

RESEARCH

Tot (aan) het einde ((aan) toe): The internal syntax of a Dutch complex PP

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The topic of this paper is the internal syntax of the extraordinarily rich palette of Dutch expressions corresponding to English *(right) up to the end*, featuring six subtly different surface outputs, differing with respect to the number of adpositional elements, the number of occurrences of a particular adpositional element (“doubling”), and the linear order of the various subconstituents of the complex PP. The paper proposes a maximally integrated syntax for these adpositional phrases, and in the process addresses the details of phrasal and head-movement operations taking place within the complex PP. In closing, the paper briefly examines the properties of the antonym of *(right) up to the end*, viz., *(right) from the beginning (on)*, and signals clear similarities and striking differences between the two.

Keywords: adpositional phrase; PP-internal movement; preposition incorporation; preposition doubling; verbal particle

1 The dataset

The paradigm in (1) shows that Dutch sometimes exhibits quite a complex system of PP alternations with near-synonymous meanings. The six acceptable forms in this paradigm all translate into English as ‘(up) to the end’. The examples in (1) show an ever increasing wealth of adpositional material, with *tot*, *aan* and *toe* all belonging to the category P; in (1c’) all three adpositions are present and *aan* even occurs twice. Exploiting the standard use of parentheses, we can collectively refer to all and only the acceptable forms in (1) with the string *tot (aan) het einde ((aan) toe)*.

- | | | | | |
|-----|----|-------------------------------------------|-----|--------------------------------------------------|
| (1) | a. | tot het einde
to the end | a’. | tot aan het einde
to on the end |
| | b. | tot het einde toe
to the end to | b’. | tot aan het einde toe
to on the end to |
| | c. | tot het einde aan toe
to the end on to | c’. | tot aan het einde aan toe
to on the end on to |
| | d. | *tot het einde aan
to the end on | d’. | *tot aan het einde aan
to on the end on |

There may be subtle meaning differences between the acceptable forms in (1), which we will not discuss here but which we take to be related to the fact that the functional make-up of the various PP-forms may be different; cf. Koopman (2010) and den Dikken (2010), as well as some relevant discussion in section 2, below.

The PP-forms in (1) can be used as temporal or as spatial adjuncts: cf. (2a & b). The fact, illustrated in (2c), that the verb *lopen* cannot take the auxiliary *zijn* when combining with

a PP of the type in (1) shows that the complex PPs in (1) cannot be used as predicates (which are always spatial). We will leave the study of the meaning as well as the external distribution of the PPs in (1) to future research and focus our attention on the structural representations of these formations.

- (2) a. Jan heeft tot (aan) het einde ((aan) toe) geslapen. [temporal]
 Jan has to on the end on to slept
 ‘Jan has slept up to the end (of e.g. the meeting).’
- b. Jan heeft het gras tot (aan) het einde ((aan) toe) verwijderd. [spatial]
 Jan has the grass to on the end on to removed
 ‘Jan has removed the grass up to the end (e.g. from the garden path).’
- c. Jan heeft/*is tot (aan) het einde ((aan) toe) gelopen. [not predicative]
 Jan has/is to on the end on to walked
 ‘Jan has walked up to the end.’

Before we start discussing the internal structure of the acceptable PP-formations in (1), we will first briefly discuss these examples at a more superficial, observational level. The (a)-examples in (1) show that the preposition *tot* ‘(up) to’ is special in that it can not only take a DP as its complement but is also able to take a PP. The examples in (3) show that this is not possible for other directional prepositions such as *naar* ‘to’.

- (3) a. tot/naar het einde a’. tot/*naar aan het einde
 to/to the end to/to on the end
- b. tot/naar de kerk b’. tot/*naar voor de kerk
 to/to the church to/to in.front.of the church
- c. tot/naar de hoek c’. tot/*naar in de hoek
 to/to the corner to/to in the corner

The (b)-examples in (1) show that the DP and the PP can both be followed by the adpositional element *toe*. This element is generally taken to be the allomorph of the preposition *tot* which appears when the preposition is not followed by its complement. This is very clear in cases such as (4b), in which *daartoe* is the pronominalised counterpart of the PP *tot strenge maatregelen* in (4a): because the D-word *daar*, which is a pro-from replacing the DP *strenge maatregelen*, precedes the preposition, the latter surfaces as *toe*.

- (4) a. het schandaal dat de president tot strenge maatregelen dwong
 the scandal that the president to stern measures forced
 ‘the scandal that forced the president to take stern measures’
- b. het schandaal dat de president daar toe dwong
 the scandal that the president there to forced
 ‘the scandal that forced the president to that’

The adpositional element *toe* may also be used with other functions, for instance, as a verbal particle in particle-verbs such as *toezeggen* ‘to promise’ in (5a), or as the second part of a circumposition such as *naar ... toe* ‘to(wards)’ in (5b). This may raise the question as to whether postpositions and particles should be considered different but this is not a topic we will discuss in this paper; see Koopman (2010) for relevant discussion

- (5) a. De president heeft strenge maatregelen toegezegd.
 the president has stern measures prt-promised
 ‘The president has promised stern measures.’

- b. Jan liep **naar** de kerk **toe**.
 Jan walked to the church to
 ‘Jan walked to(wards) the church.’

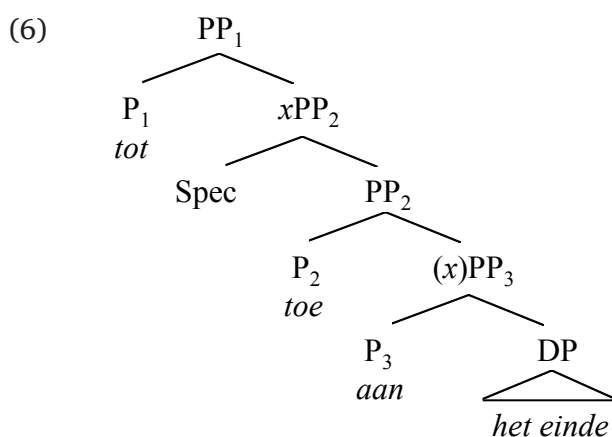
The (c) and (d)-examples in (1), finally, show that the DP and the PP can also be followed by the adpositional element *aan*, but only if the adposition *toe* is also present. The distribution of *aan* within the complex DP will be a central topic of this paper, and we will present a simple explanation for its doubling in (1c’). This doubling is not mentioned in the *Syntax of Dutch* (Broekhuis 2013); this reference work does, however, contain discussion of the other patterns, and also discusses the relevant literature on complex adpositional structures, starting with Van Riemsdijk (1978).¹

2 The analysis

This section begins the discussion of our analysis *medias in res*, by laying out what we believe is the right analysis for the (b) and (c)-examples in the paradigm in (1). Sections 3 and 4 will subsequently substantiate the proposed treatments of the individual P-elements of *tot*, *aan* and *toe*. Section 5 concludes, and puts the antonyms of (1) on the agenda and shows that it is not possible to straightforwardly apply the analysis of *tot (aan) het einde ((aan) toe)* to these cases.

2.1 The underlying structure

We propose the underlying representation in (6) for the complex examples in the set, containing all three P-elements: *tot*, *aan* and *toe*. For ease of presentation, the structure in (6) abstracts away from details regarding the functional superstructure of PP_2 : rather than taking a specific stand (unnecessary here) on the label of its functional extension, we will throughout use the label “ xPP_2 ”, standing for “extended projection of PP_2 ”. While the projection of P_2 is always extended up to xPP_2 (for reasons discussed in section 2.6), that of P_3 is either “bare” or extended (whence the parenthesised ‘x’ here). This will play a role in the accounts of (1b’) and (1c) offered in sections 2.2 and 2.3. The functional superstructure of PP_1 does not play a role at all, and will therefore be ignored completely in what follows.

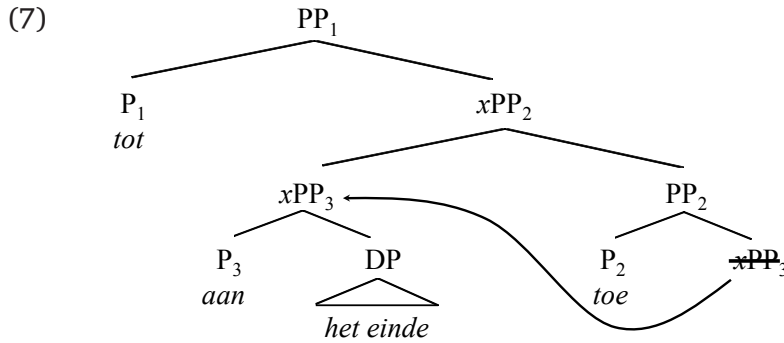


The structure in (6) cannot be pronounced as is because *toe* is a postposition, hence must receive something to its left, in the specifier position of xPP_2 . We propose that the requirement that $SpecxPP_2$ be filled can be met in one of two ways in the course of the derivation.

¹ For discussions of P-doubling of a type different from the one discussed here, we refer the reader to Van Riemsdijk (1990), Biberauer & Folli (2004), De Vos (2013) and Aelbrecht & Den Dikken (2013).

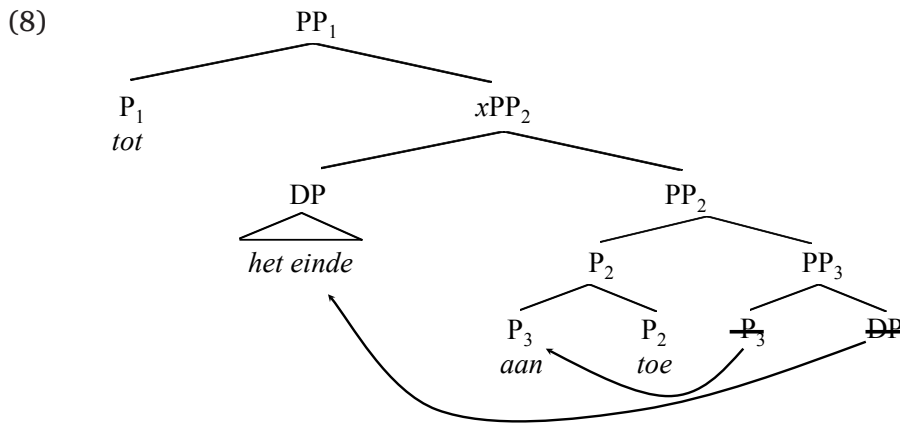
2.2 The derivation of *tot aan het einde toe* (1b')

The first way of meeting the requirement that SpecxPP_2 be filled is based on the version of (6) that features an extended projection of P_3 , and is sketched out in (7). This derivation involves movement of xPP_3 , the complement of P_2 , into SpecxPP_2 .² The derivation in (7) delivers *tot aan het einde toe* in (1b') as its grammatical output.³



2.3 The derivation of *tot het einde aan toe* (1c)

The second way of meeting the requirement that SpecxPP_2 be filled starts out from the version of (6) with a “bare” PP_3 in the complement of P_2 . Because P_3 now lacks its own extended projection, it cannot be functionally licensed within the confines of its extended projection, and must instead be incorporated into (i.e., left-adjoined to) P_2 , resulting in the formation of a complex postposition $[P_3 + P_2]$ *aan + toe*. A corollary of P-incorporation is the raising of the complement DP *het einde* of P_3 into SpecxPP_2 . Structure (8) illustrates this derivation. It delivers the output *tot het einde aan toe* in (1c).



² Representation (7) does not contravene Abels’s (2003) version of antilocality, which prohibits movement of the complement of a head to that head’s specifier, as the landing-site of movement is a specifier position in some extended projection of P_2 , not the specifier of P_2 itself. With Grohmann (2003)-style domain-based antilocality, (7) is less obviously compatible. We will leave the matter aside, adding merely that it is not self-evident that either Abels-style or Grohmann-style antilocality belongs in the syntactic toolkit — with the former, Kayne’s (1994) analysis of complementiser-final languages (in terms of movement of TP, the complement of C, to SpecCP) is potentially incompatible (though this depends on the fine structure of the left periphery); the latter is hard to square with the phenomenon of predicate inversion as analysed in Den Dikken (2006) or with “short” object shift as analysed in Broekhuis (2008: ch.2). Antilocality effects, whenever they do appear to hold, are most likely reflexes of some independent condition of the grammar, NOT of a categorical ban of the sort advocated by Abels or Grohmann.

³ One reviewer points out that the resulting structure violates the Final-over-Final Condition first proposed in Holmberg (2000). This in fact holds for all circumpositional PPs, which has led to a less strict version of the condition phrased in terms of extended projection; see Biberauer (2018) for references and discussion. Our derivation of (1b') is in full accordance with Biberauer’s conclusions because the prepositional phrase dominated by the projection of postpositional *toe* is an extended projection of P_3 in its own right, not a “bare” PP mapped into the same extended projection as $P_2 = \textit{toe}$. See Sections 2.3 and 2.4 and fn. 5 for what happens when PP_3 is bare.

According to the spirit of the Government Transparency Corollary in (9), incorporation of P_3 *aan* into P_2 *toe* causes DP to come to behave like the complement of P_2 .⁴

- (9) The Government Transparency Corollary: A lexical category which has an item incorporated into it governs everything which the incorporated item governed in its original structural position (cf. Baker 1988: 64).

Adopting this, we are able to account for the unacceptability of the three examples in (10) in a simple way. First, (10a) is unacceptable because after incorporation of *aan* into *toe*, the DP should behave as a complement of *toe* but fails to occupy the specifier position SpecxPP_2 in *toe*'s extended projection; incorporation of *aan* thus forces the derivation in (8). Second, the unacceptability of (10b) is due to the fact that *aan* does not incorporate into *toe*, so that the DP does not have the licence to extract from the *aan*-PP, and does not behave as the complement of *toe* and is thus not a suitable candidate for occupying the specifier position SpecxPP_2 ; in the absence of *aan*-to-*toe* movement, this position can only be filled by the full *aan*-PP, as in the derivation in (7) above. Finally, the otherwise surprising unacceptability of (1d), repeated as (10c), follows from the fact that movement of DP into SpecxPP_2 is contingent on incorporation of *aan* into a postpositional P_2 , which is not present in this case.

- (10) a. **tot aan toe het einde*
to on to the end
b. **tot het einde toe aan*
to the end to on
c. **tot het einde aan (= (1d))*
to the end on

Note in passing that example (11a) cannot be derived along the lines of (8), with movement of DP to SpecxPP_2 and incorporation of *aan* into *toe*, because specifiers of postpositions pronominalise as ordinary D-pronouns, not as R-pronouns; cf. *de boom die hij is in geklommen* (lit: 'the tree D-PRON he is in climbed'). So (8) delivers (11b), which is somewhat marginal, on a par with *?tot aan dit/dat toe*, where the D-pronoun has not moved. To derive (11a), we need to avail ourselves of the derivation in (7), with R-pronominalisation of *aan het einde* as *hier/daar aan* 'on this/that'. This an independently motivated option in Dutch; see also example (23) below.

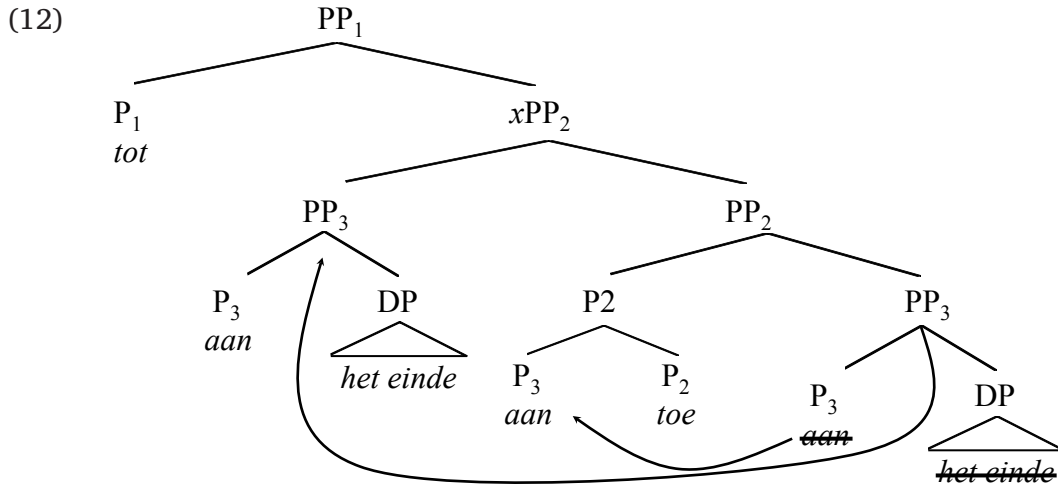
- (11) a. *tot hier/daar aan toe*
to here/there on to
b. *?tot dit/dat aan toe*
to this/that on to

2.4 The derivation of *tot aan het einde aan toe* (1c')

We can derive the pattern in (1c'), *tot aan het einde aan toe*, by assuming that movement of PP_3 *aan het einde* into SpecxPP_2 can apply in tandem with incorporation of *aan* into P_2 *toe*, as shown in (12). We propose that this derivation yields a grammatical output with full exponence of both copies of P_3 because neither copy c-commands the other — since the two tokens of *aan* are structurally disconnected neither is required to be deleted; cf. Kayne (1994: 96, (50)).⁵

⁴ One of the reviewers points out that our loose formulation may lead to the conclusion that structure (8) violates Abels's version of antilocality (cf. fn. 2). If one would like to adopt this version of antilocality, one should make sure that incorporation does not affect the locality configuration. Since we do not commit ourselves to antilocality in any form, we will not digress on this issue.

⁵ In this structure, the projection of P_3 is "bare", leading to incorporation of P_3 into P_2 . With "bare" PP_3 moving into SpecxPP_2 , the output violates the Final-over-Final Condition (cf. fn. 3) for the token of P_3 pro-



Note that our proposal entails that the PP pattern *tot aan het einde aan toe* in (1c') involves syntactic reduplication of *aan* and not independent selection of two accidentally identical lexical items *aan*, which is supported by the fact, illustrated in (13), that the P-elements to the right of *tot* and to the left of *toe* cannot be chosen independently of one another.

- (13) a. *tot **naar** het einde **aan** toe
 tot to the end on to
 b. *tot **na** het einde **aan** toe
 to after the end on to

The examples in (13) should be contrasted with the primeless cases in (14). The latter involve accidental identity rather than reduplication, as is supported by the fact that they occur side-by-side to the cases in the primed examples.

- (14) a. **aan** de steiger **aan**leggen
 at the pier on.moor
 'to moor to the pier'
 a'. **bij** de steiger **aan**leggen
 near the pier on.moor
 'to moor near the pier'
 b. iets **aan** iemand **aange**ven
 something to someone on.give
 'to give something to someone'
 b'. iets **aan** iemand **doorge**ven
 something to someone on.give
 'to pass something on to someone'

We thus propose that the reduplication of *aan* in (1c') arises thanks to the fact that second occurrence of *aan* itself binds a copy. This is in agreement with the fact that standard assumptions concerning the successive cyclicity of movement force incorporation of *aan* into P₂ *toe* to precede movement of PP₃ into SpecxPP₂. Note that the derivation in (12) does not license spell-out of the DP *het einde* 'the end' to the right of the P₂-complex *aan toe*: because the higher copy of PP₃ asymmetrically c-commands the lower copy of PP₃, the latter must be silenced in its entirety. So we expect that DP can only be spelled out to

nounced in the head position of PP₃. But this violation is erased by the fact that P₃ is also pronounced to the right of the DP *het einde*, in compliance with FoFC.

the left of the complex P_2 *aan toe*, and, indeed, **tot (aan (het einde)) aan toe het einde* is impossible.

2.5 The derivation of *tot het einde toe* (1b)

Section 1 already suggested that the (a)-examples in the paradigm in (1) simply involve adpositional structures with, respectively, a DP and a PP complement, as indicated in (15a) and (15b). The structures underlying these cases are thus much reduced compared to the cases discussed above, which were argued to have the underlying structure in (15d). We did not yet discuss the underlying structure of *tot het einde toe* in (1b).

- (15) a. $[_{PP1} P_1 = \mathbf{tot} [_{DP} \mathbf{het\ einde}]]$ [example (1a)]
 b. $[_{PP1} P_1 = \mathbf{tot} [_{xPP3} P_3 = \mathbf{aan} [_{DP} \mathbf{het\ einde}]]]$ [example (1a’)]
 c. ?? [example (1b)]
 d. $[_{PP1} P_1 = \mathbf{tot} [_{xPP2} P_2 = \mathbf{toe} [_{(x)PP3} P_3 = \mathbf{aan} [_{DP} \mathbf{het\ einde}]]]]]$ [remaining cases]

For *tot het einde toe*, the question arises whether its structure is analogous to that of the complex cases, which also contain both *tot* and *toe*, or whether it is simpler. The latter would amount to saying that (1b) differs from the other examples with *toe* in that $P_3 = \mathbf{aan}$ and its projection are absent from the structure, as indicated in (16): $P_2 = \mathbf{toe}$ directly takes the DP *het einde* as its complement, and, just as in the derivation in (8), forces it to raise into $\text{Spec}xPP_2$.

- (16) $[_{PP1} P_1 = \mathbf{tot} [_{xPP2} P_2 = \mathbf{toe} [_{DP} \mathbf{het\ einde}]]]$

A serious worry for the proposal in (16) is that the postposition *toe* does not otherwise seem to accept DP dependents in the standard language: whenever *toe* has a DP to its left, it serves as a verbal particle, as was already illustrated by (5a) in section 1. A treatment of *toe* in (1b) as a particle is impossible, however, because doing so would make the DP *het einde* case-dependent on $P_1 = \mathbf{tot}$, while prepositions in Dutch normally do not engage in “exceptional case-marking” (exceptions are *met* ‘with’ and *zonder* ‘without’ in absolutive constructions). This wrinkle leads us to regard (16) with serious suspicion. As an alternative outlook on (1b), we suggest (17), which treats (1b) as structurally on a par with the three other examples with *toe* in (15c) but with a silent P_3 .

- (17) $[_{PP1} P_1 = \mathbf{tot} [_{xPP2} P_2 = \mathbf{toe} [_{PP3} P_3 = \emptyset [_{DP} \mathbf{het\ einde}]]]]]$

The postulation of a silent allomorph of *aan* is not an innovation conjured up specifically for the purpose of analysing the string in (1b): on the transformational approach to the dative shift alternation pursued in Den Dikken (1995: section 3.9), *aan* has a silent allomorph in ditransitive constructions, too, which is licensed by incorporation; we return to this issue below example (34) in section 4. If we assume the same for the empty P_3 in (17), there are two possible continuations of the derivation: either the DP or the full PP_3 can be moved into the specifier of $\text{Spec}xPP_2$, along the lines of the representations in (8) and (12), respectively. At this point, we see no clear reason to prefer one of the two analyses, and it may well be the case that both derivations are available. We leave this to future research.

2.6 A note on extended projection and recursion

We have argued that the complement of P_2 (*toe*) in (6) is either a “bare” PP or a functional extension xPP , with the choice between the two options giving rise to different outputs. The complement of P_1 (*tot*), on the other hand, is always an xPP . The bare version of PP_2 would not feature the postposition *toe* but instead its prepositional counterpart *tot* because

the adposition can only be spelled out as *toe* if something is placed in SpecxPP. This is reflected in the empirical fact, not discussed earlier, that it is clearly impossible to embed immediately below the preposition *tot* a projection of the same preposition: the string **tot tot (aan) het einde*, with two consecutive tokens of *tot*, is unacceptable. Why should this be?

Directly embedding a bare projection of $P_2 = tot$ under $P_1 = tot$ would instantiate a kind of self-embedding recursion which, besides adding a second token of *tot* and its associated semantics, would not make any contribution to the syntax or semantics of the resulting construct. Syntactically, P_2 introduces something as its complement (viz., a projection of *aan*) that P_1 could perfectly well have introduced itself (as was shown in (15b)). Furthermore, the lexical meaning borne by P_2 is exactly the same as that of P_1 , resulting in reduplication. Such reduplication could not contribute anything apart from emphasis – and quite generally, Dutch cannot place emphasis on adpositions by reduplicating them (*De kat ligt OP (*op) het bed, niet ONDER (*onder) het bed* ‘the cat is lying on the bed, not under the bed’). Directly embedding a bare projection of *tot* beneath another token of *tot* thus results in complete redundancy. Embedding an extended projection of postpositional *toe* below *tot* does not: it gives rise to a morphosyntactic output that could not have been obtained by forgoing the inclusion of *toe* and its entourage.⁶

2.7 Conclusion

The structures in (18) sum up the underlying representations needed for an analysis of the paradigm in (1). We have shown that the structure in (18d) may give rise to three different surface structures with the derivations indicated in (7), (8) and (12). The structure in (18c) was argued to give potentially rise to two different surface structures, with derivations similar to those in (8) and (12), but the difference between their outputs is difficult to demonstrate due to the fact that P_3 here is phonetically empty. Observe that a derivation based on (18c) along the lines of (6) is excluded: for licensing purposes, the silent head of the “bare” PP_3 must incorporate into P_2 .

- (18) a. [_{PP1} $P_1 = tot$ [_{DP} **het einde**]] [example (1a)]
 b. [_{PP1} $P_1 = tot$ [_{xPP3} $P_3 = aan$ [_{DP} **het einde**]]] [example (1a’)]
 c. [_{PP1} $P_1 = tot$ [_{xPP2} $P_2 = toe$ [_{PP3} $P_3 = \emptyset$ [_{DP} **het einde**]]]]] [example (1b)]
 d. [_{PP1} $P_1 = tot$ [_{xPP2} $P_2 = toe$ [_{(x)PP3} $P_3 = aan$ [_{DP} **het einde**]]]]] [remaining cases]

3 $P_1 tot$: The head of the complex structure

A salient feature of the underlying structure in (6) and the derivations based on it is that the head of the complex structure is $P_1 = tot$, NOT $P_2 = toe$. This allows us to treat all of the examples in (1) as fundamentally the same at the highest level: all the PPs in (1)

⁶ Note that it is not likely that some low-level “haplogy filter” rules out **tot tot (aan) het einde* because embedding a projection of some lexical item below exactly the same item, resulting in a surface string of two immediately consecutive tokens of this item, is not as such impossible. An example of this is given in (i):

- (i) dat zij hem onder haar rok heeft **voelen voelen**.
 that she him under her skirt has feel feel
 ‘that she felt that he was feeling under her skirt.’

The matrix verb *voelen* ‘feel’ takes as its complement a functional structure (minimally a Relator Phrase in the sense of Den Dikken 2006) accommodating the external argument of the subordinate verb *voelen* (i.e., *hem* ‘him’). It is this functional layer and the fact that the higher and lower verbs have different subjects that ensures that this case of self-embedding recursion is not dismissed as redundant. The fact that the two tokens of *voelen* are identical (thanks to the *infinitivus-pro-participio* effect) and end up right next to each other on the surface (thanks to verb clustering) makes the sentence perhaps somewhat marked, but by no means ungrammatical.

are projections of the preposition *tot*; variation is a function of the internal composition of PP_1 . This was also the reason why we did not consider in section 2.5 two alternative analyses that easily spring to mind for *tot het einde toe* in (1b). The first alternative analysis that one might consider takes *tot het einde toe* to be a circumpositional phrase just like *naar het einde toe*. The second alternative analysis takes (1b) to be a PP (*tot het einde*) followed by the verbal particle (*toe*), which might be feasible for the particle-verb *toelaten (tot)* ‘to admit (to)’. We will show that these two alternative options can be excluded and we will conclude from this that all PPs in (1) are indeed headed by the preposition *tot*.

3.1 The inadequacy of a circumpositional analysis of *tot het einde toe*

This section will show that it is not possible to analyse the string *tot het einde toe* in (1b) as a circumpositional phrase headed by *toe* comparable to *naar het einde toe* in (19a): the derivation in (19b) is impossible.

- (19) a. $[_{PP1} \text{ toe } [_{PP2} \text{ naar het einde}]] \rightarrow [_{xPP1} [_{PP2} \text{ naar het einde}]_i [_{PP1} \text{ toe } t_i]]$
 b. $*[_{PP1} \text{ toe } [_{PP2} \text{ tot het einde}]] \rightarrow [_{xPP1} [_{PP2} \text{ tot het einde}]_i [_{PP1} \text{ toe } t_i]]$

We can justify this by pointing to the fact that the syntactic distribution of *tot het einde toe* fits in perfectly with the other members of the paradigm in (1), which clearly do not allow an analysis as a circumpositional phrase, and does not match that of *naar het einde toe*. A first indication to this effect is that while the circumpositional phrase *naar het einde toe* can be used as a postnominal modifier in examples such as (20a), none of the acceptable adpositional *tot*-phrases in (1) allow this.

- (20) a. Dit is [de weg [naar het einde toe]].
 this is the road to the end to
 ‘This is the road towards the end.’
 b. *Dit is [de weg [tot (aan) het einde ((aan) toe)]].
 this is the road to on the end on to

Conversely, as illustrated in (21), the *tot*-phrases in (1) can be used adverbially whereas the circumpositional phrase *naar het einde toe* cannot easily be used in this function.

- (21) a. *dat Jan de weg [naar het einde toe] afliep.
 that Jan the road towards the end to prt-walked
 b. dat Jan de weg [tot (aan) het einde ((aan) toe)] afliep.
 that Jan the road to on the end on to prt-walk
 ‘that Jan walked down the road up to the end.’

The proposed distinction between the *tot*-PPs in (1) and the circumpositional phrase *naar het einde toe* is also supported by auxiliary selection. Example (22a) shows that when directional PPs combine with a lexically unergative verb such as *lopen* ‘walk’ that selects *hebben* ‘have’ as its perfect auxiliary, they normally cause the motion verb to undergo “ergative shift”, resulting in the selection of the auxiliary *zijn* ‘be’. However, when one of the *tot*-PPs combines with such a verb, only *hebben*-selection is acceptable, showing that they cannot serve as complements to lexically unergative motion verbs.

- (22) a. Jan is/?heeft [naar Leiden toe] gelopen.
 Jan is/has to Leiden to walked
 ‘Jan has walked to Leiden walked.’

- b. Jan heeft/*is [tot (aan) het einde ((aan) toe)] gelopen.
 Jan has to on the end on to walked
 ‘Jan has walked up to the end.’

Why *tot*-PPs of the type in (1) can only serve as adjuncts is not a question we will try to answer here. For us what matters is simply the observational fact that all the *tot*-PPs in (1) behave on a par with respect to this distributional restriction. It is this distributional parallel between the examples in (1) that confirms that they all have *tot* as their head.

That it is *tot* and not *toe* that is the head of the complex PPs in the (b) and (c)-examples in (1) is also indicated by constituency tests of the familiar sort, involving replacement or displacement of a subportion of the complex PPs in question. The examples in (23) show that the PP following *tot* can be replaced by the locational/temporal proform *daar/dan* ‘then’; see also Broekhuis (2013). The facts in (23) confirm both the constituency of PP_3 and that of xPP_2 , and they also show that the preposition *tot* is outside both of these constituents.

- | | | | | |
|------|----|--------------------------------------------------|-----|---------------------------------------------|
| (23) | a. | tot aan het einde
to on the end | a’. | tot daar/dan
to there/then |
| | b. | tot aan het einde toe
to on the end to | b’. | tot daar/dan toe
to there/then to |
| | c. | tot aan het einde aan toe
to on the end on to | c’. | tot daar/dan aan toe
to there/then on to |

3.2 The inadequacy of a verbal-particle analysis of *tot het einde toe*

The verbal-particle analysis takes the string *tot het einde toe* in (1b) to be similar to the string in boldface in example in (24a), which like (1b) features both the preposition *tot* and the element *toe*. For the example in (24a), it is clear that *tot* forms a constituent with the following DP to the exclusion of *toe* (i.e., not [*tot* [... *toe*]] but [*tot* ...] *toe*), which is used as a verbal particle here. A characteristic property of this configuration is that pre- and extraposing the string formed by *tot* and the DP following it (here, *hun therapiegroep*) is possible, as shown in (24b & c). The primed examples show that pied piping of the particle is impossible.

- | | | | |
|------|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| (24) | a. | Ze willen hem niet [tot hun therapiegroep] toelaten.
they want him not to their therapy group prt-let
‘They don’t want to admit him to their therapy group.’ | |
| | b. | Tot hun therapiegroep willen ze hem niet toelaten.
to their therapy group want they him not prt-let | [topicalisation] |
| | b’. | * Tot hun therapiegroep toe willen ze hem niet laten.
to their therapy group prt want they him not let | |
| | c. | Ze willen hem niet toelaten tot hun therapiegroep .
they want him not prt-let to their therapy group | [extraposition] |
| | c’. | *Ze willen hem niet laten tot hun therapiegroep toe .
they want him not let to their therapy group prt | |

The string *tot het einde toe* in (1b) clearly does not involve the verbal particle *toe*. First, the discussion of the examples in (21) and (22) has already shown that it is like the other strings in (1) in that it cannot be used as a verbal complement — it only serves as an adjunct. Concomitantly, *toe* is not the adpositional head of (1b), and, as a consequence of this, preposing or extraposing the string *tot het einde* to the exclusion of *toe* is impossible, as is shown in (25b & c); the primed examples show that pied piping it is obligatory. Note

that we have added *aan* within brackets in order to show that the same is true for the string *tot aan het einde* in example (1b').

- (25) a. Ze hebben **tot (aan) het einde toe** gerend.
 they have to on the end to run
- b. ***Tot (aan) het einde** hebben ze **toe** gerend. [topicalisation]
 to on the end have they to run
- b'. **Tot (aan) het einde toe** hebben ze gerend.
 to on the end to have they run
- c. *Ze hebben **toe** gerend **tot (aan) het einde**. [extraposition]
 they have to run to on the end
- c'. Ze hebben gerend **tot (aan) het einde toe**.
 they have run to on the end to

It should further be noted that all versions of *tot (aan) het einde ((aan) toe)* including (1b) can easily be combined with a particle-verb such as *tegenwerken* 'to thwart' or *toestaan* 'allowed'. Given that verbs cannot combine with more than one particle (let alone two identical ones), the examples in (26) show that the verbal-particle analysis of *tot het einde toe* is not viable.

- (26) a. Ze hebben Peter **tot (aan) het einde ((aan) toe)** tegengewerkt.
 they have Peter to on the end on to prt-thwarted
 'The have thwarted Peter (up) to the end.'
- b. Mobieltjes werden **tot (aan) het einde ((aan) toe)** toegestaan.
 cell.phones were to on the end on to prt-allowed
 'Cell phones were allowed (up) to the end.'

This section has shown that there can be no doubt that the constituent structures of (24a) and (25a) are very different: while in (24a) the verbal particle *toe* heads the complex structure and *tot* + DP is a constituent, in (25a) it is *tot* that heads the structure and the entire string *tot (aan) het einde toe* is one structural unit.

3.3 All phrases in (1) are headed by tot

To close this discussion of the headedness of the PPs in (1), let us return to the examples in (22), which are repeated here as (27) in a slightly adapted version for convenience. Though we did not make a point of this up until now, the reader will have noted that the element *toe* can legitimately occur in both these sentences, which gives them a piece of morphological matter in common. We have further noted that there is a difference between the two examples in (27) with respect to auxiliary selection.

- (27) a. Jan is [naar Leiden toe] gelopen.
 Jan is to Leiden to walked
 'Jan has walked to Leiden walked.'
- b. Jan heeft [tot (aan) het einde ((aan) toe)] gelopen.
 Jan has to on the end on to walked
 'He has walked up to the end.'

Here we add that (27a) and (27b) also differ with respect to constituency. Example (28a) first shows that the string *naar Leiden toe* can easily be split by topicalisation, while the (b)-examples show that this split is not possible for *tot (aan) het einde ((aan) toe)*: topicalisation cannot strand *toe*. These examples thus show very clearly that the strings *naar*

x toe and *tot (aan) x (aan) toe* behave radically differently with respect to the possibility of fronting the substring following the initial P-element as a unit.⁷

- (28) a. **Naar Leiden** is Jan **toe** gelopen.
to Leiden is Jan prt walked
- b. ***Tot (aan) het einde (aan)** heeft Jan **toe** gelopen.
to on the end on has Jan to walked
- b'. **Tot (aan) het einde (aan) toe** heeft Jan gelopen.
to on the end on to has Jan walked

The ungrammaticality of (28b) versus the grammaticality of (28a) could be taken to indicate that *naar Leiden* IS, while *tot (aan) einde (aan)* is NOT, a constituent to the exclusion of *toe*. Interpreted this way, the facts in (28) are certainly compatible with the underlying representation in (6), which denies the string *tot (aan) x* constituent status to the exclusion of *toe*. But unfortunately, we cannot chalk these data up as *evidence* for (6) because, as it turns out, the ungrammaticality of (28b) could also be derived in another way. A logically plausible alternative explanation would capitalise on our earlier observation that complex PPs of the type represented by (6) only distribute as adjuncts when combined with a lexically unergative motion verb: even if *tot (aan) x* were a constituent, one would expect it to be prevented from movement stranding *toe* by the Huang's (1982) Adjunct Condition. Indeed, (28a) only allows fronting of *naar Leiden* when *naar Leiden toe* is construed as the directional complement of *lopen*, causing “ergative shift” and concomitant selection of the auxiliary *zijn* ‘be’ in the perfect: this is shown by the fact that the pattern in (29) matches that of the (b)-examples in (28).⁸

- (29) a. *Naar Leiden heeft hij toe gelopen.
to Leiden has he to walked
- b. Naar Leiden toe heeft hij gelopen.
to Leiden to has he walked

So to some extent, comparing (28a) and (28b & b') is a case of comparing apples and oranges. This severely diminishes the strength of the constituency test applied in (28). But all the facts remain perfectly compatible with the claim that all PPs in (1) are headed by the preposition *tot*. And since we had already discovered some unequivocal support for the underlying structure in (6), we can safely maintain that it is also correct for the string *tot het einde toe* in (1b), with the additional assumption that P_3 is phonetically empty.

4 P_2 *toe* and P_3 *aan*, and their interrelationship

The adpositional complex *tot het einde aan toe* in (1b') has the substring *aan DP toe* in common with the primeless examples in (30), but this section will show that the parallel is merely superficial. More specifically, there is no structural connection between the two complexes: while the substring in (1b') is part of an adverbial modifier headed by *tot*, the

⁷ This also shows that the following claim in Broekhuis (2013: 64) is incorrect: “[t]he sequence *naar oma toe* [‘to grandma to’] ... behaves in all respects like a circumpositional phrase [and the] same thing holds for the sequence *tot (aan) ... toe*”. His later conclusion (Broekhuis 2013: 154) that the string *tot (aan) de morgen toe* “probably does not involve a circumpositional phrase *tot (aan) ... toe*” is closer to the target. Note that this inconsistency cannot be attributed to the fact that the quotes involve, respectively, a spatial and a temporal location because the behaviour of *tot (aan) x ((aan) toe)* is uniform — and uniformly different from *naar x toe*.

⁸ For full disclosure, note that fronting the entire string *naar Leiden toe* is grammatical regardless of the choice of auxiliary: compare (29b) to *Naar Leiden toe is hij gelopen*.

substrings in (30) occupy the complement position of the verbs *zijn* ‘be’ and *komen* ‘come’, and serve as predicates of the subject of the clause, *ik* ‘I’.

- (30) a. Ik ben aan vakantie toe.
I am on vacation to
‘I need a vacation.’
- b. Ik ben niet aan die review toe gekomen.
I am not to that review to come
‘I haven’t been able to do that review.’

Confirmation for the claim that *aan DP toe* in (30) is a predicative complement as well as illustration of the fact that *toe* here is a verbal particle comes from the grammaticality of (31a), the non-root counterpart to (30b): the adpositional element *toe* is freely included in the verbal cluster, which would have been impossible if *aan DP toe* had been an adverbial adjunct. Indeed, with respect to particle incorporation, (31a) differs starkly from (31b); not surprisingly in light of the adverbial use of *tot (aan) DP toe* in (31b) as well as the fact that not *toe* but *tot* is the head of the complex PP; cf. (6).

- (31) a. dat ik niet aan die review <toe> ben <toe> gekomen.
that I not on that review to am to come
‘that I haven’t been able to do that review.’
- b. dat ik tot (aan) het einde <toe> heb <*toe> gerend.
that I to on the end to have to run

That the examples in (30) have a structure in which the *aan*-PP serves as the complement of the particle *toe* and thus forms a constituent to the exclusion of *toe* is also clear from (32), illustrating pre- and extraposing of the substring *aan*+DP: we refer the reader to (25) for examples showing that the substring *aan*+DP in (1b’) cannot be topicalised or extraposed while stranding *toe*.

- (32) a. Aan vakantie <??toe> ben ik nu wel <toe>. [topicalisation]
on vacation to am I now AFF to
‘I could do with a holiday.’
- a’. Ik geloof dat ik nu wel toe ben aan vakantie. [extraposition]
I believe that I now AFF to am on vacation
- b. Aan die review <*toe> kom ik helaas niet <toe>. [topicalisation]
on that review to come I unfortunately not to
‘I won’t make it to work on that review.’
- b’. Ik geloof dat ik helaas niet toe kom aan die review. [extraposition]
I believe that I unfortunately not to come on that review

The examples in (33) and (34) are similar to those in (32) in that *aan*+DP acts as a constituent to the exclusion of *toe*, with the latter serving as a verbal particle, as is illustrated by the fact, illustrated in the (b) and (c)-examples, that the string *aan*+DP can extrapose or topicalise as a unit. The (d)-examples add to this that *aan* can be omitted from the (a)-examples.

- (33) a. Alle lof komt aan Allah toe.
all praise comes on Allah to
- b. Aan Allah komt alle lof toe. [topicalisation]
to Allah comes all praise to

- c. Alle lof komt toe aan Allah. [extraposition]
 all praise comes to on Allah
- d. Alle lof komt Allah toe. [dative shift]
 all praise comes Allah to
- (34) a. Dit behoort aan hem toe.
 this belongs on him to
- b. Aan hem behoort dit toe. [topicalisation]
 to him belongs this to
- c. Dit behoort toe aan hem. [extraposition]
 this belongs to on him
- d. Dit behoort hem toe. [dative shift]
 this belongs him to

This is the kind of alternation familiar from *give*-type constructions, usually referred to as the dative (shift) alternation. As already mentioned in section 2.5, Den Dikken (1995) argues at length that this alternation involves a silent allomorph P_{\emptyset} of the dative preposition (*aan* in Dutch), whose projection must move into a position structurally adjacent to the verb. From this position incorporation of P_{\emptyset} into the verb (necessarily for licensing P_{\emptyset}) becomes possible. Den Dikken (1995) also shows in detail, based on data taken mostly from English (but carrying over to Dutch), that in dative constructions with particle-verbs, the particle is structurally higher than the dative PP. When dative shift happens, the particle must reanalyse with the verb to facilitate the movement of the silent-headed PP that makes incorporation of P_{\emptyset} possible. Against this background, the (d)-examples in (33) and (34), which illustrate dative shift, confirm that the *aan*-PP in the (a)-examples feature a hierarchical structure in which *toe* is selected by the verb, and in turn takes the *aan*-PP as its complement. This, as we have seen, is a structure that is very different from the one we need for examples of the type in (1b'). The superficial similarity between (1b'), on the one hand, and the examples in (30), (33a) and (34a), on the other, is merely accidental.

In line with what was argued in the previous paragraph, Broekhuis (2013: 56) treats *toe* in strings of the type in (30a) as a verbal particle, with the particle-verb in turn selecting the *aan*-PP. In support of this, he mentions the ungrammaticality of (35a), where the string *aan* DP *toe* combines with a noun, making it impossible for *toe* to serve as a verbal particle. Example (35a) can be compared with the grammatical case in (35b), where the strings from (1) including *toe* are being used adnominally. Again we see clearly that despite the surface similarity, (1b') cannot be treated on a par with the examples in (30), where *toe* is a verbal particle, determining the external distribution of the phrase; by contrast, the element *toe* in (1) is not a verbal particle, and it does not head the structure.

- (35) a. de behoefte aan vakantie (*toe)
 the need on vacation to
- b. de reis tot (aan) Leiden (aan) toe
 the journey to on Leiden on to

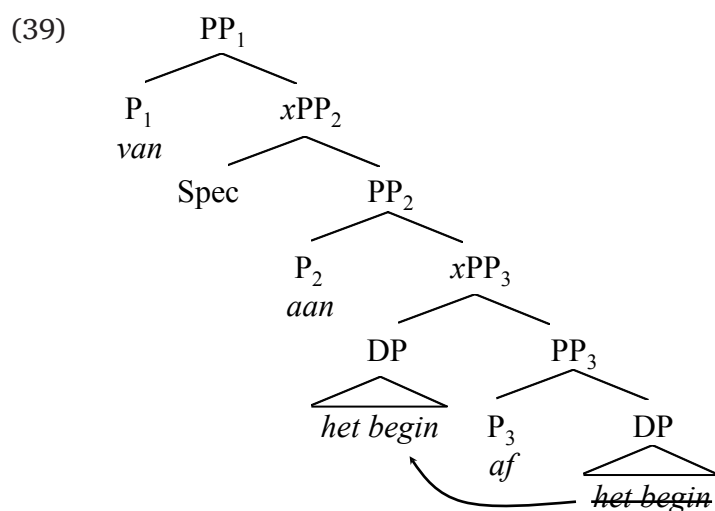
In the derivations in (8) and (12), the preposition *aan* incorporates into *toe* and forms a complex unit with it. Unfortunately, because of the adjunct status of the complex PPs in (28b & b'), we cannot bring this unit to light by trying to include *aan* + *toe* into a verbal cluster. But it is still significant that in (36), where we are not dealing with an adjunct, such incorporation fails completely, even though *aan* and *toe* are in fact linearly adjacent

d. *tot het einde aan
to the end on

d'. *tot aan het einde aan
to on the end on

A natural follow-up to this piece would be a study of the antonyms of the examples in (1), that is, of adpositional constructions expressing the same thing as English (*right*) *from the beginning* (*on*). In Dutch, these, too, show a remarkable surface variability that is mostly unexplored in the literature, and, to our knowledge, never fully laid out; see Broekhuis (2013: 153–4; 175–6) for some relevant discussion.

The antonym of *tot het einde aan toe* in (38c) is *van het begin af aan* ‘right from the beginning on’. The preposition *van* corresponds to *tot* and functions as the head of the full propositional phrase; the adpositional element *af* corresponds to the adposition *aan* but differs from it in that it is postpositional, not prepositional; the closing adpositional element *aan* corresponds to the postposition *toe* in that it is always the final element in the full adpositional phrase. In light of this, we might expect that the underlying structure of the adpositional phrases with all three adpositional elements present will look as in (39), with the DP *het begin* ‘the beginning’ undergoing obligatory movement into a specifier position in the extended projection of P_3 (*af*), a postposition. The representation in (39) is still not a possible output because *aan* is a postposition and must therefore receive something to its left, in the specifier position of xPP_2 , in order to deliver a well-formed phrase.



Apart from the fact that PP_3 is a postpositional phrase, there are more differences between the adpositional phrases in (38) and their antonyms. This becomes immediately clear when we consider the expected counterparts to the (a)-examples in (38), given in (40). We have given these in a full clause: the reason for this is that, although the PPs *van het begin* and *van het begin af* are both impeccable as such, these examples show that only the latter can be used as an adverbial. The use of the percentage sign in (40b) indicates that in an informal questionnaire, all our informants (both linguists and non-linguists) accept this example, but that some of them consider it marked compared to the cases to be discussed below.¹⁰

- (40) a. ***Van het begin** was hij nerveus.
from the beginning was he nervous
- b. %**Van het begin af** was hij nerveus.
from the beginning off was he nervous
‘Right from the start he was nervous.’

¹⁰ Example (40b) seems to improve if the PP as a whole or the embedded NP is modified, as is clear from the fact that Google searches on *direct/meteen van het begin af* and *van het eerste begin af* ‘right from the beginning’ resulted in, respectively, 32 and 47 relevant hits (March 19, 2018).

On the assumption that representation (39) underlies all other cases, we correctly predict example (41a) to be acceptable. This example can in fact be derived in two possible ways: either postpositional PP_3 is moved into $SpecxPP_2$ directly or P_3 is incorporated into P_2 , after which the DP is moved into $SpecxPP_2$ (we leave aside the question as to whether DP is moved from its complement position within PP_3 directly or whether it is moved via $SpecxPP_3$). If the incorporation option is indeed available, we correctly predict that *af* can be reduplicated, leading to the adpositional phrase in (41b).

- (41) a. **Van het begin af aan** was hij nerveus. [structurally ambiguous]
 from the beginning off on was he nervous
- b. **Van af het begin af aan** was hij nerveus.
 from off the beginning off on was he nervous
 ‘Right from the start he was nervous.’

If the suggested analysis is correct, the examples in (41) are the structural antonyms of, respectively, (38b’)/(38c) and (38c’). Example (38b), however, does not seem to have a structural antonym: the relevant string would be as given in (42), but this string is judged unacceptable by us and all our informants (although we have found various cases on the internet including two cases from the 1977 bible translation produced by *Het Nederlands Bijbelgenootschap*, which, however, did not return in the new 2004 translation).

- (42) *Van het begin aan was hij nerveus.
 for the beginning on was he nervous

The reason for the contrast between (41a) and (42) might be that while *aan* can easily be used in circumpositional phrases in examples such as *De kinderen liepen achter de optocht aan* ‘The children followed the parade’, it is not possible to find postpositional phrases with *aan*; see the relevant lists in Broekhuis (2013: 33/50). If the same restriction holds for *aan* in (39), the contrast between (41a) and (42) is as expected. This leaves us with the antonyms of the (d)-examples in (38) in (43), which are predicted to be unacceptable. The fact that (43a) is marginally acceptable is not a problem given that it is homonymous to example (40b) with the structure [*van [het begin af]*], but the relative acceptability of (43b) is problematic for the analysis given above; we return to this case shortly.

- (43) a. ?**Van het begin af** was hij nerveus.
 from the beginning off was he nervous
 ‘Right from the start he was nervous.’
- b. ??**Van af het begin af** was hij nerveus.
 from off the beginning off was he nervous
 ‘Right from the start he was nervous.’

The fact that not all acceptable forms in (38) have a structural antonym could be accounted for by assuming that these adverbial *tot*-PPs differ from adverbial *van*-PPs with the meaning ‘(right) from the beginning (on)’ in that (i) *tot* but not *van* can select a DP complement and (ii) the postposition *toe* but not the postposition *aan* can select a DP complement. There are, however, reasons not to accept these conclusions. The first reason is that the examples in (41b) would then be special in that the first occurrence of *af* is followed by its complement, which is arguably impossible, *af* being a postposition. A bigger problem is that there is one perfectly acceptable form, given below as (44), which cannot be syntactically derived given the assumptions so far: the only feasible option would be saying that *van* takes a prepositional phrase *af het begin* as its complement but this would be expected

to lead to a severely degraded result because *af* is a postposition; example (44) shows that this expectation is not borne out.

- (44) **Van af het begin** was hij nerveus.
From off the beginning was he nervous

Examples of this type seem to be a relatively recent innovation in the Dutch-speaking world (the first attestations date back to the early 19th century) and have given rise to a lot of opposition from prescriptive grammarians; cf. *Woordenboek der Nederlandsche Taal* (lemma VANAF) and Van der Sijs (2005: 113). What we might suggest is that *vanaf* is a compound which differs from *van* in (40) in that it is able to select a DP-complement. In fact, *vanaf* may also be able to select the postpositional phrase *het begin af*, which would then account for the problematic example in (43b) as well.

The discussion above has shown that it is not possible to mechanically transpose the analysis developed for *tot (aan) het einde (aan (toe))* to their antonyms meaning ‘(right) from the beginning (on)’, due primarily to the fact that the preposition *van* heading the adpositional phrase differs from *tot* in that it imposes additional restrictions on its complement. Obtaining a clear view on the internal structure of these adpositional *van*-phrases is further hampered by the fact that they appear to have a competing form headed by the compound *vanaf*. The syntax of (40) to (44) thus remains on the agenda. But what we hope to have shown is that for (38) a comprehensive structural perspective can be upheld based on the underlying representation in (6).

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Competing Interests

The authors have no competing interests to declare.

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