these judgements are reproducible with other speakers (which remains to be checked), the conclusion that seems to ensue is that strictly postpositional Ps *cannot* have a pronominal complement at all (neither [+R] nor [–R]). This, in turn, will then lead to the conclusion that the Path–head of such PPs can select neither PlaceP nor AgrP — it *must* in fact select a ‘naked’ PP. The fact that AgrP is not suitable as a complement to Path may follow if, in fact, Path is a functional head in the extended projection of a lexical directional P (P<sub>Dir</sub>; see below) and if, as seems plausible, lexical heads cannot select AgrP complements (which don’t have any intrinsic properties).



## 2.3 Degree modification up close

Helmantel (2002:75), whose work we have had occasion to invoke in the previous subsections, also draws attention to the contrast in (30), entirely unexpected from Koopman's perspective — in fact, nothing else said, Koopman predicts the opposite: DegP(Place) is present in directional *pre*-PPs but not in *post*-PPs

- (30) a. we duwen de zware doos (*\*twee meter*) in de garage  
we push the heavy box two metre in the garage  
b. we duwen de zware doos (*twee meter*) de garage in  
we push the heavy box two metre the garage in

The example in (30b) seems to argue for a DegP(Path) outside PathP, and hence suggests that there is (or at least, there *can* be) more functional structure outside PathP, functional structure which mimics the functional structure outside PlaceP.<sup>22</sup>

That there is a Deg-projection outside PathP in addition to the DegP outside PlaceP is shown particularly clearly by the facts in (31), which I will discuss in some detail.

- (31) a. de rivier loopt twee meter achter het huis langs  
the river goes two metre behind the house along  
a'. de rivier loopt (over een afstand van) twee meter twee meter achter het huis langs  
the rivier goes over a distance of two metre two metre behind the house along  
b. de rivier loopt <twee meter> het huis <'twee meter> achterlangs  
the river goes two metre the house two metre behind-along  
b'. de rivier loopt (over een afstand van) twee meter <\*twee meter> het huis <\*twee meter>  
the river goes over a distance of two metre two metre the house two metre  
achterlangs  
behind-along

Let us look first of all at (31a). This sentence is ambiguous. On one reading, the river flows all along the back of the house, at a distance of two metres from the back of the house throughout. On the other, the river flows along the back of the house over a distance of two metres (and then takes a sudden turn away from the house), at an unspecified distance from the house. On the former reading, *twee meter* specifies the distance between the house and the *location* of the river's trajectory; on the latter, *twee meter* specifies the length of the *path* covered by the river in parallel to the back of the house. Clearly, then, on the former reading *twee meter* is a degree modifier of PlaceP, belonging in the Koopman's SpecDegP(Place); but on the latter, *twee meter* does not belong there — instead, it should find itself in the specifier position of a DegP projected outside PathP, so that it can modify the path rather than the location. Let us call that phrase 'DegP(Path)', transparently. What (31a) shows, then, is that there exists a DegP(Path) as well as a DegP(Place). And the grammaticality of (31a') shows, more specifically, that the two DegPs can actually be present in the structure simultaneously (i.e., they are not in complementary distribution): the two senses of *twee meter* are combinable.

22 Notice that the presence of *twee meter* in (30b) does not seem to affect P's incorporability into V. This is problematic if P cannot climb to Deg (cf. Koopman 1997). The problem persists on the analysis of PPs developed in section 3.

- (i) a. dat we de zware doos de garage <in> hebben <in> geduwd  
that we the heavy box the garage in have in pushed  
b. dat we de zware doos *twee meter* de garage <in> hebben <in> geduwd



I labelled the lower P-head ‘P<sub>Loc</sub>’ in recognition of the fact that it is a *locative* P, and the higher one ‘P<sub>Dir</sub>’, a *directional* P. The structure in (34) is the *maximal* structure for directional PPs.

### 3.2 Comparing the extended projections of P and V: A typology of extended projections

Though (34) is as large as it gets when it comes to a directional PP, the structure of directional PPs arguably is not always this elaborate: the complement of the upstairs P<sub>Dir</sub> is not necessarily a full-fledged CP(Place), nor is P<sub>Dir</sub> necessarily dominated by an extended projection. The question that arises at this point, then, is: what are the options? A comparison of the extended projections of P and V will be very instructive when it comes to answering this question.

Let us begin by asking what the correspondents of Koopman’s (1997) functional projections are in the extended projection of V. For Koopman’s AgrP, the obvious counterpart in the verbal domain is AgrOP.<sup>23</sup> The counterpart of PlaceP and PathP is arguably AspP. The difference between location and direction in the adpositional domain is quite similar to that between stativity and dynamicity in the verbal domain; and the stative/dynamic distinction in the verbal domain is an aspectual distinction involving AspP. The DegPs in the structure in (34) are naturally conceived of as the equivalents of TP in the extended projection of the verb. While TP is the natural home for temporal modifiers like *for an hour*, *in an hour*, *yesterday* and *tomorrow*, so DegP is the home for degree modifiers like *over a distance of two miles* and its ilk.<sup>24</sup> Finally, it will not be difficult to find a match for CP(Place) and CP(Path): as Koopman’s (1997) terminology readily reveals, these obviously correspond to the CP in the extended projection of the verb.

This said, we can approach the question of what the options are (i.e., what the possible and impossible sizes of the extended projection of P are) by looking at what we know independently about the extended projection of V. This is summed up in (35). In the following paragraphs, I will go through each of these five structures and discuss why they are grammatical or ungrammatical.

- (35) a. V [<sub>VP</sub> V ...]  
 b. \*V [<sub>AgrP</sub> [Agr [<sub>VP</sub> V ...]]]  
 c. \*V [<sub>AspP</sub> [Asp [<sub>AgrP</sub> [Agr [<sub>VP</sub> V ...]]]]]  
 d. V [<sub>TP</sub> [T [<sub>AspP</sub> [Asp [<sub>AgrP</sub> [Agr [<sub>VP</sub> V ...]]]]]]]  
 e. V [<sub>CP</sub> [C [<sub>TP</sub> [T [<sub>AspP</sub> [Asp [<sub>AgrP</sub> [Agr [<sub>VP</sub> V ...]]]]]]]]]

23 Quite possibly, the label ‘Agr(O)’ can be replaced with a ‘little *p*’ or ‘little *v*’ (cf. Chomsky 1995, 1999). The AgrP will play little or no role in the discussion to follow, however (recall fn. 6, above, for discussion of the flaws in Koopman’s 1997 argument for a separate AgrP in the extended projection of P). Therefore, I will not belabour the question of what the proper label for this projection might be.

24 To be sure, temporal modifiers like *in an hour* and *for an hour* have a close relationship with aspect, as is well known (accomplishments are generally incompatible with *for an hour* (except on an iterative reading), and statives and activities are irreconcilable with *in an hour* type modifiers). But that does not mean that these modifiers are attached to AspP — since they are temporal modifiers, I will assume that they are attached to TP; the connection with aspect is established via the raising of Asp to T in the course of the syntactic derivation.

Also, the question of whether ‘attachment to TP/DegP’ means ‘sitting in an adjunction position to TP/DegP’ or ‘sitting in SpecTP/SpecDegP’ is of course immaterial if the difference between specifiers and adjuncts is non-existent (cf. Kayne 1994, for instance). But if one prefers to keep that distinction and follow Koopman (1997) in placing degree modifiers of PP in SpecDegP, one should obviously do the same (*mutatis mutandis*) for temporal modifiers in the verbal domain, placing them in SpecTP. If the subject is to occupy a SpecTP position as well, one may then exploit Chomsky’s (1995) multiple specifier structures to accommodate both. I refer the reader ahead to section 4 for discussion of the use of SpecDegP(Path) as a landing-site for movement.

The structure in (35a), where the higher lexical verb takes a ‘naked’ VP as its complement, is grammatical, and arguably attested in ‘clause union’ or ‘restructuring’ constructions (see Wurmbrand 2001 for extensive discussion). The lower V in this structure obligatorily incorporates into the higher V (producing the familiar ‘clause union’ effects) in order to be licensed — the idea being that V must be licensed by being included in a T–chain (cf. Guéron & Hoekstra 1988, 1993); if V does not have a TP in its own extended projection, it must be included in the T–chain of a higher verb by incorporating into that verb and forming a complex verb with it.

The structure in (35b) is ungrammatical. In the absence of an embedded T, the lower V would need to incorporate into the higher V, but it cannot incorporate because there is a non-lexical head intervening between the two Vs, and (as Li 1990 shows) movement of a lexical head through a functional head up to a higher lexical head is impossible (‘improper head movement’).

Ungrammaticality also results in (35c). Asp depends on T (it is sometimes called ‘secondary tense’): as is well known, verbs which arguably have T–less complements cannot include Asp (cf. French *faire-causatives*: *je lui fais lire le livre* ‘I make him read the book’ vs. \**je lui fais avoir lu le livre* ‘I make him have read the book’). The presence of Asp in the complement of V would hence demand the presence of a lower T as well. Asp (and V) cannot satisfy their need to be incorporated into a T–chain in this structure by raising up to the higher V and incorporating into it either, for reasons discussed in the previous paragraph.

The structures in (35d) and (35e) are well-formed and well attested in the empirical facts (cf. raising and ECM–infinitives with *to* for (35d), and full-fledged CP complements for (35e)). In both cases, the lower verb can be fully licensed within the complement of the higher verb: there is a T–head present in the higher verb’s complement which can fully license the lower verb. The T–head in (35d) will be anaphoric on the T–head of the higher clause (since it cannot be anchored in its own C); in (35e), the lower clause is fully self-contained.

Now, assuming that the parallels I drew a couple of paragraphs back between the various F–heads in the extended projection of P and the F–heads in the extended projection of V stand up to scrutiny, and assuming further that what I said about the vicissitudes of the structures in (35) carries over, *mutatis mutandis*,<sup>25</sup> we may replicate the pattern in (35) for the case of directional PPs, as in (36).

- (36) a.  $P_{Dir} [_{PP} P_{Loc} DP]$   
 b. \* $P_{Dir} [_{AgrP} [Agr [_{PP} P_{Loc} DP]]]$   
 c. \* $P_{Dir} [_{PlaceP} [Place [_{AgrP} [Agr [_{PP} P_{Loc} DP]]]]]$   
 d.  $P_{Dir} [_{DegP(Place)} [Deg(Place) [_{PlaceP} [Place [_{AgrP} [Agr [_{PP} P_{Loc} DP]]]]]]]$   
 e.  $P_{Dir} [_{CP(Place)} [C(Place) [_{DegP(Place)} [Deg(Place) [_{PlaceP} [Place [_{AgrP} [Agr [_{PP} P_{Loc} DP]]]]]]]]]$

In the structure in (36a), the lower P ( $P_{Loc}$ ) obligatorily *incorporates* into the higher P ( $P_{Dir}$ ), forming a complex  $P_{Loc}+P_{Dir}$  (where either P may be null or overt). When the lower P incorporates into the higher P, there can be no  $DegP(Place)$  downstairs — which takes care of the fact that in (31b), above, the degree modifier *two meter* ‘two metres’ can only be construed with the *path*, not with the *location*. In the structures in (36d) and (36e), the presence of functional structure between the lower P and the higher P prevents incorporation, so the two Ps will not amalgamate; when they are both overt, they will be spelled out separately. Thanks to the presence of functional structure between the two Ps, there is space available for degree modifiers of the *location* downstairs — which accounts for the facts in (31a,a’), above.

25 I will not actually make the requisite ‘mutations’ here. It is certainly not a trivial question how the T–chain based discussion of the vicissitudes of (35a–e) can be made to carry over into non-temporal domains such as the noun phrase or the adpositional phrase. I will assume, however, that such a translation will be possible; and I take it to be the null hypothesis that the patterns we find in the verbal extended projection are replicated in the extended projections of other lexical categories.

### 3.3 Beyond $PP_{Dir}$

In adjudicating the structures in (36), I focused on the demands of the lower P-head,  $P_{Loc}$ . Let us now consider the needs of the higher P,  $P_{Dir}$ . In the structures in (36) as they stand,  $P_{Dir}$  has no extended projection at all. If indeed  $P_{Dir}$  forgoes its own extended projection and ends up having its maximal projection  $PP_{Dir}$  merge directly with V, it stands no chance of getting itself licensed within its own extended projection (since it has none). Hence, if  $PP_{Dir}$  merges directly with V,  $P_{Dir}$  must incorporate into V — and when  $P_{Dir}$  incorporates into V, Baker’s (1988) ‘Government Transparency Corollary’ (GTC),<sup>26</sup> or whatever its government-less minimalist successor may be, will turn the complement of  $P_{Dir}$  into a derived complement of the complex  $V+P_{Dir}$ .

Suppose, on the other hand, that  $P_{Dir}$  does have an extended projection of its own erected on top of its lexical PP. Then P-incorporation into V will not take place:  $P_{Dir}$  will instead be fully licensed within its extended projection. How large will that extended projection be? The first head we can merge is Path. Since Path is strictly dependent on Deg (in the same way that Asp is dependent on T; cf. above), merging Path will automatically force the merger of Deg(Path) as well. And although TP (the counterpart of DegP in the domain of the verb) is suitable as a V-complement (cf. ECM and raising constructions), DegP(Path) is not: the head of the TP complement of V is incorporable into the higher verb’s T-chain (headed by the same kind of head, T, which can anaphorically bind the lower T) but the head Deg(Path) is not (since Deg(Path) and T, though each other’s counterparts in the respective domains, are clearly not the same creature, hence cannot engage in a relationship of anaphoric binding). So once  $P_{Dir}$  elects to erect an extended projection of itself on top of its lexical projection, it must project all the way up to CP(Path).

We thus obtain two options beyond  $PP_{Dir}$ , depicted in (37a,b).

- (37) a.  $V [_{PP} P_{Dir} \dots]$   
 b.  $V [_{CP(Path)} [C(Path) [_{DegP(Path)} [Deg(Path) [_{PathP} [Path [_{PP} P_{Dir} \dots]]]]]]]]]$

With this in mind I will take a look at the continuations the structures in (36a) and (36d,e), each time considering both options in (37).

#### 3.3.1 Beyond (36a)

We know from the discussion in the previous section that the derivation beyond merger of  $P_{Dir}$  in (36a) proceeds via incorporation of lower  $P_{Loc}$  into the higher  $P_{Dir}$ . Beyond this point, there are two options, as indicated above. Suppose, first of all, that  $PP_{Dir}$  merges directly with V, as in (37a). Then  $P_{Dir}$  will need to incorporate into V. But note that, in (36a),  $P_{Dir}$  already has  $P_{Loc}$  incorporated into it — for  $P_{Loc}$  had elected to forgo an extended projection of its own, hence had to incorporate. The result of overt-syntactic incorporation of the  $P_{Loc}+P_{Dir}$  complex into V will be realised as a complex verb unless this is blocked by a morphological Well-formedness Condition (cf. Den Dikken 2003 for discussion) — when  $P_{Loc}=\emptyset$  or  $P_{Dir}=\emptyset$  (so that only one part of the P+P complex is overtly realised), physical incorporation may be audible; when both  $P_{Loc}$  and  $P_{Dir}$  are overt, a Well-formedness Condition preventing compounds from being spelled out word-internally in incorporation structures (cf. (38b), below, for illustration) ensures that the copy of the  $P_{Loc}+P_{Dir}$  complex that is realised at PF is the one in  $P_{Dir}$ .

26 The GTC says that a head that has an element incorporated into it governs everything that the incorporated head governed in its original structural position. Incorporation thus extends the government domain of the incorporating head downward.

In any event, with  $P_{Loc}+P_{Dir}$  incorporating into V, the Government Transparency Corollary will turn  $P_{Loc}$ 's DP complement into a derived complement of the V-complex. And like all DP-complements of V in Dutch (an 'OV language'), it will therefore have to undergo Object Shift, ending up to the left of V; and it will be eligible for movement beyond the Object Shifted position just like any other DP-complement of V. In other words, we expect the DP in directional PPs of this type to behave exactly like an object. Thus, it should be able to *scramble* across adverbial material, and it should be able to topicalise or relativise just like any other DP-object. That topicalisation and relativisation of the DP are indeed a possibility is something we had already seen in the examples in (23a,b) and (24a,b), repeated below. The facts in (38) show that the prediction regarding the scramblability of DP is borne out as well. Regardless of whether  $P_{Dir}$  is physically a part of the verb (something which is determined by a postsyntactic Well-formedness Condition; cf. above and Den Dikken 2003), the incorporated  $P_{Loc}+P_{Dir}$  complex will make  $P_{Loc}$ 's DP-complement behave like a dependent of the verb.

- (23) a. die boom zou Jan graag <in> willen <in> klimmen  
 that tree would Jan gladly in want in climb  
 b. de boom die Jan <in> is <in> geklommen  
 the tree that Jan in is in climbed
- (24) a. die berg zou Jan graag <op> willen <op> wandelen  
 that mountain would Jan gladly onto want onto walk  
 b. de berg die Jan <op> is <op> gewandeld  
 the mountain that Jan onto is onto walked
- (38) a. dat de stoet (gisteren) het Witte Huis (gisteren) <langs> is <langs> gelopen  
 that the pageant yesterday the White House yesterday along is along walked  
 b. dat de stoet (gisteren) het Witte Huis (gisteren) <achterlangs> is <\*achterlangs> gelopen  
 that the pageant yesterday the White House yesterday behind-along is behind-along walked

Of course, with DP obligatorily undergoing Object Shift into the extended projection of the verb, we also predict that, with the  $P_{Loc}+P_{Dir}$  complex incorporating into V, it should be impossible to move the sequence 'DP  $P_{Loc}+P_{Dir}$ ' (cf. *het huis (achter)langs* 'the house behind-along') as a constituent. This seems, at first blush, to be an incorrect prediction: for (39a,b) are perfectly well-formed.

- (39) a. het Witte Huis langs liep de stoet  
 the White House along walked the pageant  
 b. het Witte Huis achterlangs liep de stoet  
 the White House behind-along walked the pageant

But recall that merging  $PP_{Dir}$  directly with V (which is the scenario that fails to deliver the sequence 'DP  $P_{Loc}+P_{Dir}$ ' as a constituent) is only *one* of the ways of continuing the derivation beyond (36a): we also have the option of merging  $PP_{Dir}$  with an extended projection of its own, as in (37b). So suppose that  $PP_{Dir}$  merges with Path, and then PathP merges with Deg(Path), and then DegP(Path) merges with C(Path), resulting in (37b). Then, with  $P_{Loc}$  raising to  $P_{Dir}$  (as before, because there is no extended projection of Place present in the structure) so that the DP-complement of  $P_{Loc}$  comes to behave as though it was the complement of  $P_{Dir}$  (by the GTC), we expect to get raising of  $P_{Loc}$ 's object to SpecPathP, and we expect  $P_{Dir}$  to raise to Path but no further (cf. Koopman 1997 on the impossibility of P-raising to Deg). This results on the surface in a simplex or complex postpositional construction in which the sequence 'DP  $P_{Loc}+P_{Dir}$ ' does indeed behave as a constituent (a CP(Path), to be precise), hence is capable of topicalisation, as in (39).

3.3.2 Beyond (36d,e)

Having taken care of the derivation beyond (36a), let us ask how the derivation of (36d,e) proceeds beyond the projection of  $PP_{Dir}$ . Once again there are two scenarios, which I will consider in turn, starting with (37a), merger of  $PP_{Dir}$  directly with V. Since  $P_{Dir}$  forgoes the construction of an extended projection in this scenario, merger of V must be followed by incorporation of  $P_{Dir}$  into V, which, via Bakerian ‘government transparency’, turns the complement of the incorporated  $P_{Dir}$  into the complex verb’s derived complement. This has immediate repercussions for the variety of complements that  $P_{Dir}$  can take. Recall from the discussion at the very outset of this section that DegP is unsuitable as a V–complement (because Deg cannot be licensed within its own CP and cannot be anaphorically bound by the matrix T either). That means that a structure of the type in (36d), in which  $P_{Dir}$  takes a DegP(Place) complement, will come out ill-formed if  $PP_{Dir}$  merges directly with V and incorporates into V. Succinctly put, then, the derivation crashes for (36d) if  $PP_{Dir}$  is merged V. For (36e), on the other hand, the derivation will converge if  $PP_{Dir}$  merges with V — for those speakers who accept CP(Place) in the complement of a directional verb. For such speakers, this CP(Place), which becomes a derived complement of V as a result of obligatory incorporation of  $P_{Dir}$  into V and must therefore be shifted leftward to a position to the left of the verb,<sup>27</sup> will also be able to undergo fronting on its own, leaving  $P_{Dir}$  behind. Concretely, then, speakers who allow CP(Place) in the (derived) complement of a directional verb will allow sentences of the type in (41b) (cf. also (18), above). And they will likewise allow the postpositional part of circumpositional directional PPs to surface inside the complex verb as a result of incorporation of  $P_{Dir}$ , as in (40) (cf. (16)).

- (40)            dat de stoet (gisteren) achter het Witte Huis (\*gisteren) <langs> is <%langs> gelopen  
                   that the pageant yesterday behind the White House yesterday along is along walked
- (41)    a.        achter het Witte Huis langs liep de stoet  
                   the White House along walked the pageant
- b.        %achter het Witte Huis liep de stoet langs  
                   behind the White House walked the pageant along

The ‘direct merger of  $PP_{Dir}$  with V’ scenario based on (36d,e) fails to produce sentences of the type in (41a). For those, we naturally resort to a scenario in which  $P_{Dir}$  has an entire extended projection of its own erected on top of its lexical projection, as in (37b). On that scenario,  $P_{Dir}$ ’s complement will raise to SpecPathP and  $P_{Dir}$  raises to Path but no further (recall, once again, Koopman 1997 on the ban on P–raising to Deg). The full-fledged CP(Path), which is happy to serve as a complement to a directional verb for all speakers, can undergo A’–fronting as a unit, thereby producing (41a), as desired. CP(Place) (present in the (36e)–based derivation), on the other hand, *cannot* be moved out of the CP(Path): to do so would involve taking a CP out of a CP, a classic ‘A–over–A’ violation. We thus expect it to be impossible on this scenario to perform subextraction of  $P_{Loc}$ +DP by itself, stranding  $P_{Dir}$ . Likewise, since a full CP(Path) is projected above  $PP_{Dir}$ , we expect incorporation of  $P_{Dir}$  into V not to take place.

27        That locative PPs in the complement of V are illegitimate in postverbal position is shown in (i). The exact nature of the landing-site of leftward shifted CP(Place) is unclear (cf. Koster’s 1994 and Zwart’s 1994 ‘PredP’), but clearly irrelevant for our purposes here.

- (i)        a.        dat Jan <op de tafel> zat <\*op de tafel>  
                   that Jan on the table sat on the table
- b.        dat de kleren <aan de lijn> hangen <\*aan de lijn>  
                   that the clothes on the line hang on the line



As a subset of (43), we also get a picture of the types of grammatical *locative* PPs: when embedded under  $P_{Dir}$ , locative PPs can be of three different sizes:  $PP_{Loc}$ ,  $DegP(Place)$  and  $CP(Place)$ . But for *locative* PPs embedded under  $V$ , the set of options is much more restricted — there is, in fact, precisely one grammatical structure for locative PPs when they are embedded under  $V$ : they must project the full array of functional projections in their extended projection, all the way up to  $CP(Place)$  (cf. (44)).

- (44) *locative PPs embedded under V*  
 $V [_{CP(Place)} C(Place) [_{DegP(Place)} Deg(Place) [_{PlaceP} Place [_{AgrP} Agr [_{PP} P_{Loc} DP]]]]]$

Verbs never take a ‘bare’  $PP_{Loc}$  as their complement — if we could forgo projecting functional structure outside  $PP_{Loc}$  in  $V$ ’s complement, it should be possible to incorporate locative Ps into  $V$ , contrary to fact:<sup>29</sup>

- (45) dat Jan <in> de sloot heeft <\*in> gesprongen  
 that Jan in the ditch has in jumped  
 ‘that Jan has been jumping in the ditch’

It is not entirely clear why verbs cannot take ‘bare’  $PP_{Loc}$ -complements. A possibility that comes to mind and which deserves further thought is that this might be because all locational/positional verbs that take locative adpositional complements are *copular* verbs (cf. Hoekstra & Mulder 1990). That, coupled with the hypothesis that copular verbs are incapable of incorporating *lexical/overt* Ps,<sup>30</sup> might then take care of the fact that ‘bare’  $PP_{Loc}$  is impossible in the complement of  $V$ . Whatever the exact roots of this ban should turn out to be, we may generalise at this point that  $PP_{Loc}$  must be included either in a full extended projection of its own (as in (44)), or in a(n extended) projection of  $P_{Dir}$  (as in (43a,c,d)).

#### 4 The case of German PPs

The discussion so far has arrived at fully explicit syntactic structures for locative and directional adpositions and their the (extended) projections, on the basis of an in-depth investigation of the properties of locative and directional PPs in Dutch. In the present section I will confront the outcome of this investigation with the facts of German. German adds a further variable to the set: case. As is well-known, German exploits morphological case to distinguish between locative and directional interpretations for prepositional PPs. The way in which these case alternations (between dative and accusative, for the locative and directional readings, respectively) come about is one question that needs to be addressed. At least as important a question, however, is what to do with case-invariant prepositions — prepositions that always assign the same case. The most troublesome cases are prepositions which are uniformly directional but nonetheless take a dative-marked complement (such as *aus* ‘out of’), posing the question of how dative case can be reconciled with directionality.

29 That (45) must be interpreted as *locative* rather than *directional* is ensured by the fact that the auxiliary of the perfect selected in this sentence is *hebben* ‘have’ rather than *zijn* ‘be’; *zijn*-selection, on the contrary, would have resulted in an unambiguously *directional* construction, in which case P-incorporation would have been perfectly fine: *dat Jan <in> de sloot <in> is <in> gesprongen*.

30 If the Benvenistian adage that ‘*have* = *be* + P’ is correct (cf. Kayne 1993, Den Dikken 1995 for recent discussion), that does not refute the text claim as long as the incorporated P is always *null* in this case; see Den Dikken (1995) for discussion of the idea that Dative Shift, which is argued to be an integral part of the derivation of *have*-sentences, is always set in motion by the need to license a *null* dative P.

In this section, I will address the case-related questions posed by German adpositional phrases in detail, against the background of the analysis of complex PPs developed in the foregoing. I will also present an analysis of German circumpositional PPs, finding a locus for the familiar deictic particles (*hin* and *her*) that characterise the postpositional portion of standard German circumpositional PPs. The emerging typology will be fully in line with the outcome of the discussion of Dutch, but it will give rise to one non-trivial modification of the Koopman-based analysis of the Dutch PP: we will discover that what Koopman analyses as movement to SpecPathP is more plausibly analysed in terms of movement to SpecDegP(Path).

#### 4.1 P and case

The German adpositional element *auf* has a variety of incarnations. In (46) it functions as a verbal particle (like English *up*), while in (46b,c) it is a preposition taking a nominal complement. That nominal complement is dative-marked in (46b) and accusative-marked in (46c) — and this case distinction has repercussions for the interpretation of the PP: the dative PP in (46b) is strictly locative while that in (46c) is strictly directional. The adpositional element *auf* can also combine with the deictic particle *hin* (one of a pair of deictic particles signalling movement away from or towards the speaker; see Van Riemsdijk 1990, and further discussion below), in which case it may either surface to the right of its accusative-marked dependent, as in (46d), or to the left or to the right of an accusative PP headed by *auf*, as in (46e). The examples in (46d,e) are like (46c) in featuring accusative case on the noun phrase, and concomitantly they receive a directional reading.

- |      |    |                                   |   |             |
|------|----|-----------------------------------|---|-------------|
| (46) | a. | (er stand) auf                    |   |             |
|      |    | he stood up                       | – | particle    |
|      | b. | auf dem Berg                      |   |             |
|      |    | on the-DAT mountain               | – | locative    |
|      | c. | auf den Berg                      |   |             |
|      |    | on the-ACC mountain               | – | directional |
|      | d. | den Berg hinauf                   |   |             |
|      |    | the-ACC mountain HIN-on           | – | directional |
|      | e. | ⟨hinauf⟩ auf den Berg ⟨hinauf⟩    |   |             |
|      |    | HIN-on on the-ACC mountain HIN-on | – | directional |

One thing that the paradigm in (46) tells us is that the adpositional element *auf* by itself does not seem to (have to) possess a case feature: it can occur without a dependent altogether, as in (46a). Similarly, of course, V does not (have to) possess a case feature — not even when it is transitive: thus, in Romance *faire*-infinitive causatives (cf. (47)), there is just a single accusative case feature available, and there is evidence (from so-called ‘long passives’; cf. Italian (47c)) that the sole accusative case available in these constructions is checked in the matrix clause; the infinitival verb thus does not seem to contribute a case feature of its own in these kinds of context.

- |      |    |  |
|------|----|--|
| (47) | a. | Jean fait manger sa soupe à Marie          |
|      |    | Jean makes eat her soup to Marie           |
|      |    | ‘Jean makes Marie eat her soup’            |
|      | b. | *Jean fait <Marie> manger sa soupe <Marie> |
|      | c. | la macchina fu fatta riparare a Gianni     |
|      |    | the car was made repair to Gianni          |

In *faire*-infinitive constructions, there arguably is but a single *v* — that is, these constructions arguably instantiate a structure of the type in (35a), above, with a ‘bare’ VP in the complement of the matrix causative verb. Apparently the presence of this single *v* correlates with the one-accusative maximum. Let us conclude from this (as does Chomsky 1995:Chapter 4) that structural accusative case checked by verbs is linked to *v* — and let us assume (though this is a somewhat contentious issue) that *v* is an *aspectual* head.

Extrapolating this to PP constructions, let us conclude that P’s ability to assign or check structural case is dependent on the presence in the structure of an *aspectual* projection. For locative Ps (which, as we saw in (46b), are dative case checkers), this translates into a link between dative case and Place:

(48)  $P_{Loc}$  checks dative case iff Place is present in the structure

Formulating (48) as a biconditional (‘iff’) entails that whenever PlaceP is projected, there *must* be dative case checking in locative PPs; and, conversely, that whenever PlaceP is not projected, there *cannot* be dative case checking in locative PPs (cf. Chomsky’s 1995:Chapter 4 assumptions regarding accusative case and *v* — similarly biconditional, leading to a transitive analysis of unergatives). Now recall from the discussion at the end of section 3 that locative PPs in the complement of a verb systematically feature a full-fledged extended projection (cf. (44)). That, coupled with the biconditional in (48), then leads to the immediate conclusion that locative PPs in V’s complement will systematically show dative case on P’s DP-complement.

Taking (48) to be a biconditional, as stated, also has interesting consequences for the analysis of directional PPs featuring accusative case on  $P_{Loc}$ ’s DP-complement (as in (46c)). If the presence of PlaceP goes hand in hand with the assignment/checking of dative case, then the absence of dative case on P’s DP-complement must mean that PlaceP is not projected. That is, in directional PPs featuring accusative case on the nominal complement,  $P_{Dir}$  selects  $PP_{Loc}$  directly (cf. (43a/c), above). With  $P_{Dir}$  selecting  $PP_{Loc}$ , dative case is uncheckable. Hence, in cases like (46c),  $P_{Loc}$  must radically lack a case feature (essentially as in the case of *faire*-infinitive causatives in Romance). Its DP-complement is case-dependent on  $P_{Dir}$ , hence checks accusative case (against Path). If, on the other hand,  $P_{Dir}$  selects a full-fledged CP(Place) (or DegP(Place)) as its complement, so that there is a PlaceP present in the extended projection of  $P_{Loc}$ , the locative P must check dative case against DP (I will return to this later, in the discussion of *aus* ‘out of’ and its ilk).

We thus end up with the following preliminary typology of German PPs, focused specifically on their case properties (cf. (49)). Locative PPs in the complement of V always project full-fledged CP(Place), hence systematically feature dative case on DP. Locative PPs in the complement of  $P_{Dir}$ , on the other hand, have been found to vary in size: they can feature a large extended projection — DegP(Place) or a full CP(Place) — or they can remain ‘bare’. In the former case, DP will once again show up with dative case (because Place is present, and whenever Place is there, there is dative case to be checked); in the latter, dative case is absent, and DP will be case dependent on an aspectual functional head outside the locative PP.<sup>31</sup>

- (49) a.  $V [_{CP(Place)} C(Place) [_{DegP(Place)} Deg(Place) [_{PlaceP} Place [_{AgrP} Agr [_{PP} P_{Loc} DP_{DAT/*ACC}]]]]]$   
 b.  $V [_{CP(Path)} C(Path) [_{DegP(Path)} Deg(Path) [_{PathP} Path [P_{Dir} [_{PP} P_{Loc} DP_{ACC/*DAT}]]]]]$   
 c.  $V [_{CP(Path)} C(Path) [_{DegP(Path)} Deg(Path) [_{PathP} Path [P_{Dir} [_{DegP(Place)} Deg(Place) [_{PlaceP} Place [_{AgrP} Agr [_{PP} P_{Loc} DP_{DAT/*ACC}]]]]]]]]]$   
 d.  $V [_{CP(Path)} C(Path) [_{DegP(Path)} Deg(Path) [_{PathP} Path [P_{Dir} [_{CP(Place)} C(Place) [_{DegP(Place)} Deg(Place) [_{PlaceP} Place [_{AgrP} Agr [_{PP} P_{Loc} DP_{DAT/*ACC}]]]]]]]]]]]$

31 In the structures in (49), this aspectual head will be Path, which is assumed to check accusative case. The astute reader will recall, however, that directional PPs are not necessarily as large as CP(Path): in particular, ‘bare’ directional PPs are legitimate in the complement of V. I will return to the question of how case is checked in such cases below. For present purposes, this is irrelevant.

#### 4.2 Some initial conclusions

It is worth stressing a couple of things about this approach to P and case before moving on. First and foremost, it should be clear from what I said in the preceding paragraphs that I take the case assigned by adpositions to be *structural* case — that is, I take it to be checked in the domain of an aspectual functional head (Place, Path; recall the discussion in section 3.2 on the aspectual nature of these heads), just like the structural accusative case assigned by verbs is checked in the domain of  $v$  (likewise arguably aspectual in nature).

Secondly, I take case features to be the prerogative of aspectual heads, *not* lexical heads — or, if one does want to continue to believe that case features are brought in by lexical heads (V, P), one will minimally need to assume that these heads are not listed in the lexicon as being inextricably linked to a case feature: after all, transitive verbs and adpositions are perfectly grammatical *without* a case feature. This is perhaps particularly clear in the case of German *auf*, illustrated in (46): when it occurs as a particle (46a) or as a directional P (46c), it does not introduce a case feature at all. The simplest way of getting these facts is to say that lexical heads never introduce case features — case is the province of aspectual heads ( $v$ , Place, Path); whether a particular structural case is available depends wholly on whether the aspectual head responsible for its checking is present in the structure.<sup>32</sup>

A third note that is relevant at this point is that the partial typology in (49) correctly ensures that there is no one-to-one link between directionality and accusative case on DP — after all, (49c,d), in which  $P_{Dir}$  takes an extended projection of  $P_{Loc}$  *including* Place as its complement, deliver directional PPs with a *dative* DP-complement, checking its case feature against Place. These kinds of structures are instantiated by directional PPs with case-invariant Ps like *aus* ‘out of’ (cf. *aus dem Haus* ‘out.of the-DAT house’). And it is for these kinds of PPs that it is particularly clear that  $P_{Dir}$  *cannot* take DP-complements all by itself — after all, if it could, then for *aus* (which is exclusively directional) one would be at a loss finding a source for structural dative case: there is no Place-head in the extended projection of  $P_{Dir}$ . Directional PPs featuring dative-only Ps such as *aus* can be accommodated straightforwardly on the basis of structures of the type in (49c,d), in which  $P_{Dir}$  takes an extended projection of  $P_{Loc}$  as its complement, but not on the basis of a structure in which  $P_{Dir}$  takes a DP-complement. It seems to me entirely plausible, in fact, to deny quite generally that  $P_{Dir}$  ever takes a DP as its complement; instead, it always selects a(n extended) projection of  $P_{Loc}$ .

The precise way of analysing directional PPs featuring dative and accusative DPs is a topic that I will return to further below; but for now it will be good to bear in mind that, although it is true that spatial PPs with accusative-marked DPs are generally directional,<sup>33</sup> it is not the case that directional PPs *must* take an accusative-marked DP — and that the system outlined here is right in not making a prediction of this sort.

32 The biconditional relationship between the presence of a particular aspectual head and the presence of the case feature associated with this functional head apparently does not hold for *all* such heads. While it presumably holds for Chomsky’s (1995: Chapter 4) original  $v$  (the light verb that introduces the external argument *and* introduces structural accusative case), it plainly does not hold for Chomsky’s (1999) more recent  $v^*$  (a generalisation of  $v$  to intransitive contexts, including unaccusative ones). It also does not hold for Path: in the structures of directional PPs in (49c,d) there is no chance for Path to check case against DP since DP already got its case feature checked against Place. I therefore keep (48) as a hypothesis specific to Place — it may extend to other aspectual heads but there is no necessary expectation that it should. Clearly, our understanding of case checking by aspectual functional heads is in need of further refinement; but for the purposes of the present discussion, (48) should suffice.

33 The qualification ‘spatial PPs’ is important here: *ohne* ‘without’ is an accusative case assigner but it is clearly not directional — it is not a spatial PP to begin with, hence it could not possibly be directional. I have nothing to say about non-spatial PPs in this paper.

4.3 Circumpositional PPs

With the preceding discussion in mind, the alternation in (50) can now be depicted as in (51) (using the structures in (49)).

- (50) a. %unter die Brücke durch [substantially rarer than (50b)]  
 under the-ACC bridge through  
 b. unter der Brücke durch  
 under the-DAT bridge through
- (51) a.  $[_{CP(Path)} C(Path) [_{DegP(Path)} Deg(Path) [_{PathP} Path [P_{Dir}=durch [_{PP} P_{Loc}=unter DP_{ACC}]]]]]$   
 b.  $[_{CP(Path)} C(Path) [_{DegP(Path)} Deg(Path) [_{PathP} Path [P_{Dir}=durch [_{CP(Place)} C(Place) [_{DegP(Place)} Deg(Place) [_{PlaceP} Place [AgrP Agr [_{PP} P_{Loc}=unter DP_{DAT}]]]]]]]]]]]$

These are examples of *circumpositional* PPs featuring the adposition *durch* as the postpositional portion, an element that doubles as a verbal particle (cf. *durchführen* ‘through-lead, i.e., implement’). Its presence unambiguously signals directionality. It therefore seems entirely reasonable to take *durch* to lexicalise  $P_{Dir}$ . With the presence of *durch* ensuring the presence of  $P_{Dir}$  in the structure, a dative DP in the complement of a case-alternating preposition will still give rise to a directional reading.<sup>34</sup>

The examples in (50) can be adorned with an additional particle, *hin* — one of a pair of deictic particles (*hin, her*) signalling movement away from or towards the speaker (cf. Van Riemsdijk 1990). This is illustrated in (52). These deictic particles also occur in three other types of circumpositional PP in German: cf. (53)–(55).

- (52) a. %unter die Brücke hindurch [substantially rarer than (52b)]  
 under the-ACC bridge PRT-through  
 b. unter der Brücke hindurch  
 under the-DAT bridge PRT-through
- (53) a. auf das Dach hinauf/über/unter [cf. Van Riemsdijk & Huybregts (2001)]  
 on the-ACC roof PRT-on/over/under  
 b. \*auf dem Dach hinauf/über/unter  
 on the-DAT roof PRT-on/over/under
- (54) a. durch den Tunnel hindurch  
 through the-ACC tunnel PRT-through  
 b. \*durch dem Tunnel hindurch  
 through the-DAT tunnel PRT-through
- (55) a. \*aus das Haus heraus  
 out.of the-ACC house PRT-out.of  
 b. aus dem Haus heraus  
 out.of the-DAT house PRT-out.of

All of these circumpositional PPs are directional, but they differ with respect to the case borne by DP. Both *unter* and *auf* are case-alternating Ps (i.e., they are in principle compatible both with accusative and with dative complements); but while *auf* demands  $DP_{ACC}$  in (53a), *unter* allows (in fact, prefers)  $DP_{DAT}$  (52b). The adpositions *durch* and *aus* are case-invariant Ps, with *durch* demanding a  $DP_{ACC}$  and *aus* a  $DP_{DAT}$ . The examples in (52b) and (55b) show clearly that directionality is not correlated with accusative case on DP.

34 On why accusative case on DP is rare in this case, see further below.

At this juncture, a number of questions arise:

- Q1 what to do with double occurrences of Ps in examples like (53)–(55)?
- Q2 how to analyse the distribution of dative and accusative case?
- Q3 what to do with the deictic particles *hin*, *her*?
- Q4 how to derive the surface word order?

In the next subsection, I will address these questions against the background of a concrete proposal with respect to the analysis of the four PP-types in (52)–(55).

#### 4.4 Proposal and analysis

The discussion of the facts in (52)–(55) is best served by an up-front presentation of my proposal, as in (56).<sup>35</sup>

(56)	$[\text{CP}(\text{Path})$	$\text{C}(\text{Path})$	$[\text{DegP}(\text{Path})$	$\text{Deg}(\text{Path})$	$[\text{PathP}$	$\text{Path}$	$[\text{P}_{\text{Dir}}$		$[\text{PP}$	$\text{P}_{\text{Loc}}$	$\text{DP}_{\text{ACC}}]$	]]]]		
	$[\text{CP}(\text{Path})$	$\text{C}(\text{Path})$	$[\text{DegP}(\text{Path})$	$\text{Deg}(\text{Path})$	$[\text{PathP}$	$\text{Path}$	$[\text{P}_{\text{Dir}}$	...	$[\text{PlaceP}$	$\text{Place}$	$[\text{PP}$	$\text{P}_{\text{Loc}}$	$\text{DP}_{\text{DAT}}]$	]]]]
				↑		↑	↑				↑			
a.				<i>hin</i>		∅	<i>durch</i>			✓		<i>unter</i>		
b.				<i>hin</i>		<i>auf</i>	∅			*		<i>auf</i>		
c.				<i>hin</i>		<i>durch</i>	<i>durch</i>			*		∅		
d.				<i>her</i>		<i>aus</i>	<i>aus</i>			!!		∅		

With this proposal in mind, let me now address the questions raised above, by looking in detail at the various ingredients of the proposal in (56).

##### 4.4.1 Double Ps: Not a case of reduplication, but prepositions combined with particles instead

Let us start out by considering the question of how to treat the double instances of the same adpositional element in examples like (53)–(55). One might be tempted at first blush to treat circumpositions of the type *auf den Berg hinauf* or *aus dem Haus heraus* as cases of *reduplication*. But the fact that the two P-elements are not systematically identical (cf. (50)/(52), (53)) shows that this certainly will not cover all the facts. Moreover, if *auf den Berg hinauf* is to result from reduplication, *auf* should be able to move up from  $\text{P}_{\text{Loc}}$  to  $\text{P}_{\text{Dir}}$  in overt syntax (cf. Gullì 2003 and references cited there for a movement approach to reduplication in syntax, an analysis that I will be presupposing here). And while *auf* certainly does so raise *covertly* in the structure in (56b) (because it has no extended projection of its own, incorporation is its only option), it seems that German does not allow  $\text{P}_{\text{Loc}}$  to incorporate in overt syntax. The following two considerations militate against the existence of overt-syntactic  $\text{P}_{\text{Loc}}$ -incorporation in German.

First, if German allowed  $\text{P}_{\text{Loc}}$  to raise to  $\text{P}_{\text{Dir}}$  in overt syntax, it should be possible to create simple postpositions (of the Dutch type).<sup>36</sup> But German differs from Dutch precisely in not having things like *de berg op* ‘the mountain onto’ (cf. (57)). Instead, German exploits case, as in (46c).

35 The symbol ‘!!’ in (56d) designates ‘obligatory’.

36 Overt raising of  $\text{P}_{\text{Loc}}$  to  $\text{P}_{\text{Dir}}$  goes hand in hand with overt raising of  $\text{P}_{\text{Loc}}$ ’s complement to a specifier position in  $\text{P}_{\text{Dir}}$ ’s extended projection (SpecDegP(Path)) — this is ‘government transparency’, manifest only under *overt-syntactic* incorporation, reminiscent of Holmberg’s Generalisation (the relationship between overt movement of the object and overt movement of the verb).

- (57) \*den Berg auf  
the-ACC mountain on

Secondly, if German allowed  $P_{Loc}$  to raise to  $P_{Dir}$  in overt syntax, it should be possible to *incorporate* a raised  $P_{Loc}$  into the verb — but this is never possible in German (in contradistinction to Dutch), as shown by the ungrammaticality of (58).<sup>37</sup>

- (58) daß er <auf> den Berg hat <\*auf>spazieren wollen  
that he on the-ACC mountain has on-walk want

Looking at the facts of German in comparison to those of Dutch, we seem to find a correlation between the absence of simple postpositions and the absence of P–incorporation. This correlation follows on the account outlined. Overt raising of  $P_{Loc}$  to  $P_{Dir}$  results in postpositional order and creates the possibility of P–incorporation into the verb. On the other hand, lack of overt raising of  $P_{Loc}$  to  $P_{Dir}$  results in prepositional order and blocks P–incorporation into the verb.

So if overt raising of  $P_{Loc}$  to  $P_{Dir}$  is impossible in German, a reduplication account of *auf den Berg hinauf* is unavailable. Instead, the multiple tokens of P have to be independently base-generated. And the same should then be true for *durch den Tunnel hindurch* in (54a) and *aus dem Haus heraus* in (55b). The latter case is particularly instructive when it comes to determining the position occupied by the postpositional token of the adpositional element.

The reason why (55b) is so instructive is that it has a dative-marked DP, *dem Haus*. In the light of the central hypothesis that all P–assigned dative case is checked against the aspectual head Place (cf. (48)), this means that, in the structure of (55b), there must be a  $P_{Loc}$  with an extended projection. Concretely, that may mean either of two things: either *aus* originates in  $P_{Loc}$  and projects an extended projection including Place, or it is associated with a null  $P_{Loc}$  in its complement, itself originating outside the extended projection of  $P_{Loc}$ . The idea that *aus* originates in  $P_{Loc}$  is compromised by the fact that *aus* seems to have no purely locative uses — if *aus* originated in  $P_{Loc}$ , it should be able to occur independently of  $P_{Dir}$ , *quod non*. Let us conclude, therefore, that *aus* is never in  $P_{Loc}$  — it occupies  $P_{Dir}$  or a higher position (Path, in particular).

With the position of the prepositional token of *aus* now pinpointed, that substantially narrows down our options when it comes to the position of the postpositional token. In particular, it must be higher than  $P_{Dir}$ . The first position that comes to mind, then, is Path. This is in fact an attractive place to put postpositional *aus*. As Van Riemsdijk & Huybregts (2001:5) point out, the token of *aus* in Path describes ‘the orientation of the path’. It is sitting in an *aspectual* position (recall that Path/Place are the counterparts, in the extended projection of P, of Asp/v in the extended projection of V), being assimilated in this fashion to aspectual verbs like *come* and *go* (for which it is not unreasonable to assume that they originate in an aspectual head). And in being an aspectual element, the postpositional *aus* in (55b) is then naturally assimilated to *verbal particles* (like English *up*), which likewise are aspectual, hence good candidates for the Path–slot.

37 Combinations of *hin/her*+P are apparently incorporable into V — cf. Van Riemsdijk’s (1990:234) example in (ib). In the light of the text conclusion, this apparent ‘incorporation’ case needs to be reanalysed. A non-incorporation account of (ib) is needed for other reasons as well: with *hin/her* originating (or checking features) in Path, *hin/her*+P should be unable to incorporate into V. I suggest that (ib) instantiates residual VPR (for which there is independent evidence in standard German in any event). (On the head-initial VPR analysis of (ib),  $PP_{Loc}$  raises into a specifier position in the extended projection of V (‘PredP’ for Koster/Zwart).)

- (i) a. daß er auf den Berg *hinauf* hat steigen wollen  
that he on the-ACC mountain PRT-on has climb want  
b. daß er auf den Berg hat *hinauf* steigen wollen

The idea that the *aus* sitting in Path is a verbal particle is strongly supported by the specific case of circumpositions involving directional *in* ‘into’, illustrated in (59). Note that what follows the deictic particle *hin* in (59) is *ein*, not *in* — and *ein* is unambiguously a verbal particle in German (cf. *einführen* ‘in-lead, i.e., introduce, import’, \**inführen*; *er ging in/\*ein das Zimmer* ‘he went in the room’).

- (59)            in das Haus hinein/\*hinin  
                  in the-ACC house PRT-PRT

If I am right, then, in identifying the postpositional *aus* in (55) as a verbal particle, the generalisation covering all of (52)–(55) and (59) is that what follows the deictic particle *hin*, *her* is a verbal particle (cf. *aufhören* ‘up-hear, i.e., stop’, *unterzeichnen* ‘under-write’, *überholen* ‘over-take’, *einführen* ‘in-lead, i.e., introduce, import’, *ausführen* ‘out-lead, i.e., carry out, export’). And with respect to verbal particles, I will make the specific assumption that they are base-generated in Path<sup>0</sup>. This will immediately make sense of English (60) as well, with *out* sitting in Path and *through* occupying P<sub>Dir</sub>.

- (60)            [out through the window] flew the sheet of paper

So we have reached the conclusion that the postpositional part of circumpositional PPs of the type in (53)–(55) is a verbal particle sitting in Path, a head in the extended projection of P<sub>Dir</sub>. We could certainly consider extending this analysis to the postpositional part of the circumposition in (52) as well. But it may be advantageous not to base-generate *durch* in (52) in Path, but in P<sub>Dir</sub> instead (as depicted in (56a)). Doing so may give us a handle on the cross-linguistic variation in the circumpositional domain between Dutch and German. Of the various types of circumpositional PPs exemplified in (52)–(55), Dutch only has a counterpart to the one in (52): *onder de brug door* ‘under the bridge through’. Now, if (56) is right, type (56a), which Dutch and German share, is characterised by the absence of overt material in Path, while (56b–d) all feature a verbal particle in Path. The lack of circumpositions of the type represented by (56b–d) in Dutch can then be expressed in terms of a ban on base-lexicalisation of Path.<sup>38</sup>

#### 4.4.2 Case and lexical subcategorisation

Returning to (55), we can accommodate the grammaticality of (55b) by putting the postpositional incarnation of *aus* in Path and its prepositional token P<sub>Dir</sub>, which in turn takes an extended projection of P<sub>Loc</sub> as its complement. Within that extended projection of P<sub>Loc</sub> (which itself is null), dative case is checked by P’s complement against the Place-head. That accusative case on DP is impossible in (55) (as the ungrammaticality of (55a) shows) must follow from the fact that a PlaceP must always be erected on top of the locative PP (after all, once Place is present, dative must be checked; cf. (48)). And that, in turn, can be blamed on a lexical property of *aus* qua P<sub>Dir</sub> — it is lexically specified (via its *subcategorisation frame*) to select an extended projection of P<sub>Loc</sub> (not just a ‘bare’ PP<sub>Loc</sub>).

38        The reference to *base-lexicalisation* is important: arguably, *durch* in (56a) does raise up to Path in overt syntax (recall Koopman 1997 on overt movement of P<sub>Loc</sub> to Place). Since Dutch certainly does have verbal particles, and if verbal particles are systematically lexicalisations of Path (a possibility that emerges from the text discussion), one should presumably formulate the text claim more narrowly, referring specifically to Path-heads in directional PPs. How the text claim relates to the fact that Dutch and German also differ with respect to the fact that Deg(Path) is never lexicalised in conjunction with a lexicaliser of Path in Dutch (while it is (optionally or obligatorily, depending on the case and the dialect) overtly realised in German, by *hin/her*; see below) also remains to be investigated (note that Dutch certainly does have a counterpart of *hin*, the element *heen* seen in (15b), above).

With that said, the fact that *aus* ‘assigns’ dative case to its ‘DP–complement’ is taken care of. In actual fact, what we have on our hands is a situation in which *aus* does not ‘assign’ or check any case at all, nor does it take the DP with dative case as its complement: the DP is the complement of a null  $P_{Loc}$ , and this  $P_{Loc}$  has an extended projection including a Place–head which obligatorily checks dative case against the DP.

For the variant of (52) featuring dative case on the DP, we will naturally present a similar analysis, with *durch* taking an extended projection of  $P_{Loc}$  as its complement and with Place checking dative case against the DP. But unlike *aus*, *durch* is not strictly subcategorised for an extended projection of  $P_{Loc}$  — that is, it is also happy to accept a ‘bare’  $PP_{Loc}$  in its complement. (The difference between *aus* and *durch* thus gets assimilated to that between verbs that only take CP/IP complements and verbs, like Romance *faire*, that also accept ‘bare’ VP complements.) When it takes a ‘bare’  $PP_{Loc}$ –complement, DP will be unable to check dative case against Place (because Place is absent from the structure), and will hence have to check accusative case (against Path or the aspectual head in the verb’s extended projection if  $P_{Dir}$  has no extended projection; see below).

A non-trivial residual problem that arises in the context of PPs featuring *durch* as  $P_{Dir}$  is the contrast between (52) and (54) — in particular, the fact that dative case is impossible in (54b). The difference between *unter die/der Brücke hindurch* (52) and *durch den/\*dem Tunnel hindurch* (54) lies in the question of whether the head of the locative PP in *durch*’s complement is overt (*unter*) or null. One might be tempted to capitalise on this and say that this null P needs to incorporate into  $P_{Dir}$  to be licensed, and that therefore all functional structure between  $P_{Dir}$  and  $P_{Loc}$  must be absent to facilitate incorporation — but the problem with that line of thought is that (55b)/(56d) is well-formed, likewise featuring a null  $P_{Loc}$  but this time including a full-fledged extended projection of  $P_{Loc}$  in the complement of  $P_{Dir}$  (because of *aus*’s lexical selectional restriction). It does not seem feasible, therefore, to categorically demand that null  $P_{Loc}$  incorporate into  $P_{Dir}$ . Precisely why *durch* in (54)/(56c) resists an extended projection of  $P_{Loc}$  remains unclear, as a result.

Another question that comes up in connection with the *durch* cases is why, apparently, dative case is the preferred option in (52). This may have to do with the fact that accusative case on the DP as a signal of directionality is entirely redundant in this context: directionality is already being signalled unequivocally by the presence of *durch* in  $P_{Dir}$ , hence accusative case is not needed to signal it.

In (53)/(56b), on the other hand, accusative case is the only option. The adposition *auf* is intrinsically a locative P — qua transitive P (in contradistinction to its incarnation as a particle), it always originates under  $P_{Loc}$ . With the postpositional token of *auf* being a verbal particle originating in Path (cf. section 4.4.1), that means that in the examples in (53) there is no lexical material sitting in  $P_{Dir}$ . Now let us assume that null  $P_{Dir}$  is in need of licensing, and that incorporation of  $P_{Loc}$  into  $P_{Dir}$  (which happens covertly in German; cf. above) is the only way of licensing null  $P_{Dir}$ . The forced incorporation of  $P_{Loc}$  into  $P_{Dir}$  in (56b), in conjunction with the fact that functional structure between the incorporator and the incorporated element blocks incorporation from taking place (cf. Li 1990), then rules out the presence of functional structure in the complement of  $P_{Dir}$ , and concomitantly makes it impossible for DP to check dative case. Accusative case is therefore the only option for DP in (53), as desired.<sup>39</sup>

39 An alternative account picking up on the need for overt signalling of directionality appealed to in the previous paragraph will not deliver the desired result for (53). Though indeed there is no lexical element signalling directionality in something like *auf das Dach* ‘onto the roof’, which one might take to explain why case *has to* be exploited to signal directionality (i.e., the presence of a projection of  $P_{Dir}$  in the structure), in the examples in (53) the presence of a postpositional element should of course suffice to signal the presence of  $P_{Dir}$  in the structure, which would then seem to make dative case on DP at least an option. The text account rules this out.

This essentially takes care of the case facts in (52)–(55). So at this point let me proceed by distilling some interesting consequences from the analysis of these facts, based on (56). One noteworthy outcome of this proposal is that (56), in conjunction with (48), allows us to generalise that exclusively dative-assigning directional Ps (such as *aus*) originate in  $P_{Dir}$  (as verbal particles) and are associated with a null  $P_{Loc}$ . And conversely, (56) also leads us to say that exclusively accusative-assigning directional Ps (*durch*) never originate in  $P_{Loc}$ . Thus, (56), in combination with the results of the earlier discussion, delivers a strict correlation between pure locativity of P and dative case: purely locative PPs always feature a full-fledged extended projection of  $P_{Loc}$  (recall (44)), hence (by (48)) always feature dative case on DP. And (56) also delivers a correlation between pure directionality of P and accusative case, while allowing for some leeway: purely directional PPs always feature a projection of  $P_{Dir}$ , and when  $P_{Dir}$  takes a ‘bare’  $PP_{Loc}$  as its complement (which it *has to* do when it is itself null), DP checks accusative case; but since  $P_{Dir}$  does not *have to* select a ‘bare’  $PP_{Loc}$  and may also select an extended projection of  $P_{Loc}$ , there is space for purely directional Ps ‘governing’ dative case (such as *aus*).

#### 4.4.3 The deictic particles *hin* and *her* as lexicalisations of *Deg(Path)*

Now that we have made our way back to the examples in (55), featuring *aus*, let me take these examples as my cue for determining where to put the deictic particles *hin* and *her* in the structure. I have come to the conclusion that one of the two tokens of *aus* in (55) is occupying  $P_{Dir}$  (specifically, the prepositional token) and the other is sitting in Path. That fills up the head-space in the extended projection of  $P_{Dir}$  to quite a degree. When it comes to the question of where the deictic particles *hin* and *her* might be sitting, then, we are left with only two options: *Deg(Path)* or *C(Path)*. Of these two options, the former is by far the more plausible one.

The idea that the particles *hin* and *her* occupy *Deg(Path)* meshes well with the deictic function of these particles (away from/towards the speaker). *Deg(Path)* is the counterpart, in the extended projection of  $P_{Dir}$ , of T in the verbal domain; and T in the verbal domain is, in turn, the counterpart of Dem (the F-category accommodating demonstratives) in the nominal domain. Both T and Dem are functional categories harbouring *deixis* — the proximal/distal distinction, in particular: ‘now’ vs ‘then’ for T, and ‘this’ vs ‘that’ for Dem. The ‘here’ vs ‘there’ dichotomy in the locative, which the particles *hin* and *her* are associated with, is clearly of the same kind, and should be harboured by the functional category corresponding to T and Dem. In section 3.2, I had already reached the conclusion that the equivalent of T in the extended projection of P is *Deg(Place/Path)*. For the directional deictic particles *hin* and *her*, therefore, *Deg(Path)* is the natural home. I conclude at this time that *hin* and *her* are sitting in *Deg(Path)*, as indicated in (56).<sup>40</sup>

#### 4.4.4 Deriving surface word order: Movement to *SpecDegP(Path)*

With this said, we can proceed to giving an answer to the question of how the surface word order of the circumpositional PPs in (52)–(55) comes about. What we need is for the prepositional portion of the circumpositional phrase to raise to a specifier position to the left of the deictic particle and the postpositional part. And with the deictic particles *hin/her* now placed under *Deg(Path)*, we immediately have an answer

40 Now that the heads  $P_{Loc}$ ,  $P_{Dir}$ , Path and *Deg(Path)* have all been found to have overt incarnations in German, a question that comes up is whether all four positions can ever be *simultaneously* lexicalised. Cases to check would look like (i), whose status (and, in addition, the question of what happens with case in this context) remains to be investigated.

(i) unter der/die Brücke hinunter durch  
under the-DAT/ACC bridge PRT-under through

to the question I just raised. With the deictic particles *hin* and *her* base-generated in Deg(Path), word orders in which *hin/her*+VPRT is final result from fronting to SpecDegP(Path). And the specific cases in (54) and (55), where P originates in P<sub>Dir</sub> and is fronted, along with its DP complement, to SpecDegP(Path), show that what fronts to SpecDegP(Path) is PP<sub>Dir</sub>. So we have now established that surface word order in post- and circumpositional PPs results from leftward movement of PP<sub>Dir</sub> into SpecDegP(Path), as in (61).

$$(61) \quad V \text{ [}_{\text{CP}(\text{Path})} \text{ C}(\text{Path}) \text{ [}_{\text{DegP}(\text{Path})} \text{ [}_{\text{PP}} \text{ P}_{\text{Dir}} (\dots) \text{ P}_{\text{Loc}} \text{ DP}]_i \text{ Deg}(\text{Path})=\textit{hin/her} \text{ [}_{\text{PathP}} \text{ Path } t_i \text{ ]}] ]$$

This updates my earlier discussion of word order in post- and circumpositional phrases, where it was assumed, following Koopman (1997), that postpositional word order results from movement to SpecPathP. Now that we have found that the deictic particles *hin* and *her* of German are *higher than* Path but still *follow* the pre-PP, we know that the desired landing-site for movement in postpositional directional PPs is SpecDegP(Path).

On current minimalist assumptions, the trigger of phrasal movement to SpecDegP(Path) must be an EPP-property in Deg(Path)<sup>0</sup>.<sup>41</sup> Apparently, *hin/her* possesses this EPP-property obligatorily in (62): it is impossible for *den Berg* to surface to the right of *hinauf* (cf. (62b)). But the alternation in (63b,c) suggests that fronting to SpecDegP(Path) is optional in the presence of an additional token of *auf*. Since genuine optionality would be tough to accommodate, I will assume as a working hypothesis that (63c) is to be kept distinct from (63b) (and involves *hinaus* as a verbal particle), but I will leave open the difficult questions that (63c) raises.<sup>42</sup>

- (62) a. den Berg \*(hin)auf  
the-ACC mountain PRT-on  
b. (\*hin)auf den Berg  
PRT-on the-ACC mountain

41 In Swiss German, movement to SpecPathP seems correlated with a schwa (cf. (i)) — conceivably, this schwa is the (suffixal) realisation of Deg(Path)<sup>0</sup> in Swiss German; if so, we can attribute an EPP-property to this schwa and hold it responsible for fronting to SpecDegP(Path)

(i)	a.	uf	DP <sub>ACC</sub>	uwe	'on/up'	(Swiss German; Van Riemsdijk 1990)
	b.	i	DP <sub>ACC</sub>	ije	'in(to)'	
	c.	dur	DP <sub>DAT</sub>	dure	'through'	
	d.	ab	DP <sub>DAT</sub>	abe	'down/off'	
	e.	us	DP <sub>DAT</sub>	use	'out of'	

42 Movement to SpecDegP(Path) is not strictly confined to *hin/her* cases in standard German: recall (50)/(52); note also that in (ib) (cf. (54a)), *hin* is omissible (and in dialects, *hin* in circumpositions like those in (i) seems to be omissible more generally, with a variety of Ps). We cannot tie movement to SpecDegP(Path) strictly to the presence of *hin/her*, therefore — i.e., Deg(Path)<sup>0</sup> must be capable of possessing an EPP-property also when it is base-generated empty. (This conclusion is avoidable only if we are willing to assume that there *is* in fact a token of *hin/her* present in Deg(Path)<sup>0</sup> in all circumpositions, with phonetic realisation of this particle being optional.) Questions remain with regard to the trigger of fronting to SpecDegP(Path) — these questions are part and parcel of the broader question, within minimalist syntax, of what triggers movement to specifier positions.

- (i) a. durch den Tunnel hindurch  
through the-ACC tunnel PRT-through  
b. durch den Tunnel durch  
through the-ACC tunnel through

- (63) a. \*auf den Berg hin  
           on the-ACC mountain PRT  
       b. auf den Berg hinauf  
           on the-ACC mountain PRT-on  
       c. hinauf auf den Berg<sup>43</sup>  
           PRT-on on the-ACC mountain

The facts in (62) raise additional questions that I will briefly address. What we see here is that the accusative DP must follow  $P_{Loc}=auf$  unless there is a deictic particle (*hin*, *her*) present, in which case the accusative DP must precede the particle+P combination. The deictic particle *hin* can neither precede nor follow [*auf* DP<sub>ACC</sub>]; *hin+auf*, on the other hand, can either precede or follow [*auf* DP<sub>ACC</sub>]; and *hin+auf* can follow [DP<sub>ACC</sub>] by itself as well.

The ungrammaticality of (62a) without *hin* was blamed in the foregoing on the *covertness* of raising of  $P_{Loc}=auf$  to  $P_{Dir}$  — and indeed, overt raising of  $P_{Loc}=auf$  to  $P_{Dir}$ , with onward raising of  $P_{Dir}$  to Path, would have resulted in ungrammatical \**den Berg auf* (cf. grammatical Dutch *de berg op*). But we also need to rule out a derivation of \**den Berg auf* (i.e., (62a) without *hin*) built on a structure in which *auf* originates in Path, as a verbal particle, and  $P_{Loc}$  is altogether empty (cf. (64a)).

- |      |    |   |                   |                    |                       |                       |
|------|----|---|-------------------|--------------------|-----------------------|-----------------------|
| (64) | a. | den Berg *(hin)auf<br>the-ACC mountain PRT-on | Deg = <i>hin</i>  | Path = <i>auf</i>  | $P_{Dir} = \emptyset$ | $P_{Loc} = \emptyset$ |
|      | b. | (*hin)auf den Berg<br>PRT-on the-ACC mountain | Deg = $\emptyset$ | Path = $\emptyset$ | $P_{Dir} = \emptyset$ | $P_{Loc} = auf$       |
|      | c. | ⟨hinauf⟩ auf den Berg ⟨hinauf⟩                | Deg = <i>hin</i>  | Path = <i>auf</i>  | $P_{Dir} = \emptyset$ | $P_{Loc} = auf$       |

The fact that *hin* may not be absent in (62a) while it must be absent in (62b) (where  $P_{Loc}=auf$  and  $P_{Dir}=\emptyset$ ) suggests a correlation between realising Deg(Path) as *hin/her* and lexicalising Path. This can be thought of, at least in part, as a requirement on the part of *hin/her* — in particular, one may assume that the deictic particles *hin* and *her* are clitics in need of a host to their right. If this holds water, it will take care not only of (62) but also, of course, of (63a).

#### 4.5 Conclusion

In this section, I confronted the analysis of the structure of locative and directional PPs arrived at on the basis of an investigation of the Dutch facts with the facts from German, concentrating in particular on the case facts of German PPs and on the ways in which German derives its various circumpositional constructions. The discussion of the deictic particles *hin* and *her* has revealed that a slight modification of the analysis of post- and circumpositional PPs is in order: rather than having SpecPathP be the target of the phrasal movement operation that produces postpositional word order, I have shown that SpecDegP(Path) is the landing-site of such movement operations, with the Deg(Path)–head being lexicalised in German by the deictic particles *hin* and *her* (the counterparts of T–morphemes and demonstratives in the verbal and nominal systems, respectively).

The analysis of the case facts of the German PP was predicated in large measure on the hypothesis in (48), repeated here.

43 Similarly, (*he*)*rauf auf den Berg*, (*he*)*raus aus dem Haus*, (*he*)*rein in das Zimmer*, etc.

(48)  $P_{Loc}$  checks dative case iff Place is present in the structure

The correlation between dative case on DP and the presence of Place in the structure ensures that, whenever there is dative case on a DP inside a directional PP, the  $P_{Dir}$ -head must select an extended projection of  $P_{Loc}$  as its complement. The fact that there are directional Ps (such as *aus*) which force DP to surface with dative case was analysed, not in terms of ‘inherent case’,<sup>44</sup> but instead in terms of a lexical selectional restriction on the part of  $P_{Dir}$ : directional Ps like *aus* are lexically specified as selecting an extended projection of  $P_{Loc}$ . I have in fact assumed that *all*  $P_{Dir}$  select some projection of  $P_{Loc}$  as their complement — that is, no directional P-head ever selects a nominal complement.<sup>45</sup> But directional Ps differ with respect to the *size* of the locative adpositional phrase in their complement, depending on their lexical subcategorisation properties.

When there is no extended projection of  $P_{Loc}$  present in the structure of the directional PP (in particular, when Place is absent from the structure), the correlation between dative case and the presence of Place (48) ensures that no dative case is available for DP. Instead, DP will then show up with accusative case in the German directional PP. That accusative case is checkable against Path, the case-checking aspectual head in the extended projection of  $P_{Dir}$  — when present. But as we have seen in the discussion in section 3,  $P_{Dir}$  is not obliged to have an extended projection erected on top of its PP: it is fully legitimate to merge a directional ‘bare’ PP directly with V. In a situation in which the head of this PP happens to take a ‘bare’  $PP_{Loc}$  as its complement, the DP-complement of  $P_{Loc}$  is then forced to check its accusative case feature against a  $v/Asp$ -head in the extended projection of the verb. In the next section, I will investigate the vicissitudes of this situation.

## 5 P-incorporation, ‘government transparency’ and pseudo-passive

From the discussion of Dutch postpositional directional PPs in sections 2 and 3, we know that  $P_{Dir}$ ’s DP-dependent can behave as though it was the verb’s dependent when it comes to (i) scrambling and (ii) relativisation (cf. (65)). It is worth noting that this behaviour is not actually dependent on *physical* incorporation of  $P_{Dir}$  into the verbal cluster: (65a,b) are grammatical regardless of whether *in* surfaces to the left or to the right of the auxiliary *is*.

44 This is not (necessarily) to say that ‘inherent case’ as such does not exist — but to a large extent, it seems to me, it can be reanalysed along the lines of the text analysis. For ‘inherent case’ on the complement of V, one may assume that  $v/Asp$  can be occupied by specialised case-checkers, i.e., case-marker counterparts to English ‘selected Ps’, as in *look at*; see Szekely (2003) for an analysis of English ‘selected Ps’ as spell-outs of the  $v$ -head (employing some of the mechanisms exploited in Kayne’s 2001 recent work on prepositions as probes). It should be clear from the text discussion in the foregoing, however, that not all Ps can be analysed as VP-external probes: a core of truly *lexical* prepositions must exist (the spatial prepositions, to be specific). I will return to this issue in the concluding remarks (section 6).

45 That  $P_{Dir}$  selects a(n) extended locative PP as its complement is also suggested by Haftka’s (1997) observation that the pre-PP part of a circumpositional PP such as (ia) is extractable in the form of *wo* ‘where’, a [+WH] *locative* (cf. (ib)).

- (i) a. Peter steigt ins Gebirge hinein  
Peter climbs in-the.ACC mountains PRT-into  
b. wo steigt Peter jetzt hinein?  
where climbs Peter now PRT-into

- (65) a. dat hij de boom *gisteren* <in> is <in>geklimmen  
 that he the tree yesterday in is in-climbed  
 b. de boom *die* hij <in> is <in>geklimmen  
 the tree that he in is in-climbed

In the light of the discussion of ‘government transparency’ effects in German directional PPs with *auf* (cf. section 4), where it was concluded that ‘government transparency’ effects arise only in cases of overt incorporation, we are led to assume that (65) with *in* to the left of *is* does involve overt P–incorporation after all. Relevant in this context are the variable placement possibilities of verbal particles in the Dutch verbal cluster (Bennis 1992, Koopman 1997; the exact placement possibilities for the particle are subject to speaker variation). Since the particle is indubitably a part of the verbal cluster whenever it shows up to the right of one or more of the members of the cluster, but since the exact location of the particle inside the verbal cluster is variable, one may reasonably hypothesise that the placement of the particle to the immediate left of the leftmost member of the verbal cluster (*zou* ‘would’ in (66)) is, at least potentially, analysable as an instance of particle incorporation as well, with the particle surfacing in the leftmost verb-cluster internal position.

- (66) dat hij mij <op> zou <op> hebben <op> willen <op> kunnen <op> bellen  
 that he me up would up have up want up can up call  
 ‘that he would have liked to be able to call me up’

So I will assume hereinafter that the variants of (65) and (66) featuring the leftmost tokens of *in* and *op* are ambiguous between a parse in which *in/op* has been incorporated into the verbal cluster and one in which it has not.

A question that arises in connection with the incorporation of a directional P into the verbal cluster is what happens to the case feature of the DP embedded in the directional PP in P–incorporation cases. We know that, in such cases, DP’s case feature is accusative. And we know that, in such cases,  $P_{Dir}$  does not have an extended projection of its own (for otherwise it would not be able to incorporate). And we also know that, in such cases, the DP behaves for all intents and purposes like a dependent of the verb. So one possible answer to the case question that springs to mind would be that DP gets its case feature checked in the extended projection of V — against *v/Asp*, in other words.

Two issues arise in connection with this approach: (i) unaccusative verbs are not associated with a *v* checking structural accusative case, yet unequivocally unaccusative constructions like (67a) are nonetheless capable of having  $P_{Dir}$  incorporate and getting DP case-checked; and (ii) transitive verbs can check at most one accusative case feature, so one of the two DPs in (67b) would seem to fail to check its case feature if *v* had to take care of all VP–internal case checking here. In addressing these, let me start off with the latter.

- (67) a. dat hij de berg is opgeklimmen  
 that he the mountain is on-climbed  
 b. dat hij de bal het doel heeft ingeschoten  
 that he the ball the goal has in-shot

### 5.1 Fake P–incorporation

Something that has not been noted, to my knowledge, in the literature before is that, though it looks like they do, transitive P–incorporation constructions in actual fact do not exhibit ‘government transparency’ effects: relativisation with *die/dat* fails, and so does scrambling. Thus, compare the triplets in (68) and (69).

- (68) a. dat hij de boom is ingeklommen  
that he the tree is in-climbed  
b. de boom *die* hij is ingeklommen  
the tree that he is in-climbed  
c. dat hij ⟨*gisteren*⟩ de boom ⟨*gisteren*⟩ is ingeklommen  
that he yesterday the tree yesterday is in-climbed
- (69) a. dat hij de bal de kamer heeft ingeschoten/gerold/gegoid  
that he the ball the room has in-shot/rolled/thrown  
b. \*de kamer *die* hij de bal heeft ingeschoten/gerold/gegoid  
the room that he the ball has in-shot/rolled/thrown  
c. dat hij ⟨*gisteren*⟩ de bal ⟨*gisteren*⟩ de kamer ⟨<sup>?</sup>\**gisteren*⟩ heeft ingeschoten/gerold/gegoid  
that he yesterday the ball yesterday the room yesterday has in-shot/rolled/thrown

While in (68), we get the pattern described earlier in this paper, with P–incorporation delivering the possibility of relativising the prepositional object with the aid of a *d*-word and allowing the DP to scramble across an adverbial that unambiguously belongs to the extended projection of the verb, in (69), featuring transitive verbs, we find that *die*-relativisation is entirely impossible and scrambling of *de kamer* ‘the room’ is unsuccessful as well (though of course *de bal* ‘the ball’, which is not a P–object, is perfectly happy to be scrambled). It seems, then, that transitive verbs behave differently from intransitive verbs with respect to P–incorporation.

In connection with issue (i), I note that, within the set of surface unaccusative verbs, a difference between *underlyingly unergative* and *underlyingly ergative/unaccusative* verbs manifests itself in the empirical data concerning P–incorporation. This is, once again, something that the previous literature has failed to note, as far as I know. Thus, even though *klimmen* ‘climb’ in (67a), (68) indubitably behaves like an ergative/unaccusative verb (cf. *zijn*-selection), it is ‘intrinsically’ unergative (i.e., in the absence of a resultative complement, it has all the earmarks of an unergative verb, selecting *hebben* ‘have’ etc.). Now, the fact that *klimmen* is underlyingly unergative seems to be significant — verbs that are underlyingly ergative/unaccusative, such as *vallen* ‘fall’, *gaan* ‘go’, *komen* ‘come’, fail to exhibit ‘government transparency’ effects in P–incorporation contexts. This is particularly clear with pronominalisation (with a *d*-pronoun or a garden-variety personal pronoun, like *'m*). The facts in (70)–(72) illustrate.<sup>46</sup>

- (70) a. dat hij de berg is opgefietst/geklommen/gelopen/gereden/gewandeld//<sup>?</sup>gegaan  
that he the mountain is on-cycled/climbed/walked/driven/walked//gone  
b. de berg *die* hij is opgefietst/geklommen/gelopen/gereden/gewandeld//<sup>?</sup>gegaan  
the mountain that he is on-cycled/climbed/walked/driven/walked//gone  
c. die berg? ja, *die* is hij al eens opgefietst/geklommen/gelopen/gereden/gewandeld//<sup>?</sup>gegaan  
that mountain yes that is he already once on-cycled/climbed/walked/driven/walked//gone  
d. die berg? ja, hij is *'m* al eens opgefietst/geklommen/gelopen/gereden/gewandeld//<sup>?</sup>gegaan  
that mountain yes he is him already once is on-cycled/climbed/walked/driven/walked//gone

46 I should note that the examples in (71b–d) featuring *in+gaan* ‘in+go’ are noticeably better than any of the other cases featuring ergative/unaccusative verbs in these quadruplets — including the examples in (70b–d), involving *op+gaan*. It may be that *ingaan* has appropriated some traits of garden-variety transitive verbs. Relevant in this context is no doubt the fact that in English and the Romance languages, the combination of ‘go’ and ‘into’ has indeed given rise to a transitive verb: cf. English *enter*. The case of *enter* is interesting because of its schizophrenic character: it is on the one hand a garden-variety transitive in the light of the fact that it can passivise (*the room was entered by many people*), but on the other hand the fact that it participates in *there*-sentences (*there entered the room a tall dark stranger*; cf. Chomsky 1999) suggests that it still has the vestiges of ergative/unaccusative syntax. Dutch *ingaan* may be similarly schizophrenic. I will not discuss this further here, reiterating simply that *ingaan* is not a major hiccup.

- (71) a. dat hij de kamer is uitgelopen/gerend//gegaan/gekomen  
 that he the room is out-walked/run//gone/come  
 b. de kamer *die* hij is uitgelopen/gerend/?gegaan/?gekomen  
 the room that he is out-walked/run//gone/come  
 c. die kamer? ja, *die* is hij zojuist uitgelopen/?gerend/?\*gegaan/\*gekomen  
 that room yes that is he so-just out-walked/run//gone/come  
 d. die kamer? ja, hij is 'm zojuist uitgelopen/?gerend/\*gegaan/\*gekomen  
 that room yes he is him so-just out-walked/run//gone/come
- (72) a. dat hij de kuil/sloot is ingesprongen/?(?)gevallen  
 that he the pit/ditch is injumped//fallen  
 b. de kuil/sloot *die* hij is ingesprongen/\*gevallen  
 the pit/ditch that he is injumped//fallen  
 c. die kuil/sloot? ja, *die* is hij zojuist/al eens ingesprongen/\*gevallen  
 that pit/ditch yes that is he so-just/already once injumped//fallen  
 d. die kuil/sloot? ja, hij is 'm zojuist/al eens ingesprongen/\*gevallen  
 that pit/ditch yes he is him so-just/already once injumped//fallen

The b–d examples in the above quadruplets are systematically worse with underlyingly ergative/unaccusative verbs (to the right of the double slashes) than with underlyingly unergative ones. Though the exact judgements on individual cases is somewhat variable (as indicated), in the bulk of cases the result of pronominalisation is in fact entirely ungrammatical with underlyingly ergative/unaccusative verbs.

In fact, underlyingly ergative/unaccusative verbs sometimes resist incorporation altogether — thus, even (72a) is poor with *vallen*. We find similar effects in (73). Note that without P–incorporation, these sentences are all fine (as indicated, for (73), by the italicised examples in the right-hand margin).

- (73) a. dat hij de trap is opgeklommen/gelopen/?\*gekomen (cf. *dat hij de trap op is gekomen*)  
 that he the stairs is up-climbed/walked//come  
 b. dat hij de brug is overgefietst/gelopen/gereden/gewandeld/?\*gegaan/?\*gekomen  
 that he the bridge is over-cycled/walked/driven/walked//gone/come  
 (cf. *dat hij de brug over is gegaan/gekomen*)

I conclude from these observations that *genuine P–incorporation* (with its associated ‘government transparency’ effects) is *impossible* with underlyingly ergative/unaccusative verbs.

This can readily be made to follow from case theory. Underlyingly ergative/unaccusative verbs are characterised either by the radical absence of *v* in their extended projection or, if *v* is present (cf. Chomsky’s 1999 *v*\* and the idea that there is a close connection between *v* and aspect: clearly, ergative/unaccusative constructions do have aspectual properties), by the fact that it is not equipped with a structural case feature. Moreover, as we have seen, genuine P–incorporation is characterised by the radical absence of functional structure in the extended projection of P (cf. Li 1990). Hence, in constructions featuring P–incorporation into an underlyingly ergative/unaccusative verb, there is no functional category present in the structure, neither downstairs (in the extended projection of P) nor upstairs (in the extended projection of V) that could facilitate the checking of accusative case. And hence genuine P–incorporation into underlyingly ergative/unaccusative verbs crashes, for case reasons. Notice that things will be different, of course, (i) when the incorporated P itself takes an extended projection of P<sub>Loc</sub> as its complement, so that dative case checking can proceed unimpeded, and (ii) in cases in which P is an ‘inherent case’ assigner: ‘inherent case’ (however this is to be given shape) is unlikely to be affected by incorporation. For the Germanic cases discussed in this paper, however, this is irrelevant: case in Dutch and German locative and directional PPs is *structural*.

The same will be true, *mutatis mutandis*, for genuine P–incorporation into transitive verbs. While transitive verbs most certainly do have a *v* in their extended projection which is capable of checking accusative case on the object, this *v* can check at most one accusative case feature. P–incorporation does not change this: as is well known (cf. Baker’s 1988 Case Frame Preservation Principle), P–incorporation does not enlarge the case-checking potential of the incorporator. So in constructions featuring P–incorporation into a transitive verb, there is once again no chance of checking the accusative case feature of the P–object. And hence genuine P–incorporation into transitive verbs will also crash.<sup>47</sup>

Now that we have laid out an argument to the effect that sentences like (74a,b) are not the result of genuine P–incorporation, a question that naturally arises immediately is how they *are* derived.

- (74) a. dat hij de kamer is ingegaan/<sup>?</sup>gekomen  
that he the room is in-gone/come  
b. dat hij de bal de kamer heeft ingeschoten/gerold/gegoid  
that he the ball the room has in-shot/rolled/thrown

I will venture a tentative suggestion here (leaving the details of the analysis for further research). The upshot of the suggestion is that these sentences result from residual Verb Projection Raising (VPR).<sup>48</sup> Specifically, what I would like to suggest is that examples of the type in (74) come about via (75) (where bold type indicates the lexicalised material, and strike-out represents copy-deletion).

47 *Modulo* other case-checking mechanisms — e.g., the possibility of DAT case checking by the verbal complex. Triadic constructions are relevant in this connection: cf. the idiomatic a–examples in (i) and (ii), where *in/uit* are particles, not transitive Ps. The b– and c–examples illustrate the effect discussed in the main text: these are P–incorporation constructions, and the result is poor or downright ungrammatical.

- (i) a. dat hij zich de glazen heeft ingegooid  
that he REFL the windows has in-thrown  
'that he spoiled it for himself' [idiom]  
b. <sup>?</sup>dat hij de citroenschijfjes de glazen heeft ingegooid  
that he the lemon-slices the glasses has in-thrown  
b'. \*de glazen *die* hij de citroenschijfjes heeft ingegooid  
the glasses that he the lemon-slices has in-thrown  
(ii) a. dat hij haar de mantel heeft uitgeveegd  
that he her the coat has out-brushed  
'that he gave her a piece of his mind' [idiom]  
b. <sup>?</sup>dat hij haar de mantel heeft uitgeholpen  
that he her the coat has out-helped  
b'. \*de mantel *die* hij haar heeft uitgeholpen  
the coat that he her has out-helped

48 See Den Dikken (1989), Den Besten & Broekhuis (1992) for the roots of this suggestion. It is shown there that Dutch Verb Raising is amenable to a reanalysis in terms of Verb Projection Raising (specifically, VPR of a VP from which all non-verbal material has been extracted). A similar approach is possible to German Verb Raising (cf. REF). Such analyses of course open the door to the possibility that some non-verbal material (especially if it is 'light') could remain inside the raised VP, producing residual VPR effects. For German such effects have in fact been documented in the literature (cf. REF). The only thing that the text proposal adds, therefore, is the explicit recognition of the existence of residual VPR effects in standard Dutch. (For Verb Projection Raising in West Flemish and Swiss German, see Haegeman & Van Riemsdijk 1986 and references cited there for seminal discussion.)

(75)  $[_{CP(Path)} DP_i \dots [P_{Dir} \dots \bar{DP}_{i,j}] \dots Aux \dots [_{CP(Path)} \bar{DP}_i \dots [P_{Dir} \dots \bar{DP}_{i,j}] \dots V [_{CP(Path)} \bar{DP}_i \dots [P_{Dir} \dots \bar{DP}_{i,j}]$

$P_{Dir}$ 's extended projection is raised leftward within the VP or some minimal extended projection thereof, producing OV word order. Within the extended projection of  $P_{Dir}$ , DP raises up, producing postpositional word order. With DP raising all the way up to SpecCP(Path), it comes to c-command its copy in the base position of the raised CP(Path), and thus sanctions the latter's deletion. But  $P_{Dir}$  cannot raise beyond Path (cf. Koopman 1997 on the impossibility of raising P to Deg). Hence it will never end up c-commanding its copy in the base position of the raised CP(Path). As a result (cf. Kayne 1994:96),  $P_{Dir}$ 's copy in the base position of the raised postpositional phrase will be lexicalisable. And when it is in fact lexicalised, the result is an output that mimics P-incorporation:  $P_{Dir}$  surfaces inside the verbal cluster, in between the auxiliary and the main verb, but it was not actually *incorporated* into that cluster. So if, instead of taking CP(Path) as a unit and having it sanction deletion of the entire lower copy, we make the individual constituents of CP(Path) subject to the copy deletion mechanism, we can generate a word order in which DP is pronounced upstairs but  $P_{Dir}$  surfaces downstairs, as desired.

### 5.2 Genuine P-incorporation, 'government transparency' and pseudo-passive

Let us now return to cases of *genuine* P-incorporation (with underlyingly unergative verbs such as *klimmen* 'climb'; cf. (68), repeated below). In such cases, we get 'government transparency' effects, including scrambling and *d*-relativisation.

- (68) a. dat hij de boom is ingeklommen  
 that he the tree is in-climbed  
 b. de boom *die* hij is ingeklommen  
 the tree that he is in-climbed  
 c. dat hij *<gisteren>* de boom *<gisteren>* is ingeklommen  
 that he yesterday the tree yesterday is in-climbed

A question that we need to address for such examples is how we actually get these 'government transparency' effects.

Genuine P-incorporation occurs only in the presence of a *v* that potentially possesses a case feature (hence not with ergative/unaccusative verbs) and that is not involved in the checking of the case feature of any of V own dependents (hence not with transitives). The only candidates for performing genuine P-incorporation, by this logic, are underlyingly unergative verbs — as desired. Now, when underlyingly unergative verbs 'shift' to ergativity/unaccusativity (under the influence of a resultative complement), their *v* is of course still projectable. And with P incorporating into V, and with subsequent raising of the [P+V] unit to *v*, *v* will be able to check the accusative case feature of P's DP-dependent, as desired. As a result, P's object will come to behave as though it was the verb's complement, which is precisely what we find in the domains of scrambling and *d*-relativisation (cf. (68b,c)).

But P's object still does not behave like V's complement when it comes to passivisation. Pseudo-passivisation remains impossible even when  $P_{Dir}$  incorporates: though (76a) is not too bad,<sup>49</sup> it does not instantiate a pseudo-passive but instead a case of topicalisation in an impersonal passive — which is not, in fact, dependent on  $P_{Dir}$ -incorporation, as (76a') indicates. The thing to note is the robust ungrammaticality of (76b), with a plural DP and plural verb agreement, which contrasts markedly with the marginal acceptability of the variant with singular agreement (76c).

49 Note, though, that Van Riemsdijk & Huybregts (2001:15, fn. 16) reject an example of this type.

- (76) a. <sup>(?)</sup>die boom moet worden ingeklimmen  
that tree must be in-climbed  
a'. <sup>(?)</sup>die boom moet in worden geklimmen  
that tree must in be climbed  
b. \*die bomen werden ingeklimmen  
those trees were in-climbed  
c. <sup>(?)</sup>die bomen werd ingeklimmen  
those trees was in-climbed

The sentences in (76a,a') and (76c) all have the status of (marginal) topicalisation constructions with P-stranding like (77), and can readily be analysed along those lines as impersonal passives with default third singular agreement.

- (77) <sup>(?)</sup>bananen ben ik dol op  
bananas am I fond of

The example in (76b) is not amenable to such a construal: the agreement relationship between *die bomen* and the finite verb indicates unequivocally that *die bomen* is the subject of the sentence. The fact that (76b) is crashingly bad then tells us without a doubt that pseudo-passivisation fails, *even in genuine P-incorporation contexts*. The question is why.

The answer to this question is actually quite straightforward, and quite independent of case. What passivisation does, on the traditional account, is two things: (i) case absorption, and (ii) external theta-role absorption. There would not seem to be a major problem with respect to (i) in these Dutch pseudo-passives: we know that *v* is capable of checking the P-object's case feature in genuine P-incorporation constructions (recall, once again, the facts in (68b,c)). But of course there *is* a problem with (ii). Though *klimmen* 'climb' is *underlyingly* unergative, it 'shifts' to ergativity under the influence of the resultative small clause in its complement (whose predicate is the directional PP).<sup>50</sup> This is clear on the surface from the fact that the auxiliary that is selected in the perfective examples in (68) is *zijn* 'be' rather than *hebben* 'have'. So the surface subject of a sentence like *John climbed into the tree* is the deep subject of the PP-predicate *into the tree* and originates in the verb's small clause complement. It raises to the matrix subject position in the course of the syntactic derivation; it does *not* originate there, and does not receive an external theta-role from the verb — more specifically, on the 'light verb' approach to external theta-role assignment, from *v*. So *v* in these kinds of sentences is thematically inert. And since it is thematically inert, it cannot sustain passivisation. Succinctly put, since there is no external theta-role for the passive morpheme to absorb, passivisation fails.

But now we seem to face a major conundrum. For while Dutch (76b) is indeed ungrammatical, English *this tree has been climbed into by lots of people* is a perfectly fine pseudo-passive. So how is pseudo-passivisation ever possible in such cases? The answer to this question is: via applicativisation. To see this, it will be instructive to highlight two hallmarks of the pseudo-passive construction — (i) the fact that grammatical pseudo-passives in languages like English seem to systematically have counterparts in Dutch featuring a verbal prefix (*be-*) or verbal particle (cf. (78)), and (ii) the fact that, both in Dutch passives with verbal prefixes or particles and in grammatical pseudo-passives in English and Norwegian, the surface subject is interpreted as being *affected* by the event, in some (rather loosely defined) sense (cf. (79)–(81)); and note that, when no promotion of the P-object to subject takes place, as in the impersonal passives in (82), no such 'affectedness' effect manifests itself).

50 On 'ergative shift', see Hoekstra & Mulder (1990), Levin & Rappaport-Hovav (1995) and references cited there.

- (78) a. this problem has been looked at from all possible angles  
 a'. dit probleem is vanuit alle mogelijke invalshoeken bekeken  
 this problem is from all possible angles BE-looked  
 b. this problem has been talked about by lots of linguists  
 b'. dit probleem is door tal van taalkundigen besproken  
 this problem is by lots of linguists BE-spoken  
 c. the president is laughed at by everyone  
 c'. de president wordt door iedereen uitgelachen  
 the president gets by everyone out-laughed
- (79) a. this bed has been slept in by Napoleon  
 a'. dit bed is beslapen door Napoleon  
 this bed is BE-slept by Napoleon  
 b. \*this city has been slept in by Napoleon  
 b'. \*deze stad is beslapen door Napoleon  
 this city is BE-slept by Napoleon  
 this city is BE-slept by Napoleon
- (80) a. this house is lived in by many famous people  
 a'. dit huis wordt door veel beroemde mensen bewoond  
 this house gets by many famous people BE-lived  
 b. \*this country is lived in by many famous people  
 b'. \*dit land wordt door veel beroemde mensen bewoond  
 this country gets by many famous people BE-lived
- (81) a. taket ble gått på av to barn (Norwegian; Lødrup 1991)  
 roof-the was walked on by two children  
 a'. het dak werd door twee kinderen belopen  
 the roof got by two children BE-walked  
 b. ??Storgata ble gått på av to barn  
 Main Street was walked on by two children  
 b'. ??de Hoofdstraat werd door twee kinderen belopen  
 the Main Street got by two children BE-walked  
 c. Storgata er ikke blitt gått på i hele dag på grunn av asfaltering  
 Main Street is not been walked on in whole day on ground of asphaltting  
 c'. de Hoofdstraat is de hele dag nog niet belopen vanwege asfaltering  
 the Main Street is the entire day yet not BE-walked because.of asphaltting
- (82) a. det ble gått på taket  
 it(EXPL) was walked on roof-the  
 b. det ble gått på Storgata  
 it(EXPL) was walked on Main Street

The impression that emerges from this set of examples is that stranded Ps in English and Norwegian pseudo-passives behave basically like Dutch verbal prefixes. Now, we obviously would not want to say that the stranded prepositions in English and Norwegian pseudo-passives are *themselves* verbal particles — pseudo-passives exist featuring Ps that do not double as particles (cf. (83)).

- (83) a. this problem should be looked *into* more fully  
 b. this solution has never been thought *of* before

- (83) c. this sentence cannot be accounted *for* by this analysis

What we want is for a (null) verbal particle to be sitting in the extended projection of P (cf. (56b–d) with overt particles sitting in Path, the position for (directional) verbal particles). And we want that (null) verbal particle to *incorporate* into the verb, with the [PRT+V] complex subsequently raising to *v*, and with *v* then checking the case feature of P’s object. This delivers a ‘government transparency’ effect *without P itself incorporating*, thanks to the fact that the functional head in P’s extended projection that harbours the prepositional case feature, which is occupied by the (null) verbal particle, is incorporated into the verb and ultimately becomes an integral subpart of *v*. This is summarised in (84).

- (84) a. V [<sub>FP</sub> PRT [<sub>PP</sub> P DP]] → incorporation of PRT into V –  
 b. [<sub>v</sub> PRT<sub>i</sub>+V] [<sub>FP</sub> PRT<sub>i</sub> [<sub>PP</sub> P DP]] → merging *v* and raising of [PRT+V] to *v* →  
 c. [<sub>v</sub> [<sub>v</sub> PRT<sub>i</sub>+V]+*v*] [<sub>VP</sub> [<sub>v</sub> PRT<sub>i</sub>+V] [<sub>FP</sub> PRT<sub>i</sub> [<sub>PP</sub> P DP]]]

The hypothesis that pseudo-passives involve a null verbal particle that incorporates into V allows us to kill a couple of birds with one and the same (invisible) stone. First, while unergative verbs like *climb* ‘shift’ to ergativity in the presence of a resultative PP–small clause in their complement, they do not so ‘shift’ in the corresponding constructions featuring a prefix like Dutch *be-*, continuing to select ‘have’ (cf. (85b)). And concomitantly, passivisation of the latter is unproblematic (cf. (85c)).

- (85) a. Jan is/\*heeft de berg op geklommen  
 Jan is/has the mountain on climbed  
 b. Jan heeft/\*is de berg beklommen  
 Jan has/is the mountain BE-climbed  
 c. de berg is door Jan beklommen  
 the mountain is by Jan BE-climbed

The problem we faced in (76b) thus does not arise: there is no ‘ergative shift’, hence no evaporation of the external theta-role of *v*, hence no problem with passivisation. If the English and Norwegian pseudo-passives in (78)–(81) are built on the same structure as Dutch (85b), their grammaticality then comes as no surprise. And what is more, if these English and Norwegian pseudo-passives are indeed built on the same structure as Dutch (85b), we also get an immediate window on the ‘affectedness’ effect seen in pseudo-passives: the verbal prefixes of Dutch are well known to have a ‘totally affecting’ effect on the noun phrase in their immediate vicinity (cf. e.g. Hoekstra 1988, Mulder 1992).

And last but by no means least, the postulation of a derivation of the type in (84) for pseudo-passives also allows us to ‘have our cake and eat it, too’ when it comes to incorporation: yes, there is indeed incorporation going on in pseudo-passive constructions, but *not* of the P–head itself but of a (null) verbal particle instead. The incorporation of the verbal particle gives us the ‘government transparency’ effects we want; and the fact that P itself does *not* incorporate allows us to understand that modification of P by things like *right* and *straight* continues to be perfectly legitimate in English pseudo-passives (and the same is true for Norwegian; see Lødorp 1991):

- (86) a. they skied right down the slope  
 b. the slope was skied right down  
 (87) a. they sailed right under the bridge  
 b. the bridge was sailed right under

The facts in (86b) and (87b) are of course fatal for an analysis of pseudo-passive constructions in terms of incorporation of P (such as Hornstein & Weinberg's 1981 influential proposal). After all, incorporated particles are strictly incompatible with modifiers of this kind, in English and Dutch alike:<sup>51</sup>

- (88) a. they looked the number (right) up  
 b. they looked (\*right) up the number
- (89) a. dat Jan de bal (pal/vlak) over heeft geschoten  
 that Jan the ball right over has shot  
 b. dat Jan de bal (\*pal/\*vlak) heeft over geschoten  
 that Jan the ball right has over shot

But an analysis that resorts to no incorporation whatsoever would seem to have a hard time capturing the 'government transparency' effects (pseudo-passive, in particular, in the case of English/Norwegian). The account of pseudo-passive constructions proposed here sails precisely the desired course between the two extremes: it does indeed involve incorporation (thereby deriving the 'government transparency' effects) but leaves the P-head *in situ*. 'Pseudo-passivisation', on this analysis, is actually 'real', garden-variety passivisation of a particle verb, with PRT taking a PP complement.

Now that we have an analysis of English/Norwegian type pseudo-passivisation, let us return to Dutch and ask how this analysis allows us to account for the difference between Dutch on the one hand, and English and Norwegian on the other. From the point of view of the analysis developed in the previous paragraphs, language variation in the domain of pseudo-passives comes down to which of the two elements in (84), PRT and P, is lexicalised overtly. Dutch spells PRT out lexically and has P be null; hence P-stranding is not observable on the surface in something like (90a). In the English equivalent of (90a), by contrast, PRT is null and P is overt (and the same is true for the Norwegian cases of this type).

- (90) a. dit bed is niet beslapen  
 this bed is not BE-slept  
 b. this bed has not been slept in

Of course, the difference between Dutch and English/Norwegian is perfectly storable this way. The question that is being begged here is of course what underlies the choice of lexicalisation, and also whether there are languages that lexicalise both heads (PRT and P) simultaneously. I will have to content myself here with merely putting my finger on the way in which languages may differ in this domain, leaving the deeper questions for some other occasion.

## 6 Concluding remarks

In closing, let me summarise some of the major findings of the discussion in this paper. Starting out from Koopman's (1997) seminal analysis of the Dutch PP, I first confirmed the central core of Koopman's structure of locative PPs, then proceeding to develop the structure of directional PPs in full detail, introducing a lexical P<sub>Dir</sub>-head and fleshing out in full detail the extended projection of this P-head. Establishing parallels between the extended projections of verbs and adpositions, I identified Place and Path as the counterparts of Asp/v, and Deg(Place) and Deg(Path) as the equivalents of T, and I held Place and Path responsible for the checking of case in the adpositional phrase, on a par with Asp/v.

51 Dutch (89b) with *vlak* is perfectly grammatical on an entirely irrelevant reading in which *vlak* is a modifier of the VP, meaning something like 'level': the ball was traversing a perfectly level trajectory as it went over the goal (in a soccer event).

Characterising case in spatial PPs as *structural* case in this fashion, I then went on to analyse the structure of German PPs, famous for their case distinctions. Starting out from the hypothesis that there is a one-to-one correlation between the presence of Place in the extended projection of  $P_{Loc}$  and the checking of dative case, I arrived at a full-blown account of the structures of a variety of German spatial PP types, including four separate types of circumpositional phrases. With the deictic particles *hin* and *her* (movement away from/towards the speaker) pinpointed in Deg(Path), phrasal movement within the extended projection of  $P_{Dir}$  was shown to target the SpecDegP(Path) position (not SpecPathP, *contra* Koopman 1997).

With case in spatial PPs identified as *structural* case (at least in the Germanic languages), and with accusative case checking within directional PPs being dependent on the presence of a Path-head in the extended projection of  $P_{Dir}$ , I argued that when  $P_{Loc}$  and  $P_{Dir}$  both lack an extended projection of their own (and P-incorporation into V takes place as a result), the P-object's case feature is checked against  $v$ , in the extended projection of the verb. This gives rise to the 'government transparency' effects familiar from the literature on P-incorporation (cf. Baker 1988). But there are restrictions on both the incorporation of P into V and the array of 'government transparency' effects exhibited in a given language.

I showed that P cannot incorporate (even when the structural configuration for incorporation is met) when, at the same time, (i) P takes a complement within which DP cannot check case (either DP itself or a 'bare' projection of  $P_{Loc}$ , lacking a Place-head) and (ii) the verb into which P incorporates is underlyingly unaccusative/ergative. The cause of the crashing P-incorporation derivation in such a situation lies in case theory: there is no matching case feature available for DP's case feature anywhere in the functional structure.

'Government transparency' effects arising from P-incorporation into V are of a variety of types. The P-object can behave as though it was V's object in undergoing scrambling or relativisation in the same way that V's objects do, and it might also be promoted to subject in (pseudo-)passive constructions. But while languages such as English and Norwegian do indeed feature pseudo-passives, Dutch does not. Presenting a novel analysis of pseudo-passive constructions featuring a structure in which the verb selects a verbal particle that takes the projection of the preposition as its complement, and arguing that the verbal particle, when incorporating into the verb, procures the 'government transparency' effects, I localised the cross-linguistic variation in the domain of pseudo-passives in the question of which of the two heads, PRT or P, receives a phonetic matrix in the structure underlying pseudo-passives. This structure also allowed me to capture the familiar yet elusive 'affectedness' effects exhibited by pseudo-passive constructions as a reflex of the 'totally affecting' verbal particle, and it derived the 'government transparency' effects *without* having the P-head itself incorporate into the verb (*contra* Hornstein & Weinberg 1981), thereby accommodating the fact that pseudo-passivisation is not incompatible with modification of the PP.

While there are many individual pieces of the analysis presented here that contribute to our understanding of the syntax of PP and to syntactic theory more generally, I would like to conclude by noting that if this analysis stands up to scrutiny, it can be read as an extended plea for the existence of P as a LEXICAL CATEGORY. The fact that spatial Ps can have elaborate extended projections strongly confirms this conclusion. Of course, this is not to say that *all* adpositions are lexical in *all* syntactic contexts. It is very likely, in fact, that Ps like *at* in *look at X* serve as lexicalisations of functional heads ( $v$  is a good candidate; see Szekely 2003); and Ps sitting in aspectual (cf. particles in Path<sup>0</sup>) and inflectional positions (like English *to*) or, even further up, in functional heads in the A'-domain (such as English *for* in *for-to* infinitives) are of course well attested as well. But if what I have argued in this paper holds water, it would be wrong to take the 'prepositions as probes' program initiated in Kayne (2001) to its logical conclusion and abolish the lexical category of P altogether. 'Real', truly lexical adpositions most certainly do exist — the spatial adpositions are a case in point.

## Acknowledgements

This paper is one of the spin-offs of a graduate Advanced Syntax seminar on the syntax of prepositions taught at the CUNY Graduate Center in the spring of 2003. I thank the students participating in the seminar for their feedback. Special thanks are due to Christina Tortora for important observations, discussion and eye-openers.

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**first draft, 6 June 2003**