

# The Freezing Points of the (Dutch) Adjectival System<sup>1</sup>

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## 1 Introduction

Freezing refers to the phenomenon that a constituent becomes an island for extraction when that constituent has undergone syntactic movement (Ross 1967, Wexler and Culicover 1980, Corver 2006). In other words, the constituent is opaque ('frozen') in its movement-derived position. When it occupies its base position, the constituent is typically transparent for subextraction if the base position is a non-adjunct position. The freezing phenomenon is exemplified by the Dutch example in (1):<sup>2</sup>

- (1) Ik vraag me af ...  
 I wonder REFL PRT ...  
 'I wonder ...'
- a. of Jan <daaraan> gisteren <daaraan> gedacht heeft.  
 whether Jan that.of yesterday thought has  
 'whether Jan thought of that yesterday.'
- b. *waar*<sub>i</sub> Jan <\**t*<sub>i</sub> aan> gisteren <*t*<sub>i</sub> aan> gedacht heeft.  
 what Jan of yesterday thought has  
 'what Jan thought of yesterday.'

(1a) shows that the PP *daaraan*, which consists of an R-pronominal variant of the demonstrative *dat* 'that' and the adposition *aan*, can occur in the complement position immediately to the left of the verb *gedacht* or in a scrambled position in the middle field of the clause; i.e., a position to the left of the adverbial element *gisteren*. It is generally assumed that the R-pronominal PP occupies the latter position as a result of PP-displacement, a movement phenomenon that is sometimes characterized as an instance of 'scrambling'. As shown in (1b), subextraction of the interrogative R-pronominal form *waar* is possible if the PP occupies its base position. Subextraction from the derived position is blocked.

The phenomenon of freezing has mostly been studied on the basis of displacement phenomena that apply to satellite constituents, especially arguments, of the verb. The freezing behavior of satellites of other categorial heads—such as nouns, adjectives and prepositions—has been examined less systematically. Obviously, it is important to find out to what extent the phenomenon of freezing is a cross-categorial phenomenon. That is, does displacement of a satellite (YP) of head H, where H equals V, N, A, and P, consistently lead to a freezing effect?

The aim of this chapter is to systematically investigate the freezing behavior of satellite constituents that find their origin within the extended adjectival projection. For this, I will describe and analyze a number of Dutch adjectival construction types that seem to involve word order rearrangement. The question that will be addressed for each construction type is to what extent word order rearrangement yields a freezing effect. Or to put it differently, which *loci* within (but also outside of) the Dutch adjectival system constitute "freezing points"?

The chapter is organized as follows: In section 2, it is shown that certain adjectives allow their PP-complement to occur either in a post-adjectival position (A+PP) or in a pre-adjectival position (PP+A). In spite of this word order rearrangement, subextraction is possible from both PPs. This raises the question as to why freezing is absent even though the PPs seem to occupy different positions. Section 3 discusses adjectival patterns in which the PP-complement occurs in the left periphery of the eXtended Adjectival Projection (XAP) or occupies a position external to XAP and

<sup>1</sup> I am grateful to two anonymous reviewers and the editors of this volume for their useful comments on an earlier draft of this article. All errors are my own.

<sup>2</sup> '< $\alpha_1$ > ... < $\alpha_2$ >' designates that  $\alpha$  occupies either syntactic position  $\alpha_1$  or syntactic position  $\alpha_2$ . In the gloss I will only give the translation of the first occurrence of  $\alpha$  in the sentence.

within the clausal middle field.<sup>3</sup> It will be shown that the PP occupies a derived (i.e., non-base) position and that subextraction from PP is blocked. In other words, there is a freezing effect. Section 4 discusses the pattern PP-A-*er*, where *-er* is a bound comparative morpheme. It will be shown that, while subextraction is possible when the PP precedes a positive adjective, subextraction is blocked when the adjective has a comparative form. It will be proposed that the sequences PP-A<sub>positive</sub> and PP-A-*er*, even though linearly similar, have different hierarchical organizations. The different hierarchical placement of the PP-complements in the two adjectival structures accounts for the asymmetric subextraction behavior. Section 5 discusses freezing effects of object-DPs of so-called transitive adjectives (i.e., adjectives that, at the surface, select a bare DP rather than a PP). Section 6 examines the freezing behavior of an indirect object-DP/-PP that is selected by the degree word *te* 'too'. Section 7 gives a brief discussion of freezing effects from the perspective of labeling theory. Section 8 concludes the chapter.

## 2 Word order variation without a freezing effect

This section discusses the absence of a freezing effect in spite of the presence of a word order rearrangement within the adjectival domain. Specifically, with certain adjectives, an argumental PP (i.e., a PP selected by A) can either precede or follow the adjective. This is exemplified in (2), where '< > A < > ' indicates that the PP occurs either in a pre-adjectival position or in a post-adjectival one:<sup>4</sup>

- (2) a. ..dat Jan <daarvan> afhankelijk <daarvan> is.  
 ..that Jan that.on dependent is  
 '..that Jan is dependent on that.'
- b. ..dat Jan <daarvoor> gevoelig <daarvoor> is.  
 ..that Jan that.to sensitive is  
 '..that Jan is sensitive to that.'
- c. ..dat Jan <daaraan> gewend <daaraan> raakte.  
 ..that Jan that.to accustomed got  
 '..that Jan got accustomed to that.'

As exemplified in (3), which is based on (2a), subextraction is possible from both PP-positions:

- (3) Ik vraag me af [<sub>CP</sub> waar<sub>i</sub> Jan <t<sub>i</sub> van> afhankelijk <t<sub>i</sub> van> is].  
 I wonder REFL PRT what Jan on dependent is  
 'I wonder what Jan is dependent on.'

The question arises as to why freezing is absent even though the PPs seem to occupy different positions within the adjectival domain.

It should be noted that the phenomenon in (2) is not attested with all adjectives. Many adjectives have a strong preference for a post-adjectival argumental PP, as in (4):

- (4) a. ..dat Jan <<sup>??</sup>daarvan> bang <daarvan> is.  
 ..that Jan that.of afraid is  
 '..that Jan is afraid of that.'
- b. ..dat Jan <<sup>??</sup>daarop> trots <daarop> is.  
 ..that Jan that.of proud is  
 '..that Jan is proud of that.'

As expected, these adjectives permit subextraction only from the post-adjectival PP:

<sup>3</sup> See Grimshaw (1991) for the notion of 'Extended Projection'. See also Corver (1997b, 2013).

<sup>4</sup> Other adjectives displaying this behavior are: *gesteld op* 'keen on', *geschikt voor* 'suitable for', *ingenomen met* 'delighted with', *verliefd op* 'in love with', *verwant aan* 'related to', *bekend met* 'familiar with', *bevreesd voor* 'fearful of', *bereid tot* 'willing to'. See also Corver (1997b), Broekhuis (2013).

- (5) Ik vraag me af [waar<sub>i</sub> Jan <\*t<sub>i</sub> van> bang <t<sub>i</sub> van> is].  
 I wonder REFL PRT what Jan of afraid is  
 'I wonder what Jan is afraid of.'

The question arises how to characterize this dichotomy in the class of adjectives. In line with Corver (1997b) and Broekhuis (2013), I propose that adjectives like *afhankelijk*, *gevoelig*, and *gewend* in (2) are deverbal. Their deverbal status comes from two observations: Firstly, some of those adjectives display participial morphology and as such are formally similar to verbal forms (e.g., *gewend*, *gevoelig*). Secondly, some of those adjectives are derivationally related to a verb. For example, *afhankelijk (van)* 'dependent (on)' clearly relates to the verb *afhangen (van)* 'to depend (on)', and *gevoelig voor* 'sensitive to' relates to the verb *voelen* 'to feel/to sense'.

In section 2.1, I discuss the transparency of PP as exemplified in (3). Section 2.2 discusses two approaches to the subextraction patterns in (3) that take the pre- and postverbal PP in (3) to occupy a single structural base position. In section 2.3, I propose an analysis according to which both PPs in (3) occupy a base position but the preverbal position is structurally distinct from the postverbal one. In other words, more than one structural base position can be identified for adjectives like *afhankelijk*.

### 2.1 Transparent PPs

Consider again the word order variation in (2): adjective + PP *versus* PP + adjective. If this word order variation resulted from PP-displacement, we would (incorrectly) predict a freezing effect for one of the PP-positions. As an alternative approach, one might propose that this word order variation results from movement of an adjective (or adjectival phrase), so that the PP remains *in situ*. Under this PP-*in-situ* analysis, subextraction from PP is predicted to be possible. No freezing effect obtains, since, in both word order patterns, the PP is in its base position (i.e., a non-derived position). The question, obviously, arises whether there is any independent support for this PP-*in-situ* approach.

A first argument in support of the PP-*in-situ* approach comes from the distribution of PPs containing a weak (i.e., unaccented) pronoun (see also Broekhuis 2013:67). As shown in (6), this “weak PP” can occur both to the left and to the right of the adjective:

- (6) a. ..dat Jan nooit <ervan> afhankelijk <ervan> was.  
 ..that Jan never it.on dependent was  
 ‘..that Jan has never been dependent on it.’  
 b. ..dat Jan nooit <van ’m> afhankelijk <van ’m> was.  
 ..that Jan never of him<sub>weak</sub> dependent was  
 ‘..that Jan has never been dependent on him.’

It is unlikely that one of the word orders in (6) results from displacement of the PP, this for the reason that weak PPs typically do not undergo displacement. This immobility of weak PPs is illustrated in (7a) and (7b). In (7a), the PP has been “scrambled” to a position in the clausal middle field; more specifically, to a position preceding the clause-internal modifier *nooit*. In (7b), the weak PP has been topicalized to Spec,CP.<sup>5</sup>

- (7) a. \*..dat Jan *ervan/van ’m* nooit *afhankelijk* was. (compare with (6a,b))  
 b. \**Ervan/van ’m* was Jan nooit *afhankelijk*.

A second observation regarding the distribution of weak pronominal PPs is that they can occupy a position in between the degree modifier *erg* 'very' and the adjective: *erg PP<sub>weak</sub> A*. This is exemplified in (8), where the string *erg afhankelijk ervan/erg ervan afhankelijk* has been moved to Spec,CP; that is, to the initial position of the clause that is followed by the finite verb, which is moved to C in Dutch main clauses (the well-known Verb Second phenomenon). The fact that this string can occupy the position preceding the finite verb shows that it forms a constituent, viz., an adjectival phrase.

<sup>5</sup> I use the term Scrambling in a descriptive way. As shown in Broekhuis (2008), different types of displacement to the so-called clausal middle field fall under this cover term. See also Broekhuis & Corver (2016) for discussion of the different types of movement operations that fall under the notion of scrambling.

- (8) [*Erg* <*ervan*<sub>2</sub>> *afhankelijk* <*ervan*<sub>1</sub>>]<sub>i</sub> is Jan nooit *t<sub>j</sub>* geweest.  
 very it.of dependent has Jan never been  
 'Jan has never been very dependent on it.'

The placement of the weak PP in between the modifier *erg* and the adjective suggests that this weak PP occupies a structurally low position. I propose it is a base position.

As shown in (9), both PP-positions are transparent for extraction:

- (9) ..dat Jan *er<sub>i</sub>* nooit [*erg* <*t<sub>i</sub> van*> *afhankelijk* <*t<sub>i</sub> van*>] is geweest.  
 ..that Jan it never very on dependent has been  
 'that Jan has never been very dependent on it.'

If we assume that the placement of weak PPs and the possibility of subextraction from PP are diagnostic signs for base (i.e., non-derived) positions, we can take the PP in the sequences *erg*+A+PP and *erg*+PP+A to occupy a base position. The following question needs to be addressed then: Exactly what syntactic position corresponds to this base position? In what follows, I will briefly discuss two approaches to answering this question, each of which has two variants. According to the first approach, the base position corresponds to a single syntactic position; according to the second approach, there are two possible base positions for the PP-complement. I will first discuss the 'single base position' approach.

## 2.2 The 'single base position' approach

Traditionally, it is assumed that adjectives such as *trots* 'proud' and *bang* 'afraid' take their complement to the right: A+PP; (see (4)). The relation between P and its associated DP is considered to be thematic; that is, P assigns, or plays a role in the assignment of, a thematic role to its object-DP. If A+PP is also the base order for adjectives such as *afhankelijk* 'dependent' and *gevoelig* 'sensitive' in (2), then the word order PP+A, with PP *in situ*, can be derived by moving A to the right, across the PP complement, to a (right branch) functional head; see Corver (1997b), in which F equals (adjectival) Agr. This displacement operation is depicted in (10).

- (10) a. [<sub>FP</sub> [<sub>AP</sub> A PP] F] → [<sub>FP</sub> [<sub>AP</sub> *t<sub>i</sub>* PP] F+A<sub>i</sub>]  
 b. [<sub>FP</sub> [<sub>AP</sub> *afhankelijk ervan*] F] → [<sub>FP</sub> [<sub>AP</sub> *t<sub>i</sub> ervan*] F+*afhankelijk<sub>i</sub>*]

As an alternative to (10), one might consider an approach in which the adjectival constituent does not move rightward but rather leftward, leaving the PP *in situ*. In recent years, especially under the influence of Kayne's (1994) theory of antisymmetry of syntax, the existence of rightward syntactic displacements, as in (10), has sometimes been doubted. A possible implementation of this leftward movement approach would be one which, in the spirit of Kayne (2000, 2004), does not take the PP to be base generated as a complement of (i.e., E-merged with) A, but rather to be introduced later in the derivation. Specifically, the preposition is merged externally to AP and acts as a probe attracting the DP-complement (i.e., internal argument) of A. In other words, P's role is not theta-role-related. It is the adjective that is solely responsible for theta-role assignment to the internal argument. The internal DP-argument raises to the specifier position of the prepositional probe (arguably, for reasons of case assignment). This movement operation is (sometimes) followed by movement of P to some higher functional head W (mnemonic for word order) within the extended adjectival projection. Spec,WP functions as a potential landing site for a "small" adjectival projection (AP) that has been moved within the (bigger) XAP.<sup>6</sup>

<sup>6</sup> Another approach towards the word order variation A-PP and PP-A would be along the lines of Barbiers' (1995) analysis of PP-extraposition phenomena in the Dutch clausal domain. According to Barbiers, the word order PP-V, as in *Jan heeft in die stad gewerkt* (Jan has in that city worked), can be derived from *Jan heeft gewerkt in die stad* by moving VP into the specifier position of PP. This is exemplified in (i):

- (i) a. [<sub>VP</sub> [<sub>PP</sub> in die stad] [<sub>VP</sub> gewerkt]] (base order: PP-V)  
 b. [<sub>VP</sub> [<sub>PP</sub> *gewerkt<sub>i</sub>* [<sub>PP</sub> in die stad]] [<sub>VP</sub> *t<sub>i</sub>*]] (derived order: V-PP)

If one extends this approach to adjectival expressions, the base order *van 'm afhankelijk* can be changed into *afhankelijk van 'm* by moving the PP into the specifier position of AP:

To make things more concrete, the derivational steps of this leftward movement approach are depicted in (11) for the adjectival expressions *ervan afhankelijk* (it.on dependent; 'dependent on it') and *afhankelijk ervan* (dependent it.on; 'dependent on it').

- |         |   |  |
|---------|---|--|
| (11) a. | $[_{AP} \text{afhankelijk het}]$  | base structure   |
| b.      | $\text{van } [_{AP} \text{afhankelijk het}]$  | E-merge of P   |
| c.      | $[_{PP} \text{het}_i \text{ van } [_{AP} \text{afhankelijk } t_i]]$   | I-merge of Object                                      |
| d.      | $[_{PP} \text{er}_i \text{ van } [_{AP} \text{afhankelijk } t_i]]$<br>(linear order: <i>ervan afhankelijk</i> )                     | conversion: <i>het+van</i> $\rightarrow$ <i>er+van</i> |
| e.      | $W [_{PP} \text{er}_i \text{ van } [_{AP} \text{afhankelijk } t_i]]$  | E-merge of W   |
| f.      | $[_{WP} [\text{afhankelijk } t_i]_k [_{W'} W [_{PP} \text{er}_i \text{ van } [t_k]]]]$<br>(linear order: <i>afhankelijk ervan</i> ) | I-merge of AP  |

This derivation consists of the following steps: First, A combines with its internal argument *het* (11a).<sup>7</sup> Second, P combines with AP (11b). Third, the argument *het* is moved into the specifier position of P (11c). Fourth, the pronoun *het* 'it' gets an R-pronominal form (*er*) when it occupies the specifier of P (see Van Riemsdijk 1978). Fifth, the functional head W combines with PP (11e). Sixth, in order to derive the order *afhankelijk ervan*, a final movement step needs to take place, viz., movement of AP to the specifier of W (11f).

Notice that the PP remains *in situ* in (11). There is no point in the derivation at which the PP is displaced. The crucial derivational step that yields the word order alternation PP-A *versus* A-PP is the final step: movement of AP to Spec,WP. The fact that *er* is accessible to movement both in (11d) and in (11f) follows from the fact that in both patterns the PP occupies its base position. Subextraction of *er* out of this base-generated PP-position is permitted; see (9).

So far, we have seen that both the analysis in (10) and the one in (11) account for the absence of freezing in the patterns A+PP and PP+A. But the question, obviously, arises as to what triggers the displacement operation. In the case of (10), what triggers rightward head movement of *afhankelijk* to F, and, in the case of (11), what motivates AP-movement to Spec,WP? Reversely, the question can be raised as to why adjectives such as *bang* 'afraid' and *trots* 'proud' cannot undergo such a displacement operation; that is, why are they restricted to the word order A+PP?

## 2.2 The 'multiple base position' approach

As was hinted at above, adjectives such as *afhankelijk* 'dependent' and *gevoelig* 'sensitive' differ from adjectives such as *bang* and *trots* in being deverbal. Somehow, this distinction between deverbal versus non-deverbal (say, "normal/regular") should be reflected in the syntactic analysis. Specifically, the analysis in (10) needs a "verbal" trigger on F that attracts *afhankelijk* but not *bang*. The analysis in (11), however, needs a "nonverbal" trigger on W that would obligatorily attract the AP *bang* (as in *bang ervan*) but optionally attract the AP *afhankelijk* (see (11f)). Since the exact nature of the feature triggering A(P)-displacement is not entirely clear for the two analyses, it seems fair to consider alternative approaches that still start from the assumption that subextraction from PP is possible only if PP occupies a base position. If neither PP-movement nor A(P)-movement is at the basis of the word order variants A+PP and PP+A, then the conclusion seems inescapable that adjectives such as *afhankelijk* can have two base positions for PP. One way of implementing this idea would be to say that adjectives like *afhankelijk* allow for flexible base-generation of the PP, i.e., both in pre- and in post-adjectival position. Thus, both  $[_{AP} \text{afhankelijk } PP]$  and  $[_{AP} PP \text{afhankelijk}]$  would be base-generated word orders. This flexibility of word order might be accounted for in terms of directionality of theta-assignment (see Koopman 1984, Travis 1984); that is, *afhankelijk* is lexically specified as being able to assign its (internal) thematic role both to the right and to the left. An adjective like *bang*, on the contrary, can assign its (internal) theta role only to the right. The possibility of leftward theta role assignment might be a verbal trait of deverbal adjectives.

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- (ii) a.  $[_{AP} [_{PP} \text{van 'm}] [_{AP} \text{afhankelijk}]]$  (base order: PP-A)  
 b.  $[_{AP} [_{PP} \text{afhankelijk}_i [_{PP} \text{van 'm}]] [_{AP} t_i]]$  (derived order: A-PP)

For more discussion, see Barbiers (1995).

<sup>7</sup> In this article I will abstract away from the syntactic placement of the external argument of the extended adjectival projection.

tives like *afhankelijk*. If one takes SOV to be the basic word order in Dutch (see Koster 1975), then leftward theta-assignment is a verbal characteristic.

Instead of (lexically) encoding the two base word orders (*afhankelijk*+PP, PP+*afhankelijk*) in terms of bi-directionality of theta-assignment, one might also propose that PP occupies a base position but that the structural environment in which PP is embedded differs for the two (base) word orders. Specifically, one might propose that "regular" adjectives such as *bang* 'afraid' and *trots* 'proud' always take their PP-complement to the right. Thus, A+PP. This would be the order we find in *bang daarvan* (4a) and *afhankelijk daarvan* (2a).<sup>8</sup> Suppose now that the PP+A word order, as in *daarvan afhankelijk* (see (2a)), is the "verbal" word order. Notice at this point that under an SOV-analysis of Dutch basic word order, the PP-complement typically precedes the verb:<sup>9</sup>

- (12)a. ...dat Jan ervan afhangt.  
       ...that Jan it.on depends  
       '...that Jan depends on it.'  
 b. ...dat Jan ervan afhankelijk is.  
       ...that Jan it.on dependent is  
       '...that Jan is dependent on it.'

As a next step in the argumentation, one might represent the parallelism depicted in (12) at the categorial level: *ervan afhankelijk* displays verb-like word order because the adjectival expression actually contains a verbal projection, as is depicted in (13):<sup>10</sup>

- (13) [AP [VP [PP ervan] afhang]] -elijk] → [AP [VP [PP ervan] ~~afhang~~] afhang-elijk]

In (13), we have an adjectival expression in which the adjectival suffix *-elijk* takes a verbal projection (VP) as its complement. Just as with other verbal projections, the PP-complement precedes the verbal root.

In what follows I will adopt this last approach to the word orders *afhankelijk ervan* and *ervan afhankelijk*. According to this approach, each word order corresponds to a different configurational structure: *afhankelijk ervan* is a regular AP (see below, though). This means that it has the same structural analysis as, for example, *bang ervan* 'afraid of it'. The pattern *ervan afhankelijk* is special in the sense of being an adjectival expression containing a verbal part. Importantly, in both patterns, the PP occupies its base position and therefore subextraction from PP is permitted with both word orders.

The question obviously arises as to whether there is any independent support for the presence of a VP-projection in expressions like *ervan afhankelijk*. The behavior of degree words seems to provide evidence in support of a VP-layer in adjectival expressions having a deverbal adjective as their head. It turns out that degree words that modify a deverbal adjective display the same grammatical behavior as degree words that act as modifiers of clause-internal VPs. Furthermore, their behavior differs from those degree words that modify regular adjectives such as *bang* 'afraid' and *trots* 'proud'. Let us first consider some asymmetries between degree modifiers of deverbal adjectives and degree modifiers of regular adjectives and then turn to the parallelism between degree modifiers of deverbal adjectives and degree modifiers of verbs.

First of all, even though both *bang* and *afhankelijk*, being gradable, can be modified by the degree modifier *erg* 'very' (see (14)), they display a striking contrast: *erg* can have a synthetic comparative form when it modifies the deverbal adjective *afhankelijk* but not when it modifies the regular adjective *bang*. This contrast is exemplified in (15). Note in passing that the sequence 'degree modifier + A + PP (+ *dan*-phrase)' occurs at the beginning of the clause and precedes the finite verb of the main clause. This shows that the sequence forms a constituent (in Spec,CP).

<sup>8</sup> It will be argued later that the surface pattern *afhankelijk daarvan* actually has two structural analyses, one corresponding to that of regular adjectives and one corresponding to deverbal adjectives, where 'deverbal' implies the presence of a verbal projection in XAP.

<sup>9</sup> In Dutch, PPs can also occur in postverbal (i.e., extraposed) position. A weak PP like *ervan*, however, typically cannot occupy a postverbal position: \*...dat Jan afhangt ervan (that Jan depends it.on, '...that Jan depends on it').

<sup>10</sup> I would like to thank the reviewers for helpful suggestions regarding the analysis of deverbal adjectives. Note that the analysis in (13) is somewhat reminiscent of the one which has been proposed for gerunds like *John's eating the apple*. Gerunds have been argued to contain a noun phrase (DP-) internal VP-layer (see e.g., Abney 1987). Schematically: [<sub>DP</sub> John's [<sub>VP</sub> eating the apple]]. Externally, the gerund behaves like a nominal expression; internally, its lower layer displays verbal behavior (e.g., selection of a DP-argument to its right).

- (14)a. Erg bang ervan was Jan niet.  
 very afraid it.of was Jan not  
 'Jan wasn't very afraid of it.'
- b. Erg ervan afhankelijk was Jan niet.  
 very it.on dependent was Jan not  
 'Jan wasn't very dependent on it.'
- (15)a. \*Nog erger bang ervan dan Piet was Jan.  
 still very-COMPAR afraid it.of than Piet was Jan  
 'Jan was even more afraid of it than Piet was.'
- b. Nogerger ervan afhankelijk dan Piet was Jan.  
 still very-COMPAR it.of dependent than Piet was Jan  
 'Jan was even more dependent on it than Piet was.'

Secondly, the free comparative morpheme *meer* 'more' easily combines with the deverbal adjective *afhankelijk* but less easily with the regular adjective *bang*. This is exemplified in (16). As will be discussed more elaborately later, regular adjectives such as *bang* typically combine with the bound morpheme *-er* in comparative formation, as in *bang-er* (afraid-COMPAR, 'more afraid').<sup>11</sup>

- (16)a. <sup>??</sup>Meer bang daarvan dan Piet was Jan.  
 more afraid that.of than Piet was Jan  
 'Jan was more afraid of that than Piet was.'
- b. Meer daarvan afhankelijk dan Piet was Jan.  
 more that.on dependent than Piet was Jan  
 'Jan was more dependent on that than Piet was.'

Thirdly, the *dan*-phrase that cooccurs with the free comparative morpheme *minder* 'less' can immediately follow the comparative morpheme when it modifies a deverbal adjective. This is illustrated in (17b). As shown by (17a), however, the *dan*-phrase cannot immediately follow *minder* when the latter acts as a modifier of a regular adjective like *bang*. In (18) the same contrast is shown for the equative pattern *net zo ... als XP* 'as ... as XP'.

- (17)a. [Veel minder <\*dan Piet> bang daarvan <dan Piet>] was Jan.  
 much less thanPiet afraid that.of was Jan  
 'Jan was much less afraid of that than Piet was.'
- b. [Veel minder <danPiet> daarvan afhankelijk <danPiet>] was Jan.  
 much less thanPiet that.on dependent was Jan  
 'Jan was much less dependent of that than Piet was.'
- (18)a. [Net zo erg <\*als Piet> bang daarvan <als Piet>] was Jan.  
 just so very as Piet afraid that.of was Jan  
 'Jan was just as afraid of that as Piet was.'
- b. [Net zo erg <als Piet> daarvan afhankelijk <als Piet>] was Jan.  
 just so very as Piet that.on dependent was Jan  
 'Jan was just as dependent on that as Piet was.'

Fourthly, even though both *bang* and *afhankelijk* can be preceded by the sequence *hoe erg* 'how much'—as exemplified in (19), where pied piping of the entire adjectival expression has taken place—subextraction of this sequence is possible only from an adjectival expression "headed" by a deverbal adjective like *afhankelijk*. This is exemplified in (20b). As shown by (20a), subextraction of *hoe erg* yields an ill-formed result when it takes place from an adjectival expression headed by a regular adjective like *bang*:

- (19)a. Hoe erg bang ervan is Jan?  
 how very afraid it.of is Jan  
 'How afraid of it is Jan?'

<sup>11</sup> In section 4, it will be shown that (synthetic) comparative formation by means *-er* is also possible with *afhankelijk*.

- b. Hoe erg ervan afhankelijk is Jan?  
 how very it.on dependent is Jan  
 'How dependent on it is Jan?'

- (20) a. \*Hoe erg is Jan [~~hoe erg~~ bang ervan]?  
 how very is Jan afraid it.of  
 'How afraid of it is Jan?'  
 b. Hoe erg is Jan [~~hoe erg~~ ervan afhankelijk]?  
 how very is Jan it.on dependent  
 'How dependent on it is Jan?'

Fifthly, as also noted in Broekhuis (2013:156-57), the modifier *voldoende* 'sufficiently' combines most naturally with deverbal adjectives, as shown in (21b). When it combines with a regular adjective, the result is quite marked, as is shown in (21a):

- (21) a. ?\*Jan is [voldoende goed/slim om die baan te kunnen krijgen].  
 Jan is sufficiently good/smart for that job to be.able get  
 'Jan is good/smart enough for getting that job.'  
 b. Jan is [voldoende onderlegd/ontwikkeld om die baan te kunnen krijgen]  
 Jan is sufficiently educated/developed for that job to be.able get  
 'Jan is sufficiently educated/developed for getting that job.'

Sixthly, and related to the previous point, the modifier *genoeg* 'enough' can at least marginally occur in a position preceding the deverbal adjective (see (22b)). As shown by (22a), placement of *genoeg* in front of a regular adjective yields a strongly ill-formed sentence.

- (22) a. Jan is [<\*genoeg> slim <genoeg> om die baan te kunnen krijgen].  
 Jan is enough smart for that job to be.able get  
 'Jan is smart enough to get that job.'  
 b. Jan is [<?genoeg> ontwikkeld <genoeg> om die baan te kunnen krijgen]  
 Jan is sufficiently educated for that job to be.able get  
 'Jan is sufficiently educated to get that job.'

On the basis of the contrasts exemplified in (15)-(22), the conclusion can be drawn that regular and deverbal adjectives display different grammatical behavior as regards their degree modifiers. It turns out that the grammatical behavior of degree modifiers that combine with a deverbal adjective is very similar to that of degree modifiers that modify a verb phrase that is part of a clause. Consider the following examples:

- (23) a. [Nog erger gehuild dan Piet] had Jan. (compare (15b))  
 even much-COMPAR cried than Piet had Jan  
 'Jan had cried even more than Piet had.'  
 b. [Meer gehuild dan Piet] had Jan. (compare (16b))  
 more cried than Piet had Jan  
 'Jan had cried more than Piet had.'  
 c. [Veel minder <dan Piet> gehuild <dan Piet>] had Jan. (compare (17b))  
 much less than Piet cried had Jan  
 'Jan had cried much less than Piet had.'  
 d. [Net zo erg <als Piet> gehuild <als Piet>] had Jan. (compare (18b))  
 Just so much as Piet cried had Jan  
 'Jan had cried just as much as Piet had.'  
 e. Hoe erg had Jan ~~hoe erg~~ gehuild? (compare (20b))  
 how much had Jan cried  
 'How much had Jan cried?'

- f. Je hebt nu [voldoende gehuild]. (compare (21b))  
 you have now sufficiently cried  
 'You have cried enough now.'
- g. Je hebt nu [genoeg gehuild] (compare (22b))  
 you have now enough cried  
 'You have cried enough now.'

Given this parallelism, I propose that the degree modifiers in the b-examples in (14)-(22) are part of a VP that is selected by the adjectival suffix *-elijk*. For the sake of the argument, I place the degree modifier (XP) in the specifier position of a functional head (see Cinque 1999), which is simply represented here as F.

- (24) [AP [FP XP<sub>degree</sub> [F' F [VP [PP *ervan*] *afhang*]]] -elijk  
 where XP = *erg, erger, meer, minder dan Piet, net zo erg als Piet, hoe erg, voldoende, genoeg*

As indicated in (24), the degree modifier is a phrasal constituent. This is most clearly shown by complex modifiers such as *minder dan Piet, net zo erg als Piet*, and *hoe erg*. The fact that the *dan/als*-phrase can stay within the degree modifier and does not have to occur in extraposed position, as shown in (17b)-(18b), shows that the right recursion restriction (or whatever principle from which this effect can be derived) is not active in this structural environment. As is well-known (see e.g., (23c,d)), this restriction does not apply to clause-internal VPs either.

Let us now turn to the syntactic placement of degree words that modify regular adjectives. Following Corver (1997a,b), I propose that they are part of the functional structure that is built on top of the lexical projection AP. Specifically, I propose the following representations:

- (25) a. [QP Spec [Q' *erg* [AP *bang* PP]]] (see (14))  
 b. [QP Spec [Q' -*er* [AP *bang* PP]]]  
 c. [QP *min-* [Q' -*der* [AP *bang* PP]]] *dan* XP (see (17a))  
 d. [DegP [Deg *hoe*] [QP [Q' *erg* [AP *bang* PP]]] (see (19a)-(20a))<sup>12</sup>  
 e. [QP [Q' *bang+genoeg* [AP *bang* PP]]] (see (22a))

As shown in (25a), I take *erg* 'very' to be the lexicalization of Q<sub>[+positive]</sub>, where Q is the functional head that is associated with positive, comparative (see (25b)) and superlative degree. The fact that *erg* cannot combine with the comparative morpheme *-er*, as shown in (15a), follows from the fact that they compete for the same syntactic slot, viz. Q. I take *minder* in (17a) to be a composite form (see (25c)), of which the final part, *-er*, designates 'comparison', and the first part, *mee-/min-*, higher and lower degree, respectively. Importantly, the *dan*-phrase, even though in a selectional relationship with *-er*, does not immediately follow the *meer/minder* for the simple reason that Q<sub>[+comparison]</sub> first combines with its lexical complement AP. In (25d), the interrogative degree word *hoe* occupies the left peripheral head Deg and *erg* lexicalizes Q<sub>[positive]</sub>. The fact that the sequence *hoe erg* cannot be extracted out of the adjectival projection (see (20a)) follows immediately from this structure: *hoe* and *erg* do not form a constituent. Movement of the sequence *hoe erg* would violate the constituency requirement on displacement operations. As depicted by (25e), finally, I take *genoeg* to be a Q-head that can lexically select an AP and attract the adjectival head, yielding an inverted pattern: *bang genoeg*.<sup>13</sup> The lexical entry of the quantifying element *voldoende* is not specified for AP-selection, whence the unacceptability/markedness (?) of *voldoende goed/slim/bang* (see (21a)).

So far, I have argued that an adjective phrase having a regular adjective as its core element (e.g., *bang daarvan* 'afraid of that') behaves differently from an adjective phrase having a deverbal adjective as its core element (e.g., *daarvan afhankelijk* 'dependent on that'). The latter, it was argued, contains a verbal projection selected by an adjectival suffix (e.g., *-elijk*), as in (13). The possibility of having the PP-complement to the left of the deverbal adjective is a reflex of this verbal component. I assume that Dutch verbs take their complement to the left: PP + V. Recall, though, that deverbal adjectives like *afhankelijk* can also have their complement to the right, as in *afhankelijk daarvan* (see (2a)). Furthermore, as was shown in (6), this PP can be a "weak" PP (e.g., *ervan* 'on it', *van 'm* 'of him'). Since weak PPs cannot be displaced, the word order *afhankelijk ervan/van 'm* cannot be derived in terms of rightward movement from within the verbal part of the extended adjectival projection to its adjectival part, as in (26).

<sup>12</sup> As we will see later, *erg* can also be absent, as in *Hoe bang ervan is Jan?* (how afraid it of is Jan; 'How afraid of it is Jan?').

<sup>13</sup> Notice that the *genoeg*-inversion pattern is not possible in patterns where *genoeg* modifies a verb. Thus, (23g) cannot be transformed into: \**Je hebt nu gehuild genoeg*. In short, *genoeg*-inversion can only apply in an adjectival environment.

(26) [AP [AP [FP XP<sub>degree</sub> (e.g., erg) [F' F [VP ~~ervan afhang~~]]] afhang-elijk] [PP ervan]]

Notice also that the derivation depicted in (26) would raise the question why subextraction from PP is possible. That is, PP-arguments to the immediate right of a deverbal adjective permit subextraction, as was exemplified in (9), which is repeated here as (27):

(27) ..dat Jan *er*<sub>i</sub> nooit [erg <<sub>t</sub><sub>i</sub> van> *afhankelijk* <<sub>t</sub><sub>i</sub> van>] is geweest.  
 ..that Jan it never very on dependent has been  
 '.. that Jan has never been very dependent on it.'

If the word order 'deverbal adjective + PP' is a base-generated one, then the question arises how this order is derived. One way to go would be to say that a deverbal adjective like *afhankelijk* is lexically and structurally ambiguous. Specifically, one might argue that besides the derived (i.e., truly de-verbal) pattern in (24), where *afhankelijk* has a composite form, there is also a non-composite analysis of *afhankelijk*; that is, *afhankelijk* is a single lexeme (say, [<sub>A</sub> *afhankelijk*]), just like regular adjectives such as *bang* and *trots*. Under this non-composite analysis, *afhankelijk* takes the selected PP to its right in the base structure, just like regular adjectives: [AP *afhankelijk* [PP *ervan*]]. Although, as we will see later, this structural analysis is certainly an option provided by the grammar, it should be noted that also the word order pattern *afhankelijk ervan* can display "verbal" behavior of its degree modifiers; i.e., the degree modifier can exhibit the same grammatical behavior as those that are contained within clause-internal VPs (see (23)). Crucially, under the approach adopted here, this would imply that also for the sequence *afhankelijk ervan* a representation like (24) should be possible, but with the crucial difference that the PP is in a base-generated position to the right of *afhankelijk*. Let me first give the representation that I have in mind for deverbal *afhankelijk ervan* and then turn to the facts that show that degree elements modifying *afhankelijk ervan* behave like VP-modifiers.

As for the structural representation of (erg) *afhankelijk ervan*, I propose that *afhankelijk* has a verbal component, just like (24), and that the theta-role of the verbal root *afhang-* is not discharged immediately within the AP-internal VP but at a later moment, namely after *afhang-* has been combined with (adjoined to) the adjectival suffix *-elijk*. After the adjectival form *afhankelijk* has been derived (i.e., [<sub>A</sub> [<sub>V</sub> *afhang-*] *-elijk*]), the selectional properties of the derived adjective take the "adjectival direction"; i.e., complement to the right. In short, this analysis of *afhankelijk ervan* keeps the underlying syntax the same for *afhankelijk ervan* and *ervan afhankelijk*, but distinguishes them in terms of the moment at which the selectional properties of V (say, C-selection and theta-assignment) are satisfied. In *ervan afhankelijk*, the selectional requirements are satisfied within the (verbal) projection of *afhang-* (see (24)), whereas in *afhankelijk ervan* they are satisfied within the (adjectival) projection of *-elijk*. The latter situation is depicted in (28):

(28) [AP [FP XP<sub>degree</sub> [F' F [VP ~~afhang~~]]] [afghang-elijk] ervan]

Having given the underlying representation for (erg) *afhankelijk ervan*, let us next consider the grammatical behavior of the degree elements; see (29). Recall my earlier statement that these modifiers can display behavior reminiscent of degree elements modifying VPs. As such, we find the same properties as those illustrated by the b-examples in (14)-(22).

- |   |                      |
|---|----------------------|
| (29)a. Erg afhankelijk ervan was Jan niet.                          | (compare with (14b)) |
| b. [Nog erger afhankelijk ervan dan Piet] was Jan.                  | (compare with (15b)) |
| c. [Meer afhankelijk daarvan dan Piet] was Jan.                     | (compare with (16b)) |
| d. [Veel minder <dan Piet> afhankelijk daarvan <dan Piet>] was Jan. | (compare with (17b)) |
| e. [Net zo erg <als Piet> afhankelijk daarvan <als Piet>] was Jan.  | (compare with (18b)) |
| f. Hoe erg is Jan [ <del>hoe erg</del> afhankelijk ervan] geweest?  | (compare with (20b)) |
| g. Jan is [voldoende afhankelijk ervan] geweest.                    | (compare with (21b)) |

(29b) shows that *erg* can combine with the bound comparative morpheme *-er*; (29c) illustrates the possibility of combining with the free comparative morpheme *meer*; (29d,e) show that the *dan/als*-phrase can immediately follow the degree element; (29f) exemplifies subextraction of the phrase *hoe erg*; and (29g), finally, shows that the degree element *voldoende* can precede *afhankelijk*. This behavior of the degree modifier hints at the presence of a verbal part

in the extended adjectival projection of deverbal adjectives that take their complement to the right (as in, *afhankelijk ervan*).

Let me briefly summarize: So far I have argued that deverbal adjectives like *afhankelijk* consists of a verbal part and an adjectival part. In the pattern (*erg*) *ervan afhankelijk*, the PP *ervan* is base-generated to the left of the verb (*afhang-*), whereas in the pattern (*erg*) *afhankelijk ervan*, the PP is base-generated to the right of the derived adjective *afhankelijk*. It was also shown that, with both word orders, degree modifiers can occur that display the grammatical behavior of VP-modifying degree words.

There is one final piece of information that needs to be added to make complete the story about deverbal adjectives like *afhankelijk*. It turns out that those adjectives can also combine with degree modifiers displaying the grammatical behavior of degree elements modifying regular adjectives such as *bang* 'afraid' and *trots* 'proud'. For one thing, *genoeg*-inversion can apply in an adjectival environment (see (22a)) but not in a verbal environment (see note 13). As shown in (30), *genoeg* can be inverted with *afhankelijk*, which suggests that *afhankelijk* can display the behavior of a regular adjective.

- (30) Jan is [afhankelijk genoeg ervan] geweest.  
 Jan has dependent enough it.on been  
 'Jan has been dependent enough on it.'

Further illustrations of behavior that is typically found with regular adjectives are given in (31):

- (31) a. [Te bang daarvan] is Jan geweest.  
 too afraid that.of has Jan been  
 'Jan has been too afraid of that.'  
 b. [Te afhankelijk daarvan] is Jan geweest  
 too dependent that.on has Jan been  
 'Jan has been too dependent on that.'
- (32) a. [Hoe bang daarvan] is Jan geweest?  
 how afraid that.of has Jan been  
 'How afraid of that has Jan been?'  
 b. [Hoe afhankelijk daarvan] is Jan geweest?  
 how dependent that.on has Jan been  
 'How dependent on that has Jan been?'

The a-examples show that regular adjectives can be preceded by the degree word *te* and the bare interrogative degree word *hoe*. The b-examples show that these degree words can also combine with an adjective like *afhankelijk*. Importantly, as shown in (33), these degree words cannot act as degree modifiers within VP:<sup>14</sup>

- (33) a. Jan heeft erg/\*te gehuild.  
 Jan has much/too cried  
 'Jan cried much/too much.'  
 b. \*Hoe heeft Jan gehuild?  
 how has Jan cried  
 'How much did Jan cry?'

The fact that *afhankelijk* can be part of a *genoeg*-inversion pattern and the fact that it can combine with degree words such as *te* and *hoe* suggest that *afhankelijk* can be part of a structural configuration that is typical of regular adjectives. Specifically, I assume that the patterns in (30), (31b) and (32b) have the representations in (34a,b,c), respectively:

- (34) a. [QP [Q' afhankelijk+genoeg [AP afhankelijk ervan]]] (compare (25e))

<sup>14</sup> (33b) is fine under a manner interpretation of *hoe*, as in the following English discourse: Person A: *How did she cry?* Person B: *She cried in an exaggerated way.* Under a degree interpretation, *te* and *hoe* in (33) must combine with *erg*: *Jan heeft te erg gehuild* ('Jan cried too much'), *Hoe erg heeft Jan gehuild?* ('How much did Jan cry?').

- b. [<sub>DegP</sub> [<sub>Deg</sub> hoe] [<sub>QP</sub> [<sub>Q'</sub> Q<sub>[positive]</sub> [<sub>AP</sub> afhankelijk ervan]]]] (compare (25d))  
 c. [<sub>DegP</sub> [<sub>Deg</sub> te] [<sub>QP</sub> [<sub>Q'</sub> Q<sub>[positive]</sub> [<sub>AP</sub> afhankelijk ervan]]]]

One might generalize the A-to-Q movement operation, which is visible in the case of *genoeg*-inversion ((25e) and (34a)) and comparative forms such as *banger* in (25b) and *afhankelijker* (dependent-COMPAR, 'more dependent'), to the positive form *afhankelijk*. Suppose Q<sub>[positive]</sub> is occupied by a zero-affix (say, Ø), then head movement of *afhankelijk* to Q would yield the derived form: [<sub>DegP</sub> [<sub>Deg</sub> hoe/te] [<sub>QP</sub> [<sub>Q'</sub> afhankelijk+Ø<sub>[positive]</sub> [<sub>AP</sub> afhankelijk ervan]]]].

I propose that when *afhankelijk* displays the grammatical behavior of regular adjectives such as *bang* 'afraid' and *trots* 'proud', the verbal projection is no longer part of its syntactic structure. In that use, *afhankelijk* is a non-derived word that is stored as a single lexical unit (lexeme) in the lexicon. This means that adjectives such as *afhankelijk* have an ambiguous status: they are non-decomposable words that are stored in the lexicon (just like the regular adjectives *bang* and *trots*) or they can be decomposable items consisting of a verbal part (*afhang-*) and an adjectival part (*-elijk*).<sup>15</sup> In its "regular-adjectival" use, the PP complement occurs to the right of *afhankelijk*, as in (34); in its deverbal use, the PP occurs to the left of the verbal part (*afhang-*), as in (24), or to the right of the derived composite form *afhang+elijk*, as in (28).

As shown in (35), it is impossible for the PP-complement to occur to the left of *afhankelijk* when the latter combines with a degree word that can only cooccur with a regular adjective.<sup>16</sup> As exemplified by (36), we find exactly the same behavior for a regular adjective like *bang*.

- (35) a. [Hoe <\*ervan> afhankelijk <ervan>] is Jan?  
         how it.on dependent is Jan  
         'How dependent on it is Jan?'  
       b. [Te<\*ervan> afhankelijk <ervan>] is Jan.  
         too it.on dependent is Jan  
         'Jan is too dependent on it.'

- (36) a. [Hoe <\*ervan> bang <ervan>] is Jan?  
         how it.of afraid is Jan  
         'How afraid of it is Jan?'  
       b. [Te<\*ervan> bang <ervan>] is Jan.  
         too it.of afraid is Jan  
         'Jan is too afraid of it.'

I take this parallelism in word order behavior (specifically, the placement of the PP-argument) to be support for the idea that an adjective like *afhankelijk* can also be a "regular" adjective. Importantly, the absence of this parallelism in (37), where we have the degree word *erg* 'very', is only apparent:

- (37) a. [Erg <ervan> afhankelijk <ervan>] was Jan niet.  
         very it.on dependent was Jan not  
         'Jan wasn't much dependent on it.'  
       b. [Erg <\*ervan> bang <ervan>] was Jan niet.  
         very it.on afraid was Jan not  
         'Jan wasn't very afraid of it.'

The pattern *erg ervan afhankelijk*, where the PP occurs in between the degree word and the adjective, is possible when this sequence has the structure in (24), where *erg* is a modifier of VP, but not when it has the "regular-adjectival"

<sup>15</sup> This ambiguous status of the adjective *afhankelijk* arguably also holds for its English equivalent *dependent*. Note, for example, that *dependent* can be modified by *very*, a degree word that typically combines with "regular" (i.e., non-deverbal) adjectives (e.g., *John is very proud of her*), but also by *much*, as in *The Byzantine economy was much dependent on the state's ability to control its borders*. The modifier *much* is found in verbal contexts (*The Byzantine economy depended much on the state's ability to control its borders*) but not in adjectival expressions headed by adjectives such as *proud* and *angry* (*\*John is much proud of her*).

<sup>16</sup> Compare with (19b), where we have the sequence *hoe erg ervan afhankelijk*. Recall that in that example *afhankelijk* is deverbal and that the adjectival expression contains a verbal layer.

structure in (25d), where *erg* lexicalizes the functional head Q and takes AP as its complement. Thus, the following representation is ruled out:

(38) \*<sub>[QP [Q erg [AP PP afhankelijk]]]</sub>

Summarizing: in this section, it was shown that PP is *in situ* in the adjectival patterns *erg ervan afhankelijk* and *erg afhankelijk ervan*. In the first pattern, the PP is base-generated to the left of a verb heading a VP-projection that is embedded within the extended adjectival projection. In the second pattern, the PP-complement is base generated to the right of *afhankelijk*, where *afhankelijk* has either a composite form consisting of the verbal root *afhang-* and the adjectival suffix *-elijk*, or a non-composite form. In the latter case, *afhankelijk* behaves like regular adjectives such as *bang* 'afraid' and *trots* 'proud'. Since PP occupies a base position in both *erg ervan afhankelijk* and *erg afhankelijk ervan*, extraction from PP is permitted with both word order patterns. This brings us to the next question: Do PP-complements ever occur in a derived position. And if so, do we find a freezing effect? These two questions will be addressed in the next section.

### 3. Displacement and freezing effects

The question as to whether PP ever occupies a derived position (i.e., a position resulting from displacement) can be split up into two sub-questions. First, does PP ever occupy a derived position *within* the extended adjectival projection? Secondly, does PP ever occupy a derived position *external to* the extended adjectival projection? With regard to the second question, observe that the PP-complement can be separated from the adjective by means of an intervening clausal modifier (*altijd*):

- (39) a. Jan zal <daarvan<sub>3</sub>> altijd [<sub>XAP</sub> erg <daarvan<sub>2</sub>> afhankelijk <daarvan<sub>1</sub>>] zijn.  
 Jan will that-on always very dependent be  
 'Jan will always be very dependent on that.'
- b. Jan zal <daarop<sub>3</sub>> altijd [<sub>XAP</sub> erg <\*daarop<sub>2</sub>> trots <daarop<sub>1</sub>>] zijn.  
 Jan will that.of always very proud be  
 'Jan will always be very proud of that.'

In (39a), *daarvan<sub>1/2</sub>* represents the base position of PP, that is, the position in which *daarvan* can be replaced by the weak PP *ervan* and from where subextraction of *daar* is possible. *Daarvan<sub>3</sub>* occupies a derived, clause-internal position. Expectedly, *daarvan<sub>3</sub>* cannot be replaced by the weak PP *ervan*. Recall that a weak PP like *ervan* typically does not undergo any movement operation. In (39b), *daarop<sub>1</sub>* occupies the base position, where it can be replaced by the weak PP *erop*. Recall that non-deverbal adjectives like *trots* do not permit the PP in a position in between the degree word and the adjective. Thus, the pattern featuring *daarop<sub>2</sub>* is impossible. *Daarop<sub>3</sub>* is in a derived XAP-external but clause-internal position. Consequently, replacement by *erop* is impossible.

With regard to the question as to whether subextraction is possible from the displaced PP<sub>3</sub>, consider the following examples:<sup>17</sup>

<sup>17</sup> For the sake of completeness, it should be noted that there is another XAP-external position in which the PP-complement of an adjective can be found, namely an extraposed (i.e., postverbal) position. As shown in (ia), the PP *daarvan* can occur in postverbal position. Extraction from this postverbal position is blocked; see (ib):

- (i) a. Jan zal altijd erg afhankelijk zijn daarvan.  
 Jan will always very dependent be that.on  
 'Jan will always be very dependent on that.'
- b. \*Daar<sub>i</sub> zal Jan altijd erg afhankelijk zijn [t<sub>i</sub> van].

From the ungrammaticality of (ib) one might draw the conclusion that extraposition in Dutch involves rightward movement to a postverbal position. Under such a movement analysis of extraposition, the ill-formedness of (ib) can be analyzed as a freezing effect. It should be noted, however, that under an "extraposition = movement" analysis, one would expect to find the same freezing effect with an extraposed clause that is selected by the adjective (see (iia)). As shown by (iib), however, extraction from within the extraposed complement clause is permitted.

- (40) a. *Daar<sub>i</sub>* zal Jan <\**t<sub>i</sub> van<sub>3</sub>*> altijd [<sub>XAP</sub> erg <*t<sub>i</sub> van<sub>2</sub>*> afhankelijk <*t<sub>i</sub> van<sub>1</sub>*>] zijn.  
 that will Jan on always very dependent be  
 'That (thing) Jan will always be very dependent on.'  
 b. *Daar<sub>i</sub>* zal Jan <\**t<sub>i</sub> op<sub>3</sub>*> altijd [<sub>XAP</sub> erg <\**t<sub>i</sub> op<sub>2</sub>*> trots <*t<sub>i</sub> op<sub>1</sub>*>] zijn.

As indicated, subextraction from the derived clause-internal position is impossible. In other words, we have a freezing effect.

Let us now turn to the question as to whether the PP ever occupies a derived position *within* the extended adjectival projection, and to the related question as to whether we find a freezing effect in that case. The relevant patterns to look at are those in which the PP occupies a position to the left of the degree word that modifies the adjective, that is, PP + Deg + A. Furthermore, it should be clear that the sequence forms an adjectival phrase; i.e., the left-peripheral PP should be contained within the adjectival projection. I will start my discussion with adjectival patterns featuring a deverbal adjective.

Consider the examples in (41) and (42):

- (41) a. [<sup>2</sup>*Daarvan<sub>3</sub>*> erg <*PP<sub>2</sub>*> afhankelijk <*PP<sub>1</sub>*>]<sub>j</sub> is Jan eigenlijk nooit *t<sub>j</sub>* geweest.  
 that.on very dependent has Jan really never been  
 'Very dependent on that, Jan hasn't really been.'  
 b. [<sup>2</sup>*Daarvoor<sub>3</sub>*> veel minder <*PP<sub>2</sub>*> gevoelig <*PP<sub>1</sub>*> dan Piet]<sub>j</sub> leek Jan me toentertijd *t<sub>j</sub>*.  
 that.to much less sensitive than Piet seemed Jan me at.the.time  
 'Jan seemed to me much less dependent on that at the the time.'
- (42) a. een [*daarvan<sub>3</sub>*> erg <*PP<sub>2</sub>*> afhankelijke <\**PP<sub>1</sub>*>] man  
 a that.on very dependent man  
 'a man who is very dependent on that.'  
 b. een [*daarvoor<sub>3</sub>*> veel minder <*PP<sub>2</sub>*> gevoelige <\**PP<sub>1</sub>*>] man (dan Piet)  
 a that.to much less sensitive man (than Piet)  
 'a man who is much less sensitive to that (than Piet is).'

In (41), the complex adjectival phrase has been fronted to the beginning of the clause; that is, Spec,CP. The head of CP is occupied by the finite verb (*is/leek*), which has been input to the Verb Second rule (i.e., move the finite verb to C in main clauses). In (42), the adjectival phrase functions as an attributive modifier of the noun. Although the patterns featuring *PP<sub>3</sub>* in (41) sound slightly degraded, they do not seem to be completely impossible, at least not to my ear. Notice furthermore that, both in (41) and in (42), the (phonetically) strong PP *daarvan<sub>3</sub>* is much better in the derived left peripheral position than is its weak counterpart *ervan*. That is, the adjectival patterns in (43a,b) are completely impossible if the weak PP occupies the left periphery of the XAP.

- (43) a. [<\**Ervan<sub>3</sub>*> erg <*PP<sub>2</sub>*> afhankelijk <*PP<sub>1</sub>*>]<sub>j</sub> is Jan eigenlijk nooit *t<sub>j</sub>* geweest. (Compare (41a))  
 b. een [<\**ervan<sub>3</sub>*> erg <*PP<sub>2</sub>*> afhankelijke <\**PP<sub>1</sub>*>] man<sup>18</sup> (Compare (42a))

- (ii) a. Ik denk dat Jan bang is [<sub>CP</sub> om daarvan beschuldigd te worden].  
 I think that Jan afraid is for that.of accused to be  
 'I think that Jan is afraid that he will be accused of that.'

- b. Waar<sub>i</sub> denk je dat Jan bang is [<sub>CP</sub> om [*t<sub>i</sub> van*] beschuldigd te worden]?  
 what think you that Jan afraid is for of accused to be  
 'What do you think Jan is afraid of being accused of?'

The contrast between (ib) and (iib) has given rise to the claim that extraposition is not a unitary phenomenon (see, for example, Barbiers 1995, 2000). For an overview of Dutch extraposition phenomena, see Broekhuis and Corver (2016: Chapter 12). See also Koster (2000) and De Vries (2002) for analyses of extraposition.

<sup>18</sup> As opposed to the predicative XAP in (43a), the attributive XAP in (43b) does not permit the pattern featuring *PP<sub>1</sub>*. That is, the (inflected) adjective cannot be followed by a PP; it must be linearly adjacent to the noun. See also (42a,b). This restriction on the placement of PP within an attributive adjectival phrase has been attributed to a ban on right recursion for (certain) phrases occurring on left branches. For discussion, see among others Zwarts (1974), Emonds (1976), Williams (1981), and Biberauer, Holmberg and Roberts (2008), Cinque (2010).

On the basis of the examples in (41) and (42), I propose that the PP *daarvan* can reasonably well occur in the left periphery of the extended adjectival projection. As shown in (44), the sequence *PP+erg+A* can also form a XAP that occupies a clause-internal position. In that case, the clausal modifier preceding the XAP preferably carries emphatic accent, which is represented here by means of small capitals; see also Broekhuis (2013:88). Also here, replacement of *daarvan*<sub>3</sub> by the weak PP *ervan* yields a strongly ungrammatical pattern: *\*ervan erg afhankelijk*.

- (44) a. Jan is ALTIJD AL [<sup>2</sup>daarvan> erg <daarvan> afhankelijk <daarvan>] geweest.  
 Jan has always PRT that.on very dependent been  
 'Jan has always been very dependent on that.'
- b. Jan is OOK VROEGER [<sup>2</sup>daarvoor> erg <daarvoor> gevoelig <daarvoor>] geweest.  
 Jan has also in.the.past that.to very sensitive been  
 'Jan was very sensitive to that also in the past.'

Under a deverbal analysis of *afhankelijk* there are two ways in which the pattern with an XAP-internal left-peripheral PP can be derived: Firstly, the PP starts out in a position to the left of the verbal root, as in (24), and moves from there to the left periphery of XAP; secondly, the PP is base-generated to the right of deverbal adjective, as in (28), and moves from there to the left periphery of XAP. I will take these leftward displacement operations to instantiate scrambling within the extended adjectival projection. More specifically, I assume that, in the first derivation, the (left branch) PP-complement moves from a VP-internal base position to the left periphery of VP, as exemplified in (45a). In other words, scrambling applies within the verbal part of the XAP. In the second derivation, the (right branch) PP moves from an AP-internal complement-position to a position left-adjoined to AP, as in (45b):

- (45) a. [<sub>AP</sub> [<sub>FP</sub> daarvan<sub>i</sub> [<sub>FP</sub> erg [<sub>F</sub> F [<sub>VP</sub> [<sub>PP</sub> t<sub>i</sub> ] afhang]]]]] -elijk (*daarvan<sub>i</sub> erg t<sub>i</sub> afhankelijk*)  
 b. [<sub>AP</sub> daarvan<sub>i</sub> [<sub>AP</sub> [<sub>FP</sub> erg [<sub>F</sub> F [<sub>VP</sub> ~~afhang~~]]]]] [afghang-elijk] t<sub>i</sub> (*daarvan<sub>i</sub> erg afhankelijk t<sub>i</sub>*)

For the sake of completeness, it should be pointed out that besides patterns like (41a), (42a) and (44a), we also find the following ones in which only the R-pronoun *daar* has been moved to the left periphery of the XAP.

- (46) a. <sup>2</sup>[Daar<sub>i</sub> erg <t<sub>i</sub> van<sub>2</sub>> afhankelijk <t<sub>i</sub> van<sub>1</sub>>]<sub>j</sub> is Jan eigenlijk nooit t<sub>j</sub> geweest.  
 b. een [daar<sub>i</sub> erg <t<sub>i</sub> van<sub>2</sub>> afhankelijke <\*t<sub>i</sub> van<sub>1</sub>>] man  
 c. <sup>2</sup>Jan is ALTIJD AL [daar<sub>i</sub> erg <t<sub>i</sub> van<sub>2</sub>> afhankelijk <t<sub>i</sub> van<sub>1</sub>>] geweest.

Under a deverbal analysis of *afhankelijk* we have the following two possible derivations (Compare with (45)).

- (47) a. [<sub>AP</sub> [<sub>FP</sub> daar<sub>i</sub> [<sub>FP</sub> erg [<sub>F</sub> F [<sub>VP</sub> [<sub>PP</sub> t<sub>i</sub> van ] afhang]]]]] -elijk (*daar<sub>i</sub> erg t<sub>i</sub> van afhankelijk*)  
 b. [<sub>AP</sub> daar<sub>i</sub> [<sub>AP</sub> [<sub>FP</sub> erg [<sub>F</sub> F [<sub>VP</sub> ~~afhang~~]]]]] [afghang-elijk] [<sub>PP</sub> t<sub>i</sub> van]] (*daar<sub>i</sub> erg afhankelijk t<sub>i</sub> van*)

On the basis of the above discussion I conclude that a PP-complement or an R-pronoun can be moved leftward (scrambled) to a left-peripheral (i.e., edge) position inside the extended adjectival projection. The landing site is internal to the (XAP-internal) verbal projection in (45a)/(47a) but internal to the AP-projection in (45b)/(47b). If the leftward-moved PP in (45a,b) occupies a derived position, we expect subextraction from this PP to be impossible. Example (48) shows that this is indeed the case:

- (48) Daar<sub>i</sub> is Jan ALTIJD AL [<\*t<sub>i</sub> van<sub>3</sub>> erg <t<sub>i</sub> van<sub>2</sub>> afhankelijk <t<sub>i</sub> van<sub>1</sub>>] geweest.  
 that has Jan always PRT on very dependent been  
 'That, Jan has always been very dependent on.'

So far, the discussion has centered on the distribution and freezing behavior of PPs (and R-pronouns) that undergo leftward movement inside of an adjectival phrase headed by a deverbal adjective. The behavior of PP-complements and R-pronouns that belong to a non-deverbal adjective is quite similar. Consider, for example, the following patterns featuring the adjective *trots* 'proud'.

- (49) a. [<sup>2?</sup>Daarop<sub>3</sub>> erg <\*PP<sub>2</sub>> trots <PP<sub>1</sub>>]<sub>j</sub> is Jan eigenlijk nooit t<sub>j</sub> geweest.  
 that.of very proud has Jan actually never been  
 b. een [<daarop<sub>3</sub>> erg <\*daarop<sub>2</sub>> trotse <\*daarop<sub>1</sub>>] man

- a      that.of    very                    proud                    man  
 c. Jan is    ALTIJD AL [<sup>??</sup>daarop> erg <\*daarop> trots <daarop>] geweest.  
 Jan has always PRT    that.of    very                    proud                    been  
 d. Jan is ALTIJD AL [<sup>?</sup>daar<sub>i</sub> erg <\*t<sub>i</sub> op<sub>2</sub>> trots <t<sub>i</sub> op<sub>1</sub>>] geweest.

Example (49a) shows that PP preferably occurs in a postadjectival position (see PP<sub>1</sub>). Recall that a position in between the degree word and the adjective is impossible for PP-complements of non-deverbal adjectives (see PP<sub>2</sub>). Placement in the left periphery of a predicative XAP is possible, though somewhat degraded. (49b) shows that the left-peripheral position within the attributive XAP is, actually, the only position in which the PP is permitted. (49c) shows the same patterns as in (49a), but now the XAP is in a clause-internal position. In (49d), it is the R-pronoun *daar* that has been moved to the left periphery of the XAP. Observe that subextraction from PP<sub>2</sub> is blocked. This is not surprising, since, as we have seen before, PPs can't occur in this position at all when the adjective is non-deverbal.

As expected, subextraction is only permitted from the post-adjectival PP-position. If the PP occupies the left periphery of the XAP, the PP is frozen; that is, subextraction is impossible. This is exemplified in (50):

- (50) Daar<sub>i</sub> is    Jan ALTIJD AL [<\*t<sub>i</sub> op<sub>3</sub>> erg <\*t<sub>i</sub> op<sub>2</sub>> trots <t<sub>i</sub> op<sub>1</sub>>] geweest.  
 that has Jan always PRT    of    very                    proud                    been  
 'That, Jan has ALWAYS been very proud of.'

Recall from the discussion in section 2 that *afhankelijk* can also be analyzed as a non-composite, regular adjective, analogously to an adjective like *trots*; see (34). In that case, the PP-complement of [<sub>A</sub> *afhankelijk*] is expected to exhibit exactly the same syntactic behavior as the PP-complement of *trots* in (49) and (50). At the surface, however, this similarity in grammatical behavior is sometimes hard to identify, simply because the deverbal analysis is present in the background as an alternative structural analysis. As we have seen, however, there are adjectival contexts in which the deverbal analysis is not possible, e.g., when the adjective is specified by the degree word *te* 'too', which was analyzed as a functional head Deg; see (34c). Consider now the following examples:

- (51) a. Jan is    ALTIJD AL [<sup>?</sup>daarvan<sub>3</sub>> te <\*daarvan<sub>2</sub>> afhankelijk <daarvan<sub>1</sub>>] geweest.  
 Jan has always PRT    that.on    too                    dependent                    been  
 'Jan has always been too dependent on that.'  
 b. Daar<sub>i</sub> is    Jan ALTIJD AL [<\*t<sub>i</sub> van<sub>3</sub>> te <\*t<sub>i</sub> van<sub>2</sub>> afhankelijk <t<sub>i</sub> van<sub>1</sub>>] geweest.  
 that has Jan always PRT    on    too                    dependent                    been  
 'That, Jan has always been too dependent on.'

(51a) shows that the PP-complement occurs either in the rightmost position (the base position) or in the leftmost position within the XAP. As we have seen before, the PP-complement cannot occur in between the functional head *te* and the adjective. I assume that the left-peripheral position within the XAP is derived by leftward scrambling and that the leftward scrambled PP is adjoined to the maximal projection (DegP) of *te*. Schematically: [<sub>DegP</sub> PP<sub>i</sub> [<sub>DegP</sub> *te* *afhankelijk* t<sub>i</sub>]]. As shown in (51b) subextraction from PP is possible when PP occupies the base position but not when it occupies the derived left-peripheral position. In other words we have a Freezing effect. As indicated, subextraction from the intermediate position is impossible, but presumably the ill-formedness of this sentence is not so much related to subextraction *per se* but rather to the fact that the PP cannot occur in that position, as shown in (51a).

Summarizing: in this section, I argued that PP remains *in situ* in the Dutch word order patterns *erg daarvan afhankelijk* and *erg afhankelijk daarvan*. In the first word order pattern, the PP occupies a position to the left of an XAP-internal verbal root. The second word order pattern has two possible derivations: the PP is base-generated to the right of a derived deverbal adjective *afhankelijk* (i.e., *afhang+elijk*) or to the right of a non-derived (i.e. non-composite: *afhankelijk*) adjectival head. The non-derived form displays the same syntactic behavior as "regular" adjectives such as *bang* 'afraid' and *trots* 'proud'. It was shown that extraction from PP is possible when PP occupies its base position but impossible when PP occupies a derived position. Thus, displacement of the PP-complement of the adjective yields a freezing effect.

## 4. Surface similarity but a freezing asymmetry

In section 2 we saw that PP-complements can immediately follow or precede an adjective like *afhankelijk*. Furthermore, it was shown that subextraction from these pre-/post-adjectival PPs is possible. Importantly, all the examples discussed were adjectival patterns featuring a positive adjective (i.e., an adjective designating a positive degree, which, by the way, is not marked morphologically (i.e., overtly) in Dutch). As indicated in (52), PPs can follow and precede not only positive adjectives like *afhankelijk* but also synthetic comparative adjectives like *afhankelijker*. It should be noted, however, that the subextraction behavior of a PP-complement that combines with a comparative adjective (*afhankelijker*) deviates from that of a PP-complement that combines with a positive adjective (*afhankelijk*). Specifically, subextraction from PP is blocked if the PP precedes the comparative adjective; see (53b). If the PP immediately follows the positive/comparative adjective, subextraction from PP is permitted; see (53a).

(52) Jan is [<sub><daarvan></sub> afhankelijk(er)      <daarvan>] geweest  
 Jan has that.on dependent(-COMPAR)      been  
 'Jan was (more) dependent on that.'

(53) a. Daar<sub>i</sub> is Jan afhankelijk(-er) [t<sub>i</sub>van] geweest.  
 that has Jan dependent(-COMPAR) on been  
 'That, Jan was (more) dependent on.'  
 b. Daar<sub>i</sub> is Jan ooit [t<sub>i</sub> van] afhankelijk(\*-er) geweest.

The contrast in subextraction behavior between the comparative pattern in (53a), on the one hand, and the comparative pattern in (53b), on the other, but also the contrast between the positive pattern in (53b) and the comparative pattern in (53b), suggests that the PP is no longer in its base position in the sequence PP+A-*er*. Plausibly, the PP has been moved leftward to the left periphery of the extended adjectival projection, or to some position in the clausal middle field. This means that the PP occupies a derived position and, in line with the Freezing principle, subextraction is blocked. Thus, even though at the surface (i.e., linearly) PP-A<sub>positive</sub> and PP-A<sub>comparative</sub> look alike, their corresponding hierarchical structures differ greatly.

Before giving some overt evidence for the displacement of the PP within the comparative adjective phrase in (53b), let me give the derivation of the comparative adjectival patterns in (52), starting with *afhankelijker daarvan*. I propose that the synthetic comparative form *afhankelijker* is derived from the structure in (54a) by moving and adjoining the (non-composite) adjective *afhankelijk* (i.e., [<sub>A</sub> *afhankelijk*]) to the bound comparative morpheme *-er*, which I take to be the realization of Q<sub>[comparative]</sub>.

(54) a. [QP -er<sub>[comparative]</sub> [AP afhankelijk daarvan]]  
 b. [QP afhankelijk<sub>i</sub>-er<sub>[comparative]</sub> [AP t<sub>i</sub> daarvan]]

In (54b), the R-pronoun *daar* occupies the Spec-position of a base-generated PP. Subextraction from PP, as in (53a), is therefore permitted. In order to derive the word order *daarvan afhankelijker*, the PP moves to the left periphery of the extended adjectival projection. This implies that the PP is in a derived position and, in line with the Freezing principle, the displaced PP is an island for extraction (see (53b)).

Evidence that PP ends up in a left peripheral position within XAP comes from the placement of this PP with respect to modifiers of the comparative adjective. Consider the following examples, in which the string that forms the complex adjectival constituent occupies Spec,CP. The finite verb *was* occupies the C-position as a result of the Verb Second rule (i.e., move the finite verb to C).

(55) a. [Veel/een stuk afhankelijker      *daarvan* dan Piet] was Jan toentertijd.  
 much/a lot      dependent-COMPAR that.on      than Piet was Jan at.the.time  
 'At the time, Jan was much more dependent on that than Piet was.'  
 b. \*[Veel/een stuk *daarvan* afhankelijker dan Piet] was Jan toentertijd.  
 c. [*Daarvan* veel/een stuk afhankelijker dan Piet] was Jan toentertijd.

In (55a), the modifier *veel/een stuk* precedes the string that corresponds to structure (54b). This modifier specifies what the gap is between *Jan's* dependence and *Piet's* dependence (see Schwarzschild 2005, Corver 2009). I assume

that this modifier occupies the specifier position of QP: [<sub>QP</sub> *veel/een stuk* [<sub>Q'</sub> ...]]. The ill-formedness of the word order in (55b) shows that *daarvan* cannot occur in a position within the QP-projection; specifically, it cannot be interspersed between the modifier in Spec,QP and the AP. If the modifier is located in QP, then the word order in (55c) can only be derived by fronting the PP to a structural position to the left of Spec,QP. I assume that the leftward moved PP is adjoined to QP, yielding the structure in (56):

(56) [<sub>QP</sub> [<sub>PP</sub> *daar van*]<sub>j</sub> [<sub>QP</sub> **veel/ een stuk** [<sub>Q'</sub> afhankelijk<sub>k<sub>i</sub></sub>-er<sub>[comparative]</sub> [<sub>AP</sub> t<sub>i</sub> t<sub>j</sub>]]]]

In (56), *daarvan* occupies a derived position. As expected, subextraction from this position is blocked. That *daarvan* occupies a derived position in (56), and also in (53b) for that matter, is corroborated by the fact that it cannot be substituted for by the weak PP *ervan*, that is: \**ervan (veel/een stuk) afhankelijker*.

As shown in (57), a string like *daarvan veel afhankelijker* can also be found as an attributive modifier within a noun phrase, and as a clause-internal constituent, as in (58). In the latter example, the complex adjectival phrase occupies a position following a clause-internal modifier. This placement of the adjectival phrase (with PP in its left periphery) is felt to be slightly degraded. It should be noted, though, that this adjectival pattern with *daarvan* in the left periphery is much better than its counterpart with the weak PP *ervan*. Furthermore, when the clausal modifier preceding the adjectival projection carries strong accent (represented by means of small capitals), the sentence is quite acceptable.

- (57)a. Jan ontmoette [<sub>DP</sub> een [*daarvan veel afhankelijke*] man].  
 Jan met a that.on much dependent-COMPAR man  
 'Jan met a man who was much more dependent on that.'  
 b. Marie is een [*daarvoor veel gevoeliger* meisje].  
 Marie is a that.to much sensitive-COMPAR girl  
 'Marie is a girl who is much more sensitive to that.'

- (58)a. <sup>?</sup>Ik geloof dat Jan AL JAREN [*daarvan veel afhankelijker*] was (dan Piet).  
 I believe that Jan already years that.on much dependent-COMPAR was (than Piet)  
 b. <sup>?</sup>Ik geloof dat Jan OOK TOEN [*daarvoor veel gevoeliger*] was (dan Piet).  
 I believe that Jan also then that.to much sensitive-COMPAR was (than Piet)

Besides the examples in (58a,b), where the PP *daarvan* occupies a left peripheral position within the XAP, it is also possible to move the PP complement into the clausal middle field; that is, to a position preceding the clausal modifiers *al jaren/ook toen*. This is exemplified in (59):

- (59)a. Ik geloof dat Jan *daarvan* toentertijd [*veel afhankelijker*] was (dan Piet).  
 I believe that Jan that.on at.the.time much dependent-COMPAR was (than Piet)  
 b. Ik geloof dat Jan *daarvoor* toentertijd [*veel gevoeliger*] was (dan Piet).  
 I believe that Jan that.to at.the.time much sensitive-COMPAR was (than Piet)

Let us now return to the freezing effect in (53b). If the PP *daarvan* in (53b), (58a,b) and (59a,b) occupies a movement-derived position, then subextraction should be blocked. That is, the derived position should be frozen for extraction. The ill-formed examples in (60) show that this is indeed the case.

- (60)a. \*Daar<sub>i</sub> geloof ik dat Jan AL JAREN [[t<sub>i</sub> van]<sub>j</sub> veel afhankelijker t<sub>j</sub>] was (dan Piet).  
 that believe I that Jan already years on much dependent-COMPAR was (than Piet)  
 b. \*Daar<sub>i</sub> geloof ik dat Jan [t<sub>i</sub> van]<sub>j</sub> toentertijd [t'<sub>j</sub> veel afhankelijker t<sub>j</sub>] was.  
 that believe I that Jan on dependent much dependent-COMPAR was

So far, I have given an account of the subextraction asymmetry between *afhankelijker daarvan* (see (53a)) and *daarvan afhankelijker* (see (53b)). The latter pattern does not permit subextraction due to the Freezing constraint. The PP to the left of the synthetic-comparative adjectival form occupies a derived position (see (56)). But what accounts for the asymmetry depicted in (53b)? Why is it possible to extract from PP when it precedes a positive adjective (*afhankelijk*) but not when it precedes a comparative form (*afhankelijker*)? The answer to this question was given in

section 2: in the sequence *daarvan afhankelijk*, the PP can be analyzed as a (left branch) complement of the verbal root (*afhang-*) that forms a derived adjective after adjunction to the adjectival suffix *-elijk* (see the base structure in (24)). Under this analysis the PP simply occupies its base position. Consequently, extraction from the PP-complement is permitted.

For the sake of completeness, it may be useful to add that deverbal *afhankelijk* also has a comparative pattern, namely the analytic comparative pattern; that is, the one featuring *meer* 'more' (see also (16b)).<sup>19</sup> As shown in (61), the PP can occupy three positions within the XAP. Observe that the entire XAP occupies Spec,CP.

- (61) [~~Daarvan~~<sub>3</sub>> veel meer <daarvan<sub>2</sub>> afhankelijk <daarvan<sub>1</sub>> dan Piet] was Jan toentertijd.  
 that.on much more dependent than Piet was Jan at.the.time  
 'Jan was much more dependent on that than Piet at the time.'

As shown in (62), the analytic comparative form can also occupy a clause-internal position:

- (62) Ik geloof dat Jan AL JAREN [~~daarvan~~<sub>3</sub>> veel meer <daarvan<sub>2</sub>> afhankelijk <daarvan<sub>1</sub>> dan Piet] was.  
 I believe that Jan already years that.on much more dependent than Piet was  
 'I believe that, for years, Jan has been much more dependent on that than Piet.'

As shown in (63), subextraction is only permitted from PP<sub>1</sub> and PP<sub>2</sub>, but not from PP<sub>3</sub>.

- (63) Daar<sub>i</sub> geloof ik dat Jan AL JAREN [~~\*t<sub>i</sub> van~~<sub>3</sub>> veel meer <t<sub>i</sub> van<sub>2</sub>> afhankelijk <t<sub>i</sub> van<sub>1</sub>>] was.  
 that believe I that Jan already years on much more dependent was  
 'On that I believe that Jan has been much more dependent for years.'

PP<sub>1</sub> and PP<sub>2</sub> occupy a base position. Specifically, PP<sub>1</sub> is part of a structure like (64a) and PP<sub>2</sub> of a structure like (64b); compare (24) and (28), respectively:

- (64) a. [<sub>AP</sub> [<sub>FP</sub> [<sub>QP</sub> veel meer] [<sub>F'</sub> F [<sub>VP</sub> [<sub>PP</sub> daarvan] afhang]]] -elijk]  
 b. [<sub>AP</sub> [<sub>FP</sub> [<sub>QP</sub> veel meer] [<sub>F'</sub> F [<sub>VP</sub> ~~afhang~~]]] [<sub>afghang-elijk</sub>] daarvan]

The sequence *daarvan veel meer afhankelijk* corresponds either to (65a) or to (65b); compare (45a) and (45b), respectively. In (65a), *daarvan* has been left-adjoined to the highest functional projection (*in casu* FP) within the verbal part of XAP. In (65b), it has been left-adjoined to AP.

- (65) a. [<sub>AP</sub> [<sub>FP</sub> daarvan<sub>i</sub> [<sub>FP</sub> [<sub>QP</sub> veel meer] [<sub>F'</sub> F [<sub>VP</sub> [<sub>PP</sub> t<sub>i</sub>] afhang]]] -elijk] (*daarvan<sub>i</sub> veel meer t<sub>i</sub> afhankelijk*)  
 b. [<sub>AP</sub> daarvan<sub>i</sub> [<sub>AP</sub> [<sub>FP</sub> [<sub>QP</sub> veel meer] [<sub>F'</sub> F [<sub>VP</sub> ~~afhang~~]]] [<sub>afghang-elijk</sub>] t<sub>i</sub>] (*daarvan<sub>i</sub> veel meer afhankelijk t<sub>i</sub>*)

When the PP occupies a position in the clausal middle field as a result of scrambling (out of XAP), extraction from PP is excluded as well, due to the derived position of the PP.

- (66) a. Ik geloof dat Jan *daarvan* toentertijd *veel meer afhankelijk* is geweest.  
 I believe that Jan that.on at.the.time much more dependent has been  
 b. \*Daar<sub>i</sub> geloof ik dat Jan [t<sub>i</sub> van]<sub>j</sub> toentertijd [t<sub>j</sub> veel meer afhankelijk] was.

Summarizing: in this section it was shown that, even though the sequences *daarvan afhankelijk* and *daarvan afhankelijker* look alike at the surface, their corresponding hierarchical structures are quite different. The former pattern, featuring a positive (deverbal) adjective, has the PP in its base position. The latter pattern, featuring a synthetic comparative adjectival form, has the PP in a derived position. In line with the Freezing principle, the latter pattern does not permit extraction from PP.

<sup>19</sup> Recall that the analytic pattern is typically not found with regular adjectives: ??*meer bang daarvan* (see (16a)).

## 5. Transitive adjectives and freezing effects

So far, our discussion has focused on the grammatical behavior (distribution and freezing behavior) of PP-complements of adjectives. As has been shown in a number of generative-linguistic studies (Van Riemsdijk 1983, Platzack 1982, Maling 1983), many Germanic languages, including Dutch, have so-called transitive adjectives; i.e., adjectives that, at the surface, take a noun phrase (DP) as their complement (see also Broekhuis 2013:75-82). In this section, I will examine the distribution of this nominal argument within the adjective phrase and try to find out how its distribution interacts with freezing.

I will start my discussion with the examples in (67), where we find an adjective that combines with a PP-complement. Observe that, as we have seen before, there are adjectives that can take the (weak) PP both to their right and to their left (see (67a,b)), but also adjectives that can take a PP-complement only to their right (see (67c,d)). The former class can be characterized as 'deverbal' (i.e., they display verbal characteristics, like participial morphology), the latter as 'non-deverbal'.

(67) Ik geloof niet dat ...

I believe not that

- a. ...Jan zich [helemaal <ervan> bewust <ervan>] was.  
 ...Jan REFL entirely it.of aware was
- b. ...Jan [helemaal <eraan> gewend <eraan>] was.  
 ...Jan entirely it.to used was
- c. ...Jan [helemaal <\*eraan> trouw <eraan>] zal blijven.  
 ...Jan entirely it.to loyal will stay
- d. ...Jan [helemaal <\*ervan> moe <ervan>] was.  
 ...Jan entirely it.of weary was

As shown in (68), the adjectives in (67) can also combine with a bare noun phrase:

(68) Ik vraag me af of ...

I wonder REFL PRT whether

- a. ...Jan zich <zoiets> helemaal <\*> bewust <\*> was.  
 ...Jan REFL such.a.thing entirely aware was
- b. ...Jan <zoiets> helemaal <\*> gewend <\*> was.  
 ...Jan such.a.thing entirely used was
- c. ...Jan <zo iemand> helemaal <\*> trouw <\*> zal blijven.  
 ...Jan such.a.person entirely loyal will stay
- d. ...Jan <zoiets> helemaal <\*> moe <\*> was.  
 ...Jan such.a.thing entirely weary was

As indicated, the distribution of the bare noun phrase is quite limited: a postnominal position is excluded, as is a position in between the modifier *helemaal* and the adjective. The only position permitted is the one preceding the modifier.

On the basis of the examples in (68a-d), it is not entirely clear whether the nominal object is located in a peripheral position within the adjectival projection or in a clause-internal middle field position. The following examples show that the nominal complement can both follow the clausal modifier (*ooit* 'ever', *voorgoed* 'for ever') and precede it. When it follows the clausal modifier, the nominal complement arguably occupies a position in the left periphery of the adjectival projection. As indicated, leaving the nominal complement within the adjectival projection yields a slightly degraded result. Importantly, though, this placement within the adjectival projection does not seem to be ruled out completely. Especially when the clausal modifier carries accent, it is quite acceptable to have the nominal complement in the left periphery of the XAP.

(69) Ik vraag me af of ...

I wonder REFL PRT whether

'I wonder whether ...

- a. ...Jan zich <zoiets> **ooit** [<?> helemaal bewust] zal zijn.  
 ...Jan REFL such.a.thing ever entirely aware will be

- '... Jan will ever be fully aware of such a thing.'
- b. ...Jan <zo iemand> **voorgoed** [<sup><?></sup> helemaal trouw] zal blijven.  
 ... Jan such.a person for.ever            entirely    loyal    will stay

Notice also that the nominal object follows a low indefinite subject noun phrase when the “high subject” position (i.e., Spec,TP) is occupied by expletive *er* ‘there’. Under a small clause analysis, *iemand* occupies a specifier position within the small clausal projection of the adjective. It is likely, then, that the nominal object *zulke principes* in (70) is part of the adjectival projection.

- (70) ..dat er    vermoedelijk nooit [iemand<sub>Subj</sub> zulke principes<sub>Obj</sub> helemaal trouw] zal blijven.  
 ..that there presumably    never someone    such principles    entirely    loyal    will stay  
 '..that, presumably, there will never be a person who will remain entirely loyal to such principles.'

Let me, finally, add that fronting of the predicative adjective phrase that contains a nominal object, as in (71a), is felt to be somewhat degraded by certain speakers. Speakers, generally, prefer patterns in which either the nominal complement is fronted, as in (71b), or the sequence *helemaal* + *A*, as in (71c); see also Broekhuis (2013).

- (71) a. <sup>??</sup>*Dat geld    helemaal waard* zal hij nooit zijn.  
           that    money entirely    worth will he never be  
       b. *Dat geld* zal hij nooit *helemaal waard* zijn.  
       c. *Helemaal waard* zal hij *dat geld* nooit zijn.

On the basis of the phenomena in (69)-(71), I conclude that the nominal complement can be part of the extended adjectival projection, even though there is a tendency for the nominal complement to leave the adjectival projection and move to a position within the clausal domain. If the nominal complement stays within the adjectival domain, the complement typically occupies a position in the left periphery of the adjectival projection, i.e., a position preceding a modifier like *helemaal* ‘entirely’.

Clearly, the clause-internal middle-field position in (69) is a movement-derived position; the noun phrase is not part of the phrasal projection whose head assigns a thematic role to it. The left peripheral position within the extended adjectival projection is also a movement-derived position. Normally, an internal argument is closer to a theta-assigning head than is a modifier (e.g., *helemaal*). Now, if the two positions have a movement-derived status, we would expect to find a freezing effect if material is moved out of the displaced nominal complement.

Consider at this point the data in (72):

- (72) a. <sup>??</sup>*Wat<sub>i</sub> zal Jan voorgoed* [[*t<sub>i</sub> voor iemand*]<sub>j</sub> *helemaal trouw t<sub>j</sub>*] *blijven*?  
           what    will Jan for.ever            for    someone entirely    loyal    stay  
           'What kind of person will Jan forever stay loyal to?'  
       b. <sup>\*</sup>*Wat zal Jan* [*t<sub>i</sub> voor iemand*]<sub>j</sub> *voorgoed* [*t<sub>j</sub> helemaal trouw t<sub>j</sub>*] *blijven*?

These examples illustrate the phenomenon of *wat voor*-split (see e.g., Den Besten 1985), which is familiar from examples like *Wat heb je voor boeken gekocht?* (what have you for books bought; ‘What kind of books did you buy?’), where *wat* has been extracted out of a direct object argument of the verb, leaving behind the sequence *voor boeken*. As indicated in (72a,b), subextraction of *wat* yields an ill-formed sentence. The sentence becomes acceptable if the wh-word *wat* drags along (‘pied pipes’) the rest of the noun phrase:

- (73) *Wat voor iemand<sub>i</sub> zal Jan voorgoed* [*t<sub>i</sub> helemaal trouw t<sub>j</sub>*] *blijven*?

Having presented some properties of adjectival expressions headed by a transitive adjective, I will finish this section with a more precise syntactic analysis of this type of adjectival construction. As a starting point and also building on what I argued for in sections 2 and 3, I will take the position that deverbal adjectives such as *bewust* and *gewend* in (67a,b) display the same phrase structural ambiguity as the deverbal adjective *afhankelijk*. Specifically, an extended adjectival phrase having *gewend* as its semantic “head” can have three kinds of structural analyses. Those three analyses are represented in (74), where, for the sake of presentation, I have chosen comparative adjectival structures. The adjectival expressions in (75a,b,c) are illustrations of the patterns in (74a,b,c).

- (74) a. [AP [FP [QP meer] [F' F [VP [PP daaraan] wen]]] ge-...-d] (Compare (24))  
 b. [AP [FP [QP meer] [F' F [VP ~~wen~~]]] [ge-wen-d] daaraan] (Compare (28))  
 c. [QP [Q' -er<sub>[comparative]</sub> [AP gewend daaraan]]] (Compare (54))

- (75) a. ...dat Jan [meer daaraan gewend] raakte.<sup>20</sup>  
 ...that Jan more that.to accustomed got  
 '...that Jan got more used to that.'  
 b. ...dat Jan [meer gewend daaraan] raakte.  
 c. ...dat Jan [gewender daaraan] raakte.

(74a,b) are analytic comparative structures that are built "on top of" a deverbal adjective *gewend*. Analogously to deverbal *afhang-elijk* (= *afhankelijk*), I take the surface form *gewend* in (74a,b) to be a composite form consisting of a verbal part (*wen*) and an adjectival suffixal part, *in casu* the circumfixal morpheme *ge- .. -d*. In (74a), the PP is base-generated to the left of *gewend*, whereas, in (74b), it is base-generated to the right of the composite adjectival form [<sub>A</sub> *ge-wen-d*]. As indicated, I take these deverbal adjectival forms to be compatible with analytic comparative formation. Specifically, the free morpheme *meer* acts as a modifier of the verbal part of XAP. Consider next (74c). I take this representation to be the one that is built on top of the "regular" adjective *gewen*, that is, the adjective that does not have a composite form and corresponds to non-analyzable adjectives such as *bang* 'afraid', *trots* 'proud' but also *trouw* 'faithful' and *moe* 'tired' in (67c,d). Thus, non-composite *gewend* looks like: [<sub>A</sub> *gewend*]. When *gewend* has this lexically adjectival status, the extended projection of *gewend* has the functional layers that are typically found with "regular" adjectives. I assume that the synthetic comparative form *gewender* is derived by head movement of the adjective *gewend* to the bound comparative morpheme *-er*.

Taking the structures in (74) as our background, let us next consider the superficially transitive adjectival patterns; that is, the ones featuring a bare DP. As a starting point for my analysis, I take the contrast in (76)-(77) between the a-examples, on the one hand, and the b-examples, on the other.

- (76) a. Jan raakte [gewender daaraan dan Piet].  
 Jan got used-COMPAR that.to than Piet  
 'Jan got more used to that than Piet did.'  
 b. ?\*Jan raakte dat gewender dan Piet.  
 Jan got that used- COMPAR than Piet

- (77) a. Jan bleef [trouwer aan de wet dan Piet].  
 Jan stayed loyal-COMPAR to the law than Piet  
 'Jan stayed more loyal to the law than Piet did.'  
 b. ?\*Jan bleef [de wet trouwer dan Piet].  
 Jan stayed the law loyal- COMPAR than Piet

These examples show that transitive adjectives carrying the bound comparative morpheme *-er* are much worse than synthetically marked comparative adjectives taking a PP-complement; see also Zwart (1993). The question arises what this contrast tells us about the derivation of each pattern. If synthetic comparative forms such as *gewender* and *trouwer* are derived by means of A-to-Q movement, where Q is lexicalized by the bound morpheme *-er*, then somehow A-to-Q movement must be blocked in patterns featuring a transitive adjective. It would be interesting if the ill-formedness of the b-examples could be connected to this other remarkable property of transitive adjectives: the presence of a "bare" (i.e., preposition-less) DP at the surface. With Emonds (1985), I will assume that the bare DP is actually a hidden PP. More specifically, following Emonds (1985), I will take morphological case to be an *alternative realization* of the case assigning head (*in casu* P). That is, the morphological case is an affixal (specifically: suffixal) realization of P on the object-DP: [DP+P<sub>aff</sub>].<sup>21</sup> Schematically, with subscripted P being affixal P (= morphological case):

<sup>20</sup> Observe that regular (i.e., non-deverbal) transitive adjectives such as *trouw* 'faithful' and *moe* 'tired' typically do not combine with the free morpheme *meer*: ??*meer trouw eraan*. Compare with (16a).

<sup>21</sup> See also Pesetsky (2013) for the idea that Case is a part-of-speech suffix.

(78)  $[_{AP} A [_{PP} P DP]] \rightarrow [_{AP} A [_{PP} P [DP_P]]]$

In a morphologically rich language like German, this hidden P surfaces overtly as morphological (oblique) case (i.e., affixal P) on the DP-object. This is exemplified in (79); examples drawn from Van Riemsdijk (1983).

- (79) a. Dieser Mann muss *des Französischen mächtig* sein.  
 this man must the.GEN French.GEN in-command be  
 'This man must speak French.'
- b. Das Französische ist *ihm ungeläufig*.  
 the French is him.DAT not-fluent  
 'He is not fluent in French.'

I propose that (present-day) Dutch transitive adjectival constructions also feature the operation in (78), with the difference that suffixal P does not spell out overtly; that is, it is a null-affix.

The question arises why P, the head of PP, does not surface overtly. One might conjecture that it does not have to be realized, since it already "surfaces" as a part-of-speech affix (overt in German, silent in Dutch). In a way, the contents of empty P are recoverable from the affixal realization on DP. But that cannot be the complete answer since, in a language like German, there are prepositional phrases in which both P and affixal p are realized simultaneously, as in *mit dem Mann* (with the.DAT man.DAT, 'with the man'), where dative case on the DP is a realization of affixal P. I, therefore, tentatively propose that the absence (i.e., non-realization) of P is due to incorporation of P into the "transitive" adjective. Schematically, elaborating on (78):

(80) a.  $[_{AP} A [_{PP} P DP]] \rightarrow [_{AP} A [_{PP} P [DP_P]]] \rightarrow [_{AP} [P_i+A] [_{PP} t_i [DP_P]]]$   
 b.  $[_{AP} gewend [_{PP} P DP]] \rightarrow [_{AP} gewend [_{PP} P [DP_P]]] \rightarrow [_{AP} [P_i+gewend] [_{PP} t_i [DP_P]]]$

According to the analysis sketched in (80), "transitive" *gewend* is a composite adjectival head consisting of an adjective and an incorporated (silent) P. As a result of the P-incorporation process the adjective *gewend* no longer has a non-composite form. Under the assumption that only "regular" adjectives (i.e., simplex A) can move to comparative *-er*, the ill-formedness of the b-examples in (76)-(77) is accounted for. Importantly, the a-examples in (76)-(77) are fine because P (*aan*) has not been incorporated into A.

Having tried to give an analysis of the nature of the bare DP and the nature of the transitive adjective, let us examine the placement of the superficially bare object. Consider, for example, the derivation of a string like *zo iemand helemaal trouw* (such a person entirely loyal, 'entirely loyal to such a person') in (68c), where *zo iemand* occupies the left periphery of the adjectival projection. Recall that the nominal complement cannot occupy a position in between the modifier *helemaal* and the adjective: \**helemaal zo iemand trouw*. In other words, the nominal complement must move to the left periphery of the adjectival projection. Under the assumption that a modifier like *helemaal* 'entirely' occupies Spec,QP, the word order *zo iemand helemaal trouw* can be derived by moving (scrambling) the nominal complement to the edge position of the adjectival projection:

(81)  $[_{QP} [_{PP} t_i [_{DP} zo iemand]]]_j [_{QP} helemaal [_{AP} [P_i+trouw] t_j]]]$

As indicated in (81), I assume that the entire PP-complement has moved to the left periphery of the adjectival projection. The left peripheral position occupied by *zo iemand* in (81) is clearly a derived position. In line with the Freezing principle, this position is frozen: extraction of material out of the left peripheral prepositional phrase is blocked.<sup>22</sup> For example, *wat* in (72a) cannot be removed from the noun phrase *wat voor iemand*, which is part of the XAP *wat voor iemand helemaal trouw*. Notice, finally, that subextraction from the superficially bare DP (actually, a PP) is also blocked when it has moved to a position in the clausal middle field (see (72b)). Clearly, *wat voor iemand* occupies a derived position in (72b) and, therefore, subextraction of the wh-element *wat* is impossible.

<sup>22</sup> Possibly, the silent PP-layer on top of the DP also plays a role in the impossibility of extracting material from within the object-DP. Normally, PPs are islands for extraction in Dutch (see Van Riemsdijk 1978).

## 6. More PP-DP alternations and freezing effects

The previous section discussed adjectival expressions that exhibit a PP-DP alternation at the surface; for example, *trouw aan mij* (loyal to me) and *mij trouw* (me loyal). This section discusses another type of adjectival construction displaying a PP-DP alternation, viz., adjectival constructions featuring the degree word *te* 'too'; see also Den Besten 1989, Hoekstra 1991, Corver 1997b, Broekhuis 2013 for discussion. As shown in (82a), this degree word is able to license an indirect object PP headed by the preposition *voor*. Besides the pattern *te-A-PP*<sub>IO</sub> we also find the surface pattern *DP*<sub>IO</sub>-*te-A* (see (82b)).<sup>23</sup>

- (82) a. *Deze wijn is \*(te) zoet voor mij.*  
 this wine is too sweet for me  
 b. *Deze wijn is mij \*(te) zoet.*  
 this wine is me too sweet  
 'This wine is too sweet for me.'

The degree word *te* in (82a,b), indicates that the subject of the adjective (*deze wijn*) possesses the property denoted by the adjective to an extent that exceeds a certain norm, where the norm is defined in terms of the person whose evaluation is given (i.e., the person sets the norm).

The question arises as to how the word order alternation in (82) can be accounted for. Also, how does this word order alternation interact with the phenomenon of freezing? In this section, I will try to give an answer to these questions. I will start my investigation, however, with the (basic) question whether the sequences *te-A-PP* and *DP-te-A* form constituents.

Evidence in support of the constituency of the sequence *te-A-PP* comes from various phenomena. First of all, as shown in (83a), fronting of the sequence yields a quite acceptable sentence. Secondly, the string can be substituted for by a pro-form *dat* 'that' (see (83b)). Thirdly, as shown in (83c), which must be pronounced with accent on *zoet* and *droog*, the string can function as a conjunct in a coordinate structure. Normally, a string functioning as a conjunct is taken to be a constituent.

- (83) a. <sup>?</sup>*Iets te zoet voor mij is deze wijn.*  
 a-little too sweet for me is this wine  
 b. *Deze wijn is iets te zoet voor mij en die wijn is dat ook.*  
 this wine is a-little too sweet for me and that wine is that too  
 c. [En [*iets te zoet voor mij*] en [*iets te droog voor mij*]] is deze wijn.  
 and a-little too sweet for me and a-little too dry for me is this wine

As shown by the following examples, the PP headed by *voor* can also occur at the left periphery of the XAP.<sup>24</sup>

- (84) a. <sup>?</sup>*Voor mij iets te zoet is deze wijn.*  
 for me a-little too sweet is this wine  
 b. <sup>?</sup>*Deze wijn is voor mij iets te zoet en die wijn is dat ook.*  
 this wine is for me a-little too sweet and that wine is that too  
 c. [En [*voor mij iets te zoet*] én [*voor jou iets te zoet*]] is deze wijn.  
 and for me a-little too sweet and a-little too dry too sweet is this wine  
 d. *Deze voor mij iets te zoete wijn komt uit Oostenrijk.*  
 this for me a-little too sweet wine comes from Austria

Example (84a), in which the XAP has been fronted to the left periphery of the clause, sounds a little more degraded to my ear than does (83a). (84b) shows that the XAP containing the left peripheral *voor*-PP can be substituted for by the

<sup>23</sup> This word order alternation is also found with adjectival expressions featuring the degree word *genoeg*, as in *Deze wijn is zoet genoeg voor mij* (This wine is sweet enough for me) and *Deze wijn is mij zoet genoeg* (this wine is me sweet enough; 'This wine is sweet enough for me.').

<sup>24</sup> The attributive adjectival pattern in (84d) does not have a counterpart in which the *voor*-PP is at the end of the XAP. The ill-formed sequence *deze iets te zoete voor mij wijn* is ruled out by the principle that blocks right recursion for phrases occurring on left branches; see footnote 18.

pro-form *dat*. In (84c), which must be pronounced with an accent on *mij* and *jou*, the XAP forms a conjunct of a coordinate structure. In (84d), finally, the sequence *voor mij iets te zoete* functions as an attributive modifier. This attributive behavior also suggests that the sequence functions as a syntactic unit.

The same constituency tests as in (83)-(84) can be applied to the sequence  $DP_{IO} + te + A$ . Some of the sentences have a slightly degraded status, but they do not seem to be completely impossible.

- (85) a. <sup>?</sup>*Mij iets te zoet* is deze wijn.  
 me a-little too sweet is this wine  
 b. Deze wijn was *mij iets te zoet* en die wijn was *dat* ook.  
 this wine was me a-little too sweet and that wine was that too  
 c. <sup>?</sup>Deze wijn was [niet alleen [niemand te droog] maar ook [niemand te zoet]].  
 this wine was not only noone too dry but also noone too sweet  
 d. Deze [*mij iets te zoete*] wijn komt uit Oostenrijk  
 this me a-little too sweet wine comes from Austria

As shown by the examples in (86), both the IO-DP and IO-PP can be part of an XAP when the latter occupies a clause internal position. Observe that the IO-DP/PP follows a (preferably accented) clausal modifier.

- (86) a. ...dat deze wijn NOG NOOIT [(voor) ook maar iemand iets te zoet] was.  
 ...that this wine yet never for anyone a.little too sweet was  
 b. ...dat dit soort maatregelen AL JAREN [(voor) sommige mensen veel te gortig] zijn.  
 ...that this kind measures already years for some people much too unacceptable are

Besides placement of the IO-DP/PP within the left periphery of the extended adjectival projection, it is also possible to move ("scramble") the IO-DP/PP to a position in the clausal middle field.

- (87) a. ...dat deze wijn (voor) *de sommelier*<sub>i</sub> NOG NOOIT [<sub>i</sub> ook maar iets te zoet] was.  
 ...that this wine for the sommelier yet never anyone a.little too sweet was  
 b. ...dat dit soort maatregelen (voor) *de meeste burgers*<sub>i</sub> AL JAREN [<sub>i</sub> veel te gortig] zijn.  
 ...that this kind measures for the most citizens already years much too unacceptable are

Before addressing the question whether subextraction is permitted from the IO-DP/PP, I briefly consider the internal syntax of the patterns *iets te zoet voor mij* (83), *voor mij iets te zoet* (84), and *mij iets te zoet* (85). Given the fact that the IO is selected by *te*, I assume that (voor) *mij* has its base position within the projection DegP; see (88a). I take the word orders *voor mij iets te zoet* and *mij iets te zoet* to be derived word orders. Specifically, the IO-DP/PP has been moved (scrambled) to a position in the left periphery of the XAP, as in (88b,c):

- (88) a. [<sub>DegP</sub> iets [<sub>Deg'</sub> [<sub>Deg'</sub> te [<sub>AP</sub> zoet]] [<sub>PP</sub> voor mij]]]  
 b. [<sub>DegP</sub> [voor mij]<sub>j</sub> [<sub>DegP</sub> iets [<sub>Deg'</sub> [<sub>Deg'</sub> te [<sub>AP</sub> zoet]] <sub>t<sub>i</sub>]]]  
 c. [<sub>DegP</sub> [<sub>P</sub> <sub>∅</sub> mij]<sub>j</sub> [<sub>DegP</sub> iets [<sub>Deg'</sub> [<sub>Deg'</sub> te [<sub>AP</sub> zoet]] <sub>t<sub>i</sub>]]]<sup>25</sup></sub></sub>

Having shown that the strings *te+A+PP*, *PP+te+A*, and  $DP_{IO}+te+A$  can form a constituent and having given an analysis of their internal syntax, let us now examine their subextraction behavior. Notice, first of all, that subextraction of an R-pronoun from within the PP (and from within the XAP) is permitted when the PP is in its base position (see (88a)). This is exemplified in (89a). As shown in (89b,c), however, subextraction is blocked when the PP occupies a movement-derived position. In (89b), subextraction takes place from a left-peripheral (scrambled) position within the XAP, and in (89c) from a scrambled position within the clausal middle field.

- (89) a. Het meisje *waar*<sub>i</sub> deze opdrachten AL JAREN [veel te moeilijk [<sub>i</sub> voor]] zijn (heet Susan).  
 the girl who these exercises already years far too difficult for are (is-called Susan)  
 'The girl for whom these exercises have been far too difficult for (is called Susan).'

<sup>25</sup>  $P_{\emptyset}$  stands for a silent preposition. The question, obviously, arises how this silent P is licensed. Along the lines of the analysis given for transitive adjectives in section 5, one might propose that silent P results from incorporation of P into another (c-commanding) head. Possibly, the IO-P gets incorporated into the degree word *te*. I leave this issue for future research.

- b. \*Het meisje *waar*<sub>i</sub> deze opdrachten AL JAREN [[*t*<sub>i</sub> *voor*]<sub>j</sub> veel te moeilijk *t*<sub>j</sub>] zijn (heet Susan).  
 c. \*Het meisje *waar*<sub>i</sub> deze opdrachten [*t*<sub>i</sub> *voor*]<sub>j</sub> AL JAREN [veel te moeilijk *t*<sub>j</sub>] zijn (heet Susan).

Subextraction from the IO-DP is also ruled out (see also Hoekstra 1991:169). This is illustrated in (90c,d), where the *wh*-word *wat* has been moved out of a larger *wat voor*-noun phrase. Examples (90a,b) show that the indefinite IO noun phrase *zulke burgers*—say, the "non-interrogative" counterpart of the indefinite noun phrase *wat voor boeken*—can occur in the left periphery of XAP or in a clause-internal middle field position.

(90) Ik wil weleens weten ...

I want PRT know ..

- a. ...of dit soort maatregelen<sub>SUBJ</sub> OOIT [zulke burgers<sub>IO</sub> te gortig] worden.  
 ... whether this sort measures one.day such citizens too unacceptable become  
 '...whether this kind of measures will get too unacceptable for such citizens.'  
 b. ... of dit soort maatregelen *zulke burgers*<sub>i</sub> ooit [*t*<sub>i</sub> te gortig] worden.  
 c. \*...*wat*<sub>i</sub> deze maatregelen OOIT [*t*<sub>i</sub> voor burgers te gortig] worden.  
 ... what these measures one.day for citizens too unacceptable become  
 '...for what kind of citizens these measures will get too unacceptable one day.'  
 d. \*...*wat*<sub>i</sub> deze maatregelen [*t*<sub>i</sub> voor burgers]<sub>j</sub> ooit [*t*<sub>j</sub> te gortig] worden.

The examples in (90c,d) show that subextraction from a DP<sub>IO</sub> is impossible. Since the DP<sub>IO</sub> occupies a movement-derived position, this violation can be characterized as a freezing effect. Notice for the sake of completeness that displacement of the entire DP<sub>IO</sub> (actually, a PP; see (88c)) is permitted:

(91) Ik wil weleens weten *wat voor burgers*<sub>i</sub> deze maatregelen ooit [*t*<sub>i</sub> te gortig] worden.

I want PRT know what for citizens these measures one.day too unacceptable become  
 'I would like to know for what kind of citizens these measures will get too unacceptable one day.'

Summarizing: in this section it was shown that the IO-DP/PP selected by the degree word *te* forms an island for extraction when it occupies a derived position in the left periphery of XAP or a derived position in the clausal middle-field.

## 7. Labeling and freezing

In the previous sections, we saw that subextraction from PP (i.e., extraction of an R-pronoun) or DP (i.e., *wat voor* split) is blocked if those constituents occupy a position in the left periphery of the adjectival expression or some position in the clausal middle field. Since those positions are derived (i.e., non-base) positions, subextraction is blocked, in line with Ross's (1967) and Wexler & Culicover's (1980) insight that displaced constituents are islands for extraction. In the course of time, various proposals have been made to account for the islandhood of displaced constituents (see Corver 2006 for an overview). In Rizzi (2012), an analysis of freezing effects in terms of Chomsky's labeling theory (see Chomsky 2013) is proposed. According to Chomsky's labeling approach, displacement (I-merge) of a phrase XP (consisting of X and ZP) to some left peripheral landing site YP—in Rizzi (1997, 2006)'s terms: 'a criterial position'—creates a configuration like (92):

(92) ..... [<sub>α</sub> [<sub>XP</sub> X<sub>α</sub>] [<sub>YP</sub> Y<sub>α</sub> ..... ~~XP~~ .....]]

According to Chomsky's (2013) labeling theory, X and Y can jointly determine the label of  $\alpha$  if they share the same criterial feature. This is what happens, for example, in the Dutch sentence (93), where the *wh*-word *wie* and the interrogative complementizer *of* share the interrogative feature Q.

(93) Ik vraag me af [<sub>XP</sub> *wie*<sub>+Q</sub>] [<sub>CP</sub> *of*<sub>+Q</sub> [hij ~~*wie*~~ zag]].

I wonder REFL PRT who whether he saw  
 'I wonder who he saw.'

If X and Y do not share a feature in (92),  $\alpha$  won't get labeled, which yields an ill-formed structure (i.e., a structure which is not interpretable at the LF-CI-interface). This happens, for example, in (94a), where *wie* carries an interrogative feature Q and the complementizer *dat* carries the feature -Q (i.e., declarative). If the wh-phrase *wie* moves on, as in the long-distance wh-extraction pattern in (94b), labeling of  $\alpha$  is possible; this for the reason that the copy of *wie* is invisible for labeling. In other words, the declarative complementizer  $C_{-Q}$  labels  $\alpha$  as  $CP_{-Q}$ .

- (94) a. \*Jij denkt [<sub>α</sub> [<sub>CP</sub> <sub>dat</sub>-Q [hij ~~wie~~ zag]]].  
 youthink who that he saw  
 b. [<sub>Wie</sub>+Q] denk jij [<sub>α</sub> [<sub>wie</sub>-Q [<sub>CP</sub> <sub>dat</sub>-Q [hij ~~wie~~+Q zag]]]]?  
 who think you that he saw  
 'Who do you think that he saw?'

Consider now what happens when an element is extracted out of a displaced phrasal constituent. Schematically, we have the representation in (95). A concrete example instantiating this pattern is given in (95b). In this example, a preposition is stranded in an intermediate landing site position.

- (95) a. \*ZP ..... [<sub>XP</sub> ZP X] [<sub>YP</sub> Y ..... ~~X~~P .....]  
 b. \*Waar denk je [<sub>PP</sub> ~~waar~~ aan] [<sub>CP</sub> <sub>dat</sub>-Q Jan een boek ~~waaraan~~ gaf]]?  
 who think you to that Jan a book gave  
 'Who do you think that Jan gave a book to?'

As Rizzi (2012) points, the ill-formedness of patterns like (95b) follows from labeling: X (= *aan*) and Y (= the complementizer *dat*) compete for labeling of  $\alpha$ . They are equally close to  $\alpha$  and consequently both qualify as potential labeling candidates. Since they do not share a relevant feature,  $\alpha$  cannot be labeled via feature sharing. A consequence of this situation is that  $\alpha$  does not get labeled. Therefore the structure is ill-formed (i.e., uninterpretable at the LF-CI interface).

For reasons of space, I will not show for each freezing effect discussed in the previous sections how it can be derived. On the basis of the freezing effect exemplified in (96), however, I will show how freezing effects in the adjectival domain can be accounted for in terms of labeling theory.

- (96) \*Waar<sub>i</sub> is Jan [<sub>t<sub>i</sub></sub> van (veel) afhankelijker] geweest? PP + A-COMPAR (Compare (53b))  
 what has Jan on much dependent-COMPAR been  
 'What has Jan been (much) more dependent on?'

In my discussion of example (53b), I assumed that displacement of PP to the left periphery of the extended adjectival projection (XAP) involved adjunction to XAP's highest functional layer; see example (97a), which is a slightly adapted version of example (56).

- (97) [<sub>QP</sub> [<sub>PP</sub> waar van]<sub>j</sub> [<sub>QP</sub> veel [<sub>Q'</sub> afhankelijk<sub>i</sub>-er<sub>[comparative]</sub> [<sub>AP</sub> t<sub>i</sub> t<sub>j</sub>]]]]]

Suppose that, in line with Rizzi's cartographic approach, displacement of PP to XAP's left periphery involves movement to the "specifier" position of a designated functional projection. In (98a), I represent this left peripheral node as  $CP_A$  (i.e., the highest functional projection in the XAP, which functions as a landing site for XAP-internally displaced constituents). Extraction of *waar* out of the displaced PP yields the configuration in (98b).

- (98) a. ... [<sub>α</sub> [<sub>PP</sub> waar van]<sub>j</sub> [<sub>CP</sub> C<sub>A</sub> [<sub>QP</sub> veel [<sub>Q'</sub> afhankelijk<sub>i</sub>-er<sub>[comparative]</sub> [<sub>AP</sub> t<sub>i</sub> t<sub>j</sub>]]]]]]]  
 b. Waar<sub>k</sub> ..... [<sub>α</sub> [<sub>PP</sub> t<sub>k</sub> van]<sub>j</sub> [<sub>CP</sub> C<sub>A</sub> [<sub>QP</sub> veel [<sub>Q'</sub> afhankelijk<sub>i</sub>-er<sub>[comparative]</sub> [<sub>AP</sub> t<sub>i</sub> t<sub>j</sub>]]]]]]]

After *waar* has been moved out of the left-peripheral PP, P (*van*) and (adjectival) C are in competition with each other for labeling of  $\alpha$ . As a result of that, the entire extended adjectival projection cannot be labeled, and, consequently, the structure is ill-formed.

When the entire PP (*waarvan*) leaves the “specifier” of adjectival CP, as in (99), no labeling problem arises: the trace/copy of *waarvan* is not visible. Adjectival C wins the competition for labeling, and consequently the highest projection of the XAP has a label and is interpretable at the LF-CI interface.

- (99) a. *Waarvan<sub>k</sub> is Jan [t<sub>k</sub> (veel) afhankelijker] geweest?*  
 what.on is Jan much dependent-COMPAR been  
 ‘On what has Jan been (much) more dependent?’  
 b. *Waarvan<sub>k</sub> ..... [<sub>α</sub> t'<sub>k</sub> [<sub>CP</sub> C<sub>A</sub> [<sub>QP</sub> veel [<sub>Q'</sub> afhankelijk<sub>i</sub>-er<sub>[comparative]</sub> [<sub>AP</sub> t<sub>i</sub> t<sub>k</sub>]]]]]]]*

In this section, I showed how Rizzi's (2012) analysis of freezing effects in terms of Chomsky's (2013) labeling theory can be extended to freezing effects in the Dutch adjectival system.

## 8. Conclusion

The phenomenon of Freezing has mostly been studied from the perspective of the clausal domain (i.e., the extended verbal projection, in the sense of Grimshaw 1991/2005). Satellite constituents (e.g., a PP-complement) of the verb that have undergone displacement are typically frozen in their derived positions; that is, subextraction is blocked. From the perspective of cross-categorial symmetry, one would expect to find freezing effects not only in the clausal domain but also in other types of phrasal domains. That is, islandhood of a phrase XP as a result of displacement of that XP is expected to be a cross-categorial phenomenon in human language. In this chapter I have tried to show for the extended adjectival projection (XAP) that displaced satellites that find their origin in an XAP-internal base position get frozen once they end up in a derived position. This derived position can be XAP-internal (e.g., the left periphery of the XAP) or some XAP-external position (e.g., a scrambled position in the clausal middle field). It was further shown that the various freezing effects involving the adjectival system could be derived in terms of Rizzi's (2012) account of freezing phenomena, which is based on Chomsky's (2013) theory of labeling.

An important ingredient of my analysis of the Dutch adjectival system concerned the distinction between "regular" (i.e., structurally non-composite) adjectives such as *bang* 'afraid', on the one hand, and deverbal (i.e., structurally composite) adjectives, such as *afhankelijk* 'dependent', on the other hand. The former class takes its (base-generated) PP-complement to the right (i.e., A + PP). The latter class has two options: The base-generated PP-complement occurs either to the left of an XAP-internal verbal root (i.e., PP + V) or to the right of a derived deverbal adjective ([<sub>A</sub> V+*elijk*] + PP). It was further shown that adjectives such as *afhankelijk* can also behave like "regular" adjectives (like *bang* 'afraid'). In that case, they are non-composite adjectives (i.e., [<sub>A</sub> *afhankelijk*]) that take their complement to the right (i.e., A + PP). A consequence of this mixed behavior of deverbal adjectives is that there is more than one structural base position for PP-complements. Specifically, in both (*erg*) *daarvan afhankelijk* (very that.on dependent; 'very dependent on that') and (*erg*) *afhankelijk daarvan*, the PP *daarvan* occupies a base position. As a consequence of that, subextraction is possible from both structural positions.

Another outcome of my analysis of the Dutch extended adjectival projection is that displacement is a quite common phenomenon within the Dutch adjectival domain. Obviously, it would be interesting to find out whether XAP-internal displacement is also attested in languages other than Dutch, and if so, whether it triggers freezing effects. I will leave the cross-linguistic study of freezing effects in the adjectival system to future research.

## Bibliography

- Abney, Steven 1987. *The English noun phrase in its sentential aspect*. MIT, PhD dissertation.  
 Barbiers, Sjeff 1995. *The syntax of interpretation*. Leiden university, PhD dissertation.  
 Barbiers, Sjeff 2000. The right periphery in SOV languages: English and Dutch. In: Peter Svenonius (ed.), *The derivation of VO and OV*, 45-67. Amsterdam & Philadelphia: John Benjamins.  
 Besten, Hans den 1985. The ergative hypothesis and free word order in Dutch and German. In: Jindrich Toman (ed.), *Studies in German grammar*, 23-62. Dordrecht: Foris.

- Biberauer, Theresa, Anders Holmberg and Ian Roberts 2008. Disharmonic word-order systems and the Final-over-Final-Constraint (FOFC). In: Bisetto, A. & F.E. Barbieri (eds.), *Proceedings of the XXXIII incontro di Grammatica Generativa*, 86-105. University of Bologna: Department of Modern Languages and Literatures.
- Broekhuis, Hans 2013. *Syntax of Dutch. Adjective and adjective phrases*. Amsterdam: Amsterdam University Press.
- Broekhuis, Hans 2008. *Derivations and evaluations: Object shift in the Germanic languages*. Berlin & New York: Mouton de Gruyter.
- Broekhuis, Hans and Norbert Corver 2016. *Syntax of Dutch. Verbs and verb phrases*. Volume 3. Amsterdam: Amsterdam University Press.
- Chomsky, Noam 2013. Problems of projection. *Lingua* 130. 33-49.
- Cinque, Guglielmo 1999. *Adverbs and functional heads: A cross-linguistic perspective*. Oxford: Oxford University Press.
- Corver, Norbert 1997a. *Much-Support as a last resort*. *Linguistic Inquiry* 28.1. 119-164.
- Corver, Norbert 1997b. The internal syntax of the Dutch extended adjectival projection. *Natural Language and Linguistic Theory* 15. 289-368.
- Corver, Norbert 2006. Freezing effects. In: Everaert, Martin & Henk van Riemsdijk (eds.), *The Blackwell Companion to Syntax*, 2, 383-406. Malden, MA & Oxford: Blackwell.
- Corver, Norbert 2009. Getting the (syntactic) measure of Measure Phrases. *The Linguistic Review* 26.1. 67-134.
- Emonds, Joseph 1976. *A transformational approach to English syntax*. New York: Academic Press.
- Emonds, Joseph 1985. *A unified theory of syntactic categories*. Dordrecht: Foris.
- Grimshaw, Jane 1991. Extended projection. Ms., Brandeis university, Waltham, MA. [Published in Grimshaw, J. (2005), *Words and structure*. 1-73. Stanford, CA: CSLI Publications.]
- Hoekstra, Eric 1991. *Licensing conditions on phrase structure*. University of Groningen, PhD Dissertation.
- Kayne, Richard 1994. *The antisymmetry of syntax*. Cambridge, Mass.: The MIT Press.
- Kayne, Richard 2000. *Parameters and universals*. Oxford: Oxford University Press.
- Kayne, Richard 2004. Prepositions as probes. In: A. Belletti (ed.), *Structures and beyond*. New York: Oxford University Press.
- Koopman, Hilda 1984. *The syntax of verbs*. Dordrecht: Foris.
- Koster, Jan 1975. Dutch as an SOV language. *Linguistic Analysis* 1. 111-136.
- Koster, Jan 2000. Extraposition as parallel construal. Ms. University of Groningen, <http://odur.let.rug.nl/~koster/papers/parallel.pdf>.
- Maling, Joan 1983. Transitive adjectives: A case of categorial reanalysis. In: F. Heny and B. Richards (eds.), *Linguistic Categories: Auxiliaries and Related Puzzles*, vol 1, 253-289. Dordrecht: Reidel.
- Pesetsky, David 2013. *Russian case morphology and the syntactic categories*. Cambridge, Mass.: The MIT Press.
- Platzack, Christer 1982. Transitive adjectives in Swedish: A phenomenon with Implications for the theory of abstract case. *The Linguistic Review* 2. 39-57.
- Riemsdijk, Henk van 1978. *A case study in syntactic markedness*. Dordrecht: Foris.
- Riemsdijk, Henk van 1983. The case of German adjectives. In: Heny, F. & B. Richards (eds.), *Linguistic categories: Auxiliaries and related puzzles*. Vol. 1, 223-252. Dordrecht: Reidel.
- Rizzi, Luigi 1997. The fine structure of the left periphery. In: L. Haegeman (ed.), *Elements of grammar*, 281-337. Dordrecht: Kluwer.
- Rizzi, Luigi 2006. On the form of chains: Criterial positions and ECP effects. In: L.L.-S. Cheng and N. Corver (eds.), *WH-movement: Moving on*, 97-133. Cambridge, Mass.: MIT Press.
- Rizzi, Luigi 2012. Cartography, criteria, and labeling. Ealing 2012 – Blaise Pascal lectures, Sept 11-13, 2012.
- Ross, John-Robert 1967. *Constraints on variables in Syntax*. MIT, PhD dissertation. [Published as *Infinite syntax!* (1986). Norwood, NJ: Ablex.]
- Schwarzschild, Roger 2005. Measure phrases as modifiers of adjectives. *Recherches Linguistiques de Vincennes* 34. 207-228.
- Travis, Lisa 1984. *Parameters and effects of word order variation*. MIT, PhD dissertation.
- Vries, Mark de 2002. *The syntax of relativization*. University of Amsterdam, PhD Dissertation.
- Wexler, Ken and Peter Culicover 1980. *Formal principles of language acquisition*. Cambridge, Mass.: MIT Press.
- Williams, Edwin 1981. On the notions "lexically related" and "head of a word." *Linguistic Inquiry* 12. 245-274.
- Zwart, Jan-Wouter 1993. *Dutch syntax. A Minimalist approach*. University of Groningen, PhD Dissertation.
- Zwarts, Frans 1974. On restricting base structure recursion in Dutch. Ms. University of Amsterdam.