

Getting the (syntactic) measure of Measure Phrases

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1. The syntax of measure phrases and the search for symmetry

An important characteristic of generative grammar is the quest for *symmetry*.¹ A classical example of this is Chomsky's (1970) X-bar theory, which states that phrases of different categorial types (i.e., NP, VP, AP, PP) have the same internal phrase-structural make-up. In line with this presumed parallelism in phrasal organization, grammatical functions are identified with specific structural positions in the syntactic representation. Chomsky points out that the distribution of grammatical functions such as subject and object is essentially the same in a sentence like *the enemy destroyed the city* and a nominal expression like *the enemy's destruction of the city*. The noun phrase *the enemy* occupies the so-called specifier position and functions as a subject of V and N. The noun phrase *the city*, on the contrary, functions as a direct object and occupies the complement position of the head (i.e., V, N).

Besides symmetry in phrasal structural organization, Chomsky (*ibidem*) points out cross-categorial symmetry in phrase internal displacement phenomena. The phenomenon of passivization, for example, is not restricted to the sentential domain (*The city was destroyed by the enemy*) but is also attested in the nominal domain (*the city's destruction by the enemy*). From this cross-categorial parallelism Chomsky concludes that the phenomenon of passivization should not be analyzed in terms of a construction specific rule of sentential passivization, but rather in terms of a general rule of *Move NP* that moves the direct object NP to the subject position (i.e., a specifier position) and applies across phrasal domains, *in casu* across sentences and nominal expressions.

This search for symmetry in phrasal organization and phrase internal rule application has always been a major guideline of generative syntactic research. This also holds for the topic of the present article: the syntax of measure phrases. In his LSA-paper entitled *The grammar of measure phrases*, Ross (1964) observed that measure phrases (MP) display a cross-categorial distribution. He gives the following examples to illustrate this:

- (1) a. *He hit the ball [six inches over the fence].*
- b. *This painting is [twenty dollars more expensive than that vase].*
- c. *He's struck out [two times more often than the pitcher].*
- d. *The box [weighs ten pounds].*

¹ Parts of the material discussed in this article were presented at: the workshop on antisymmetry in Cortona (May 2000), the Girona summerschool in Linguistics 2000, an UiL-OTS syntax seminar at Utrecht University (2002), the 2005 linguistics conference *A Matter of Taste* at Bucharest University, the GLOW 2006 workshop on adjuncts in Barcelona, and a syntax seminar at the university of São Paulo in May 2006. I thank the audiences for their comments and questions. I would also like to thank the following people for discussion of certain parts of this article: Anna Asbury, Theresa Biberauer, Marcel den Dikken, Jenny Doetjes, Marit Julien, Johan Rooryck, Roger Schwarzschild, Frenette Southwood, Roberta Tedeschi, and Craig Thiersch. Finally, I am also grateful to the TLR-reviewers for their useful comments.

In (1a), the MP *six inches* is contained within a PP. In (1b) and (1c), the MP is part of a comparative adjective phrase and adverb phrase, respectively. In (1d), finally, the MP *ten pounds* combines with a verb and is, consequently, part of a VP. Ross (1964: 1) remarks that “One might to be able to derive the MP occurring in these four environments from *one basic source*” (italics are mine).

This uniform approach towards the syntax of MPs is also found in Jackendoff’s (1977) seminal study of (English) phrase structure. He presents the following examples:

- (2) a. [_{NP} *a gallon of wine*]
 b. [_{AP} *Six feet tall*] *you’ll never be*.
 c. [_{PP} *Four hundred yards up the street*] *they encountered a panther*.
 d. *Jill* [_{VP} *ran around the tracks three times*].

As Jackendoff (p. 140) observes, the linear ordering of the MP with respect to the constituent it combines with varies: the MP precedes N (2a), A (2b) and P (2c), but it follows V (2d). It is clear, then, that a cross-categorial characterization of the grammatical relation *Measure Phrase* cannot be formulated in linear terms. Jackendoff therefore states that “In order to generalize the grammatical relation *measure phrase* to all categories we must apparently resort to a definition of the Aspects sort, which involves not order but only domination” (p. 140).² Taking the hierarchical relationship of dominance to be the defining notion, Jackendoff (p. 141, example (6.13)) gives the following cross-categorially uniform definition of the grammatical relation of measure phrase:

- (3) A *measure phrase* is an N^{'''} immediately dominated by X^{''}. (In the *Aspects* notation, [N^{'''}, X^{''}].)”

Thus, a uniform definition of MP is given in terms of MP’s hierarchical position in the syntactic representation. The characterization in (3) yields the following representations for the examples in (2):

- (4) a. nominal domain: [_{NP} [_{N^{''}} *a gallon of* [_{N[']} *wine*]]]
 b. adjectival domain: [_{AP} [_{A^{''}} *six feet* [_{A[']} *tall*]]]
 c. prepositional domain [_{PP} [_{P^{''}} *four hundred yards* [_{P[']} *up* [_{NP} *the street*]]]]]
 d. verbal domain: *Jill* [_{VP} [_{V^{''}} [_{V[']} *ran around the track*] *three times*]]

It goes without saying that this uniform treatment of MPs across categories has a certain conceptual attractiveness.³

² *Aspects* refers to Chomsky’s (1965) *Aspects of the Theory of Syntax*.

³ The search for cross-categorial symmetry has been a core heuristic strategy in syntactic research ever since Chomsky’s (1970) *Remarks on Nominalization*. See Abney (1987) and Szabolcsi (1983) among many others for further implementations of the idea of cross-categorial parallelism, more specifically cross-categorial parallels between the clausal and nominal systems.

In the present article, I will also adopt this uniformity approach towards the syntax of measure phrases, restricting myself to the syntactic behavior of measure phrases that occur within the nominal domain and the adjectival domain.⁴ An important starting point of my analysis will be the claim that measure phrases are (nominal) predicates (see also Schwarzschild 2005). Taking this as a common ingredient in the syntax of adjectival and nominal constructions featuring a measure phrase, I will address the question as to what syntactic processes are involved in the derivation of these constructions. One option would be to say that the MP is base-generated in a left branch ‘modifier’ position, quite along the lines of Jackendoff’s (1977) analysis, depicted in (4). In current minimalist terms, this approach towards the placement of the MP can be characterized as the E(xternal)-merge approach (cf. Chomsky 1995). Another option would be an analysis which takes the MP to be a displaced predicate, i.e., a predicate that starts out to the right of its ‘subject’ (i.e., the element over which it predicates) and ends up in a pre-subject position as a result of predicate movement. Under such an analysis, I(nternal) Merge would be part of the derivation. This analysis involving the computational operation of (predicate) displacement reminds us of the well-known *N of N*-construction, which is exemplified in (5a) and whose derived representation is schematically represented in (5b); cf. among others Kayne 1994, den Dikken 2006:

- (5) a. *that idiot of a man*
 b. *that [idiot]_j of a man t_j*

In this nominal construction, *idiot* is taken to be a nominal predicate that starts out in a position following *man* (the subject) and ends up to the left of it as a result of DP-internal predicate displacement.

A characteristic property of structures involving predicate displacement is the appearance of a linking element (see den Dikken 1995, 2006; Bennis et al. 1998). In the English example (5a), for example, we have the linking element *of* in between the two nominal elements, and in its French equivalent we find the linker *de*, as in *ce bijou d’église romane* (that jewel of Roman church); cf. Milner 1978; Kayne 1994; Doetjes and Rooryck 2003. As we will see in the course of this article, *of/de* also shows up in nominal and adjectival contexts featuring a MP (see (6) and (7)).

- (6) a. *two minutes of headstart*
 b. *deux minutes d’avance* (French)
- (7) *long de deux mètres* (French)
 tall of two meters
 ‘two meters tall’

⁴ As for the adjectival domain, I will restrict myself to MPs that combine with a dimensional adjective, as in *two meters tall*. I will not discuss here the syntax of MPs that combine with a degree word, as in *two feet too tall*, *two feet taller*. For discussion of these constructions, see, for example, Corver (1997a,b) and Corver (2005).

The question will be addressed as to whether these instances of *of/de* can be treated on a par with those found in the *N of/de N* environments, meaning that predicate displacement is involved in the derivation of these patterns.

Besides patterns featuring *of/de*, we will also find patterns in which some other 'linking' element occurs. In (8), for example, 's intervenes between the MP and the noun. The question obviously arises as to how to analyze this grammatical element 's.

(8) *a minute's headstart*

Finally, there are patterns in which no linking element whatsoever is present: the MP and the adjective/noun are simply juxtaposed:

- (9) a. *twee minuten voorsprong* (Dutch; compare with (6))
b. *a one minute headstart* (compare with (6a) and (8))
(10)a. *twee meter lang* (Dutch; compare with (7))
two meter tall
b. *alto due metri* (Italian; compare with (7))
tall two meters

The data in (6)-(10) show that the syntax of measure phrases in the nominal and adjectival domain is quite a rich domain of syntactic diversity, both intralinguistically (cf. (6a), (8), (9b)) and interlinguistically (cf. (6a,b) versus (9a), and (7) versus (10a) versus (10b)). Besides the dimension of variation regarding the presence or absence of a linking element, we also discern variation regarding word order. In (7) and (10b), for example, the MP follows the adjective, whereas in (10a) it precedes the adjective. The question will be addressed as to what underlies these word order differences. Also in this case, I will take the approach of symmetry/uniformity as a heuristic strategy, quite in line with Chomsky's (2001:2) *Uniformity Principle*, which states that "In the absence of compelling evidence to the contrary, assume languages to be uniform, with variety restricted to easily detectable properties of utterances."

The article is organized as follows. In Section 2, I will argue that MPs are predicate nominals. Section 3 provides the reader with some background information about the phenomenon of predicate displacement within the nominal domain and the adjectival domain. Section 4 discusses the syntax of MPs within the adjectival domain. In Section 5, I will examine the syntax of MPs within the nominal system. In Section 6, finally, some concluding remarks are made about the syntax of MPs.

2. Measure Phrases as predicate nominals

Measure (noun) phrases have been analyzed as argumental noun phrases. According to this approach, the MP is selected by a lexical head, which assigns some sort of thematic role to the measure noun phrase. In an adjectival phrase like *six feet tall*, for example, *six feet* is taken to be an argument of the dimensional adjective *tall* (cf. Creswell 1976; Heim 2001; Meier 2003). Thus, the dimensional adjective specifies in its thematic grid that it takes an MP as its internal argument.

As noted in Schwarzschild (2005:208), such an analysis of *six feet tall* faces a number of problems. First of all, the question arises as to why the MP-argument precedes the adjectival head. Arguments of adjectives normally follow the selecting adjective, as in *proud of Mary* and *full of water* (compare: **tall (of) six feet*). The pre-adjectival position is typically associated with modifiers such as *extremely* and *terribly*, as in: *extremely/terribly tall*. In other words, from a distributional point of view, the MP seems to have more in common with a modifier than with an argument. Also the fact that a modifier like *extremely* cannot co-occur with an MP like *six feet* suggests that the two elements compete for the same structural position within the adjectival projection; cf. Emonds (1985).

- (11) a. *John is [extremely tall].*
 b. **John is [two meters extremely tall].*

Another argument presented by Schwarzschild (*ibidem*) against an MP-as-argument-analysis comes from the phonological stress pattern associated with a sequence like *six feet tall*. In neutral contexts, main stress falls on the complement of A, and not on A (see (12a), where main stress is indicated by means of capital letters). As shown by (12b), in a sequence like *six feet tall*, stress falls on *tall* and not on the MP in neutral contexts. Also in this respect, the MP behaves more like the modifier *extremely* in (12c):

- (12) a. *John is [proud of MARY].*
 b. *John is [six feet TALL].*
 c. *John is [extremely TALL].*

In view of this non-argumental behavior of MPs, Schwarzschild concludes that an MP should not be analyzed as an argument of a lexical head, but rather as a modifier. More specifically, he argues that in *six feet tall*, the MP *six feet* is a predicate nominal that predicates over a non-thematic interval argument (i.e., a set of degrees on a scale, e.g., the set of degrees that equals ‘six feet’) that is associated with the dimensional adjective.⁵ Thus, a sentence like *John is six feet tall* can informally be paraphrased as follows: ‘John is tall to interval I, where I is (equals) six feet’; see Schwarzschild for more detailed discussion.

In support of the claim that MPs are predicates, Schwarzschild (2005:223) points out that MPs have a number of distinctive properties that follow from their role as predicates. More specifically, they cannot be formed with strong quantifiers (13) and they cannot be referential definites (14) or pronominals (15):

- (13) a. *John is [six feet tall].* a.’ **John is [every foot tall].*
 b. *John is [fifty years old].* b.’ **John is [most years old].*

⁵ Schwarzschild (2005:216) gives the semantic representation in (i) for a sentence like *Mary is five feet tall*. The element *tall*₂ stands for a dimensional adjective, i.e., an adjective that relates an individual x to an interval.

(i) $\exists I [\text{tall}_2 \text{ ‘(m,I) } \wedge \text{ five feet’(I)}$

- (14) a. *John is [six feet tall].* a.' **John is [my height tall].*
 b. *John is [5 years old].* b.' **John is [the/those years old].*
- (15) a. *He knows [your age]_j and he told me it_j.*
 b. **It turns out that I'm also [it old].*

Similar properties have been observed by Ross (1964, 2002) for measure phrases that combine with verbs such as *weigh* and *last* (see also Klooster 1972):

- (16) a. *The conference lasted [three/many days].*
 b. **The conference lasted [most days].* (cf. (13b'))
 c. **The conference lasted [those days / this weekend].* (cf. (14b'))
 d. **Last week's workshop lasted [three days] and this week's workshop lasted [them] too.* (cf. (15))

Another observation which seems to be in support of a predicate-like status of MP is the fact that it cannot be extracted from the domain of negation (i.e., Ross's 1984 inner island phenomenon). Extraction of an argumental noun phrase yields a much better result (cf. Koopman and Sportiche 1985; Rizzi 1990). This is exemplified in (17).

- (17) a. [?]*[How many pigs]_j don't you think John will weigh t_j?*
 b. **[How many pounds]_j don't you think John will weigh t_j?*

Another phenomenon with respect to which regular (argumental) noun phrases and measure phrases behave differently is parasitic gap licensing. The former license the appearance of a parasitic gap (see (18a)), the latter do not (see (18b)).

- (18) a. *[How many pigs]_i did you sell t_i [after having weighed t_i]?*
 b. **[How many miles]_i did you run t_i [after having swum t_i]?*

In view of the different syntactic behavior of 'regular' (i.e., argumental) noun phrases, on the one hand, and measure phrases, on the other hand, it seems fair to conclude that measure phrases are nonargumental noun phrases, which implies, following ideas by Szabolcsi (1987), Stowell (1989, 1991) and Longobardi (1994) that, categorially, they are not DPs but rather nominal projections of a categorial type lower in the extended nominal domain (e.g., NP and QP).⁶ These nominal projections are able to function as predicates within the syntactic configurations in which they are contained.

⁶ As noted in Ross (2002), the definite article must occur when the measure noun is modified by a relative clause. Compare, for example, (ia) and (ib):

- (i) a. *The posicle will cost (*the) \$20.*
 b. *I earned (*the) \$20 that the posicle will cost.*

A similar contrast is found with nouns such as *headway* that are part of an idiomatic expression (as in *to make headway*). Compare (iia) and (iib):

- (ii) a. *John made (*the) headway.*

Not unexpectedly, the behavior of MPs is quite similar to that of predicate nominals (see also Ross 2002). First of all, as shown in (19), predicate nominals that combine with a copular verb cannot be formed with strong quantifiers:⁷

(19) *We are (*most) linguists.*

Secondly, predicate nominals, just like MPs, cannot be referred to by a definite pronoun:

(20) **My friends are not yet [fans of Ronaldinho]_i but will soon be them_i.*

Thirdly, extraction of a predicate nominal from the domain of negation (the so-called inner island effect) does not yield a very good result:

(21) a. *What_j do you think John will become t_j when he is fifty?*
b. *?*What_j don't you think John will become t_j when he is fifty?*

Fourthly, as has been noted in Postal (1993:746), fronted wh-predicate nominals do not license parasitic gaps (example drawn from Postal 1993). Recall that MPs do not license parasitic gaps either (see (18b)).

(22) **What_j Jane turned [into t_j] [after praying not to become e_j] was a zombie.*

In short, there seem to be good reasons for analyzing MPs as predicate nominals. This non-argumental analysis of MPs also seems to be at the basis of Jackendoff's (1977) approach towards MPs. As shown in (4), MPs are generated as sisters of X' in his phrase structural analysis, and not as sisters of X (i.e., the position where (internal) arguments are generally located). Also his remark (page 138) that "[...] the parallel between, for

b. **(The) headway that John had made (was quite impressive.)*

Under Kayne's (1994) implementation of the promotion analysis of relative clauses, a complex noun phrase as in (i) may be assigned the structure in (iii), where the MP is a nominal projection (lower than DP) that raises to the spec-position of the CP that is a complement of the definite article:

(iii) [_{DP} the [_{CP} [_{\$20}]_i [_C that [_{TP} the posicle will cost t_i]]]]

⁷ As shown by the specificational copular sentence in (i), the copular verb can be followed by a definite noun phrase, i.e., a DP. This appears to be a problem for the hypothesis that predicate nominals are typically non-DPs (i.e., non-referential noun phrases), thus nominal projections of a categorial type hierarchically lower than DP.

(i) *John is the culprit.*

Following den Dikken (2006: 92 ff.), I will assume that this copular construction is an inverse copular sentence, whose pre-copular constituent (e.g., *John*), even though superficially a noun phrase within the matrix clause, is in fact a sub-constituent of a reduced free relative clause, which acts as a predicate over the matrix small clause subject *the culprit*. Under such an analysis, the DP *John* functions as a subject-argument of the (inverted) free relative clause and the DP *the culprit* as the subject of the matrix clause. In short, both DPs in (i) are arguments.

example, *two feet long* and *two feet of length* is semantically appealing” suggests that he does not adopt an argumental analysis of MPs. It is quite hard to see how the MP in *two feet of length* can be interpreted as an argument of *length*. An interpretation along the lines of ‘length is two meters’ seems to be more likely and is also more in line with the predication analysis of an adjectival expression like *two feet long*.

If an MP like *six feet* is a predicate nominal, the question obviously arises as to what syntactic representation corresponds to an adjectival phrase like *six feet tall*. That is, what is the structural relationship between the MP and the dimensional adjective, and through what syntactic process(es) are the two constituents that enter into a predication relation (i.e., MP and A) combined with each other?

As noted above, in Jackendoff (1977), the MP is base-generated in a (specifier) position to the left of the adjectival head. In more recent terminology, we would say: the MP combines with *tall* by means of the syntactic operation of E(xternal)-Merge. Combined with Schwarzschild’s (2005) analysis of MPs as predicates, the MP would be a predicate that is base-generated as a left branch (external) specifier in the adjectival projection and enters into a predication relationship with the gradable adjective; see (23a). Alternatively, the MP might be taken to occupy the Spec-position of some functional projection in the extended adjectival projection, as in (23b).⁸

- (23) a. $[_{AP} \text{ six feet } [_{AP} [_A \text{ tall}]]]$
 b. $[_{FP} \text{ six feet } [_{F'} F' [_{AP} \text{ tall}]]]$

An alternative approach towards the syntactic encoding of the predication relationship would be one which takes predication to be mediated by a functional element X that takes the subject and the predicate as its dependents (cf. Bowers 1993; den Dikken 2006). If we take the predicate to be the complement of this functional element and the subject (i.e., the constituent that is predicated over) to be the specifier, we would get the following ‘underlying’ representation for an expression like *six feet tall*, where $\langle I, I \rangle$ represents the argument-structural information that *tall* requires one thematic argument (e.g., *John*) and one non-thematic Interval-argument, whose ‘value’ is provided by the MP under predication.

- (24) $[_{XP} \text{ tall}_{\langle I, I \rangle} [_{X'} X' [\text{six feet}]]]$

This hierarchical representation, obviously, does not correspond to the linear ordering *six feet tall* (cf. Kayne’s 1994 LCA). In order to obtain this word order, displacement of the predicate nominal *six feet* to a position preceding the adjective is needed. Schematically:

- (25) $[_{FP} [\text{six feet}]_j [_{F'} F' [_{XP} \text{ tall } [_{X'} X' \text{ six feet}_j]]]]$

⁸ See Corver (1997a:137-138), who places the MP in [Spec,QP]. More specifically, he assumes that the MP starts out as an argument of the dimensional adjective and moves to [Spec,QP]:

(i) $[_{QP} \text{ six feet}_j [_{Q'} Q' [_{AP} \text{ John } [_{A'} \text{ tall } t_j]]]]$ (as in: *John is six feet tall*)

In this article, I will explore in depth the plausibility of this predicate displacement analysis of MPs. In line with den Dikken (1995, 2006), I will use the appearance of certain linking elements as a diagnostic tool for the identification of predicate displacement (see also Bennis et al. 1998). I will also draw a parallel with the syntax of possessive noun phrases, which, recently, have also been analyzed in terms of noun phrase internal predicate displacement.

In order to make the reader more familiar with the syntax of predicate displacement within adjective phrases and noun phrases, I will provide him/her with some background information in the next section.

3. On predicate displacement within noun phrases and adjective phrases

3.1. Predicate displacement and the nominal copula of

In recent generative studies, a number of nominal construction types have been (re)analyzed in terms of predicate displacement, most notably the so-called *N of/de N*-construction (cf. (5)). Kayne (1994:106) proposes an analysis according to which *imbécile* in a noun phrase like *cet imbécile de Jean* (that imbecile of Jean) originates as a clause-internal predicate and is preposed (across the subject *Jean* in [Spec,IP]) to the specifier position of a clause headed by a prepositional determiner *de* (comparable to a prepositional complementizer in the clausal domain).

(26) *cet* [_{D/PP} [_{NP} *imbécile*_j] [*de* [_{IP} *Jean* *I'* [*e*]_{j...}]]]

An alternative implementation of the DP-internal predicate displacement analysis is given by den Dikken (1995; see also den Dikken 2006). He proposes that in constructions like (5), the displaced predicate originates in a DP-internal small clause configuration (XP in (27)) and raises across the small clause subject to the Spec-position of a higher functional head FP (cf. also Bennis et al. 1998 for discussion).⁹ Schematically:¹⁰

(27) [_{DP} *that* [_{FP} *idiot*_j [_{F'} *F* (= *of*) + *X_i* (= *a*) [_{XP} *man* [_{X'} *t_i* *t_j*]]]]]

According to den Dikken, predicate movement as found in (27) is taken to be an A-movement operation (termed ‘Predicate Inversion’).¹¹ What characterizes this movement operation is that the inverted nominal predicate skips an intermediate A-position, viz. that of the small clause subject (i.e., *man*). Hence, the movement of the nominal predicate appears to be a non-local A-movement. As den Dikken (1995) points out, however, the predicate movement is local if one adopts Chomsky’s (1993) locality theory in terms of

⁹ In den Dikken (2006), XP is referred to as RP (i.e., Relator Phrase). The Relator-head mediates the predication relationship between the subject and the predicate.

¹⁰ The lexical item *a* is the so-called spurious definite article, which according to Bennis et al. (1998) originates in the head position of a DP-internal small clause (XP).

¹¹ In Bennis et al. (1998), A-type predicate displacement is referred to as ‘Predicate Inversion’. A-bar type predicate displacement is called ‘Predicate Fronting’.

equidistance. Under this theoretical proposal, the moved predicate can cross the subject as long as the two nominals are technically equally far away from the predicate's extraction site. Under Chomsky's assumptions, this situation is obtained by the application of a domain-extending head movement operation that creates a minimal domain that contains both the raised predicate and the small clause subject. Den Dikken (1995) argues that in the case of DP-internal predicate inversion, the requisite domain extending head-movement operation consists of raising of the functional head (X) of the small clause to a higher functional head (labeled here as 'F').¹² He further claims that the element *de/of* is a nominal copula, which surfaces at PF as a result of X-to-F raising; in fact, this nominal copula is considered to be the (nominal) equivalent of the verbal copula *to be*, which obligatorily appears in predicate inversion structures in the clausal domain (e.g., *I consider the best candidate *(to be) John*); cf. Moro (1988, 1997) and den Dikken (2006) for further discussion.¹³

3.2. Nominal copulas in adjectival contexts

If English *of* and French *de*, which appear in *N of/de N*-constructions, are copulas that surface in nominal (i.e., [+N]) environments, one might expect them to be also present in adjectival structures. In Corver (2000), it is argued that a Romanian adjective phrase like *extrem de înalt* (extreme of tall; 'extremely tall') features predicate displacement (more specifically: Predicate Inversion) of the degree predicate *extrem* across the gradable 'subject'-AP *înalt*:

(28) [_{FP} *extrem*_i [_F *F* (= *de*)_{+X_i} [_{XP} *înalt* [_{X'} *t_i* *t_j*]]]]]

Just like the *N of N*-constructions in (26) and (27), the adjectival construction in (28) features a semantically empty linking element (*de*) between the two lexical categories. More in particular, *extrem* is taken to be a one place-predicate (i.e., it has an external argument) that predicates over a degree argument G(ade) that is part of the thematic grid of an adjective that is gradable. In other words, this G-argument lexically encodes the

¹² In den Dikken (2006:112 ff.), the issue of locality (i.e., equidistance) in predicate movement configurations is reconsidered from the perspective of Chomsky's (2001) phase theory. The (DP-internal) small clause (say: XP) is propositional and, as such, qualifies as a phase. Given the *Phase Impenetrability Condition* (Chomsky 2001), the complement of the small clause head X is not accessible to operations outside XP (i.e., only the edge (i.e., Spec) position and the (small clause) head are accessible to operations outside XP, e.g., an Agree relationship with a higher functional head F). As a consequence of this the predicate that occupies the complement position of the small clause head X is not visible to an outside probe (say F). As den Dikken (p. 115) points out, one way of making the predicate accessible to a functional head (a probe) outside the small clause-phase (XP) is 'phase extension': i.e., movement of the head of a phase to a higher head F extends the phase to FP. I refer the reader to den Dikken (2006) for further discussion of predicate movement within a phase-based theory. For the purposes of this article, I will leave the implementation of locality in terms of phase theory outside of the analyses presented in this article.

¹³ In copular constructions with a straight subject-predicate order, the appearance of the verbal copula is not obligatory:

(i) *I consider John (to be) the best candidate.*

property of gradability (cf. among others Zwarts 1992; Corver 1997a,b; Kennedy 1999). The adjective *înalt*, then, has the thematic grid: <1, G>. Under the assumption that the predication relationship between the degree modifier *extrem* and (the degree argument of) the gradable adjective is configurationally defined as a small clause structure (i.e., XP; cf. (29a)), the surface order is obtained by moving the degree modifier to a position preceding the gradable adjective (cf. (29b)):

- (29) a. $[_{XP} \hat{in}alt_{<1,G>} [_{X'} X \text{extrem}_{<1>}]]$
 b. $[_{FP} \text{extrem}_i [_{F'} F (= de) + X_j [_{XP} \hat{in}alt [_{X'} t_j t_i]]]]$

In adjectival constructions like *extrem de înalt*, predicate inversion applies obligatorily. That is, such sequences as *înalt extrem* do not surface.¹⁴ In adjectival phrases where degree is expressed by a simili-expression, however, two orders are permitted: one in which the simili-expression follows the modified adjective, as in (30a), and one in which the simili-expression precedes the modified adjective, as in (30b):

- (30) a. *Pielea ei era [albă ca zapada].*
 Skin-the her was white like snow
 b. *Pielea ei era [ca zapada de albă].*
 Skin-the her was like snow of white
 ‘Her skin was as white as snow.’

As shown in (30b), the inverted pattern requires the presence of the linking element *de*, which I will interpret as an instance of the nominal copula. The structural representation corresponding to (30b) will then be:

- (31) $[_{FP} \text{ca zapada}_i [_{F'} F (= de) + X_j [_{XP} \text{albă} [_{X'} t_j t_i]]]]$

In sum, also in the adjectival domain, word order patterns have been identified, the derivation of which arguably involves a predicate displacement operation. With this in mind, I will investigate in the next section the syntax of MPs within the adjectival domain.

4. MP within the adjectival domain

4.1. The pattern A de MP

¹⁴ As noted in Vişan (2004) and Constantinescu (2004), the degree adverb *foc* can occur in a post-adjectival position:

- (i) a. *E [foc de frumoasa].*
 Be-3sg breathtakingly of beautiful
 b. *E [frumoasa foc].*
 Be-3sg beautiful breathtakingly
 ‘She is breathtakingly beautiful.’

In Section 3.2., we saw that in a language like Romanian the nominal copula *de* surfaces in constructions such as *extrem de înalt* (see (28)). What is interesting, and maybe not unexpected, is that in Romanian *de* also appears in adjectival phrases featuring a dimensional adjective and an MP:

- (32) *Cladirea e [înalta de un kilometru].*
 Building-the is high of one kilometer
 ‘The building is one kilometer tall.’

The presence of *de* might hint at the application of Predicate Inversion within this adjectival construction. However, we do not find the word order that is expected under a predicate movement analysis in which the MP (i.e., the predicate nominal) is placed in a position preceding the subject (i.e., the thing predicated over). That is, we do not have the surface pattern *un kilometru de înalta* (analogously to: *extrem de înalt*). So, the question arises whether the adjectival pattern in (32) really involves predicate displacement of the MP. And, if it does, how is the word order pattern in (32), where the measuree precedes the measure, derived?

Let me start my discussion by pointing out that the pattern *A+de+MP* is also attested in Romance languages such as French and Spanish:¹⁵

- (33) a. *La voiture est [longue de deux mètres].* (French)
 The car is long of two meters
 b. *La mesa es [ancha de un metro].* (Spanish)
 the table is wide of one meter

At the surface, a pattern like (33a) looks similar to an adjectival construction like (34), in which the adjective is followed by an argumental noun phrase preceded by *de*.

- (34) *Jean est [fier de son fils].*
 John is proud of his son

It is quite clear, though, that the constituent *fier de son fils* has a different syntax from the constituent *longue de deux mètres*. First of all, besides pronominalization of the entire AP by the clitic *le*, as in (35a), it is also possible to just replace the adjectival head, as in (35b). As shown in (36), pronominalization of just the adjective *long*, leaving intact *de+MP*, is impossible:

¹⁵ As expected, also in Romanian it is impossible to have a single adjectival phrase in which a degree modifier like *extrem* (extremely) and an MP like *un kilometru* co-occur: i.e., **extrem de înalt de un kilometru* (extreme(ly) of tall of one kilometer). Compare the English example (11b). The ill-formedness is arguably due to the fact that *extrem* and the MP ‘underlyingly’ compete for the same predicate position within the adjectival phrase, more in particular the complement position of the small clause XP.

- (35) a. *Jean est [fier de son fils] et Pierre l'est aussi.*
 Jean is proud of his son and Pierre it is too
 'Jean is proud of his son and Pierre is so too.'
- b. *Jean est [fier de son fils] et Pierre l'est de sa fille.*
 Jean is proud of his son and Pierre it is of his daughter
 'Jean is proud of his son and Pierre is proud of his daughter.'
- (36) a. *Le poisson de Jean était [long de deux mètres], et celui de Pierre l'était aussi.*
 The fish of Jean was long of two meters and that of Pierre it was too
 'Jean's fish was two meters long and so was Pierre's.'
- b. **Le poisson de Jean était [long de deux mètres], et celui de Pierre ..*
 The fish of Jean was long of two meters and that of Pierre..
 ..l'était de 1.5 mètres.
 ..it was of 1.5 meters

Another contrast between the two adjectival constructions concerns replacement of the sequence *de + noun phrase* by the clitic pronoun *en*. Replacement is possible with *de son fils* (37a) but not with *de deux mètres* (37b):

- (37) a. *Jean est [fier de son fils] et Pierre en_i est [fier t_i] aussi.*
 Jean is proud of his son and Pierre of-him is proud also
 'Jean is proud of his son and Pierre is proud of him too.'
- b. **Le poisson de Jean était [long de deux mètres], et celui de Pierre*
 The fish of Jean was long of two meters and that of Pierre
en_i était [long t_i] aussi.
 of-them was long also
 'Jean's fish was two meters long and Pierre's was also that long.'

On the basis of these asymmetries, it seems fair to conclude that *long de deux mètres* and *fier de son fils* have a different internal syntax. I assume that *fier de son fils* is an adjective phrase with *fier* as its syntactic head and *(de) son fils* as its internal argument. In (35b), the clitic *le* substitutes for the adjectival head, leaving the PP-complement intact. In (37a), *en* substitutes for the phrasal constituent *de son fils*.

Now, what about the internal syntax of *longue de deux mètres* in (33a)? I will assume that *deux mètres* functions as a predicate nominal and predicates over the non-thematic interval-argument that is associated with the dimensional adjective *longue*. I will take this predication relationship to be instantiated by the small clause configuration in (38a). Application of Predicate Inversion to the MP yields the derived structure in (38b), where *de* is the nominal copula. Linearization of this structure, however, yields the wrong word order, viz. *deux mètres de longue*.¹⁶ I propose that the right word order is obtained

¹⁶ Such a sequence appears to exist in French (cf. (i)) and also in other Romance languages (see Spanish in (ii)). However, in those cases we do not have an adjectival construction but a nominal one, i.e., *MP de N*. This is clear from the fact that the ostensible adjective does not display any agreement properties; it has a fixed form. In this respect, it clearly differs from the *A de MP*-pattern in (iii), where the adjective displays feminine, singular agreement properties. I will assume that a form like *haut* in (ia) morphologically derives from an adjective via *A → N* conversion. As regards the syntax of the pattern *MP de N*, I will assume that

by an additional movement step; more specifically, the small clause remnant (i.e., XP, containing the trace of the displaced predicate) undergoes movement to a higher syntactic position within the extended adjectival projection. I will assume that this position is [Spec,DegP]; cf. (38c).^{17 18}

Predicate Inversion has applied to the MP. This is schematically represented in (iv). See section 5 for further discussion of nominal constructions featuring Predicate Inversion of a MP.

- (i) a. *Cette tour a [cent mètres de haut].* (French)
 this tower has hundred meters of height
 ‘This tower has a height of a hundred meters.’
 b. *La pièce a [six mètres de long].*
 the room has six meters of length
 ‘The room has a length of six meters.’
- (ii) a. *La mesa tiene [un metro de ancho].* (Spanish)
 the table has one meter of width
 ‘The table has a width of one meter.’
 b. *La planta es [un metro de alto].*
 the plant is one meter of height
 ‘The plant has a height of one meter.’
- (iii) a. *Cette tour est [haute de cent mètres].* (French)
 This tower is high-fem.sg. of hundred meters
 ‘This tower has a height of a hundred meters.’
 b. *La pièce est [longue de six mètres].*
 The room is long-fem.sg of six meters
 ‘The room has a length of six meters.’
- (iv) $[_{FP} \text{ cent mètres}]_i [_{F'} F (= de)+X_j [_{XP} [_{NP} \text{ haut}] [_{X'} t_j t_i]]]$

¹⁷ Interestingly, subextraction of *de+MP* does not yield a well-formed sentence; see (ia) for French and (ib) for Romanian. As pointed out to me by Johan Rooryck, the French MP can be questioned by using the *wh in situ* pattern, as in (ii):

- (i) a. $*[_{De} \text{ combien de mètres}]_i \text{ est-ce que ce camion est [long } t_i]$?
 Of how-many of meters ‘est-ce que’ this truck is long
 ‘How many meters long is this truck?’
 b. $*[_{De} \text{ cîti centimeter}]_i \text{ e [alto } t_i]$?
 Of how-manycentimeters is-3.sg tall
 ‘How many centimeters tall is he/she/it?’
- (ii) *Ce camion est [long de combien de mètres]?*
 This truck is long of how-many of meters
 ‘How many meters long is this truck?’

The ill-formedness of (ia,b) may be due to a number of factors: First of all, the sequence *de combien de mètres* (with *de* being a nominal copula) forms an intermediate projection Deg’ and consequently may not undergo displacement (under the assumption that only categories of the type XP (i.e., maximal categories) and X (heads) may undergo movement). Secondly, [Spec,DegP] cannot be used as an escape hatch for extraction due to the fact that it has already been occupied by the remnant XP (see (38c)). Observe also that the impossibility of (i) is in line with the example in (iii), which shows that preposing of the sequence *of* (= nominal copula) + *NP* yields an ill-formed sentence.

(iii) **Of a machine* John bought *a monster* (N of a N)

¹⁸ One might raise the question as to why remnant movement to [Spec,DegP], together with movement of *de* to Deg, cannot apply to the small clause XP in a syntactic configuration like (29b), repeated here as (ia), yielding the (non-existent) surface order *:înal de extrem*; see (ib):

- (38) a. Base pattern
 $[_{XP} \text{longue}_{<I,I>} [_{X'} X \text{ deux mètres}]]$
 b. Predicate inversion of the MP and spell out of the nominal copula *de*
 $[_{FP} \text{deux mètres}_i [_{F'} F (= de) + X_j [_{XP} \text{longue} [_{X'} t_j t_i]]]]$
 c. After merger of Deg, *de* moves to Deg-head and the remnant XP (i.e., $[long t_j t_i]$) is moved into [Spec, DegP]
 $[_{DegP} [_{XP} \text{longue} [_{X'} t_j t_i]]_k [_{Deg'} Deg + [_{F'} F (= de) + X_j]_l [_{FP} \text{deux mètres}_i [_{F'} t_l [_{XP} t_k]]]]]$

Interestingly, this sequence of movement steps is similar to the one proposed by den Dikken (2006 :237) for the derivation of the nominal expression in (39):¹⁹

- (39) *une pizza de chaude*
 a pizza of hot

This construction features a linking element *de* which is to the left of *chaude*, the adjective predicating over *pizza*. The derivation den Dikken proposes for this construction is schematically represented in (40). (40a) represents the base structure. In (40b), Predicate Inversion has been applied to the adjectival predicate, triggering the appearance of *de*. In (40c), finally, the complex head $[F (= de) + X]$ has been raised and adjoined to D and remnant movement of the small clause XP to [Spec, DP] has taken place.

- (i) a. $[_{FP} \text{extrem}_i [_{F'} F (= de) + X_j [_{XP} \text{inalt}_{<I,G>} [_{X'} t_j t_i]]]]$
 b. $*[_{DegP} [_{XP} \text{inalt} [_{X'} t_j t_i]]_k [_{Deg'} Deg + [_{F'} F (= de) + X]_l [_{FP} \text{extrem} [_{F'} t_l [_{XP} t_i]]]]]]$

One approach would be to relate this difference to the type of adjective that is involved: in (32) we have a dimensional adjective, i.e., an adjective with a non-thematic Interval-argument I; in (i), on the contrary, we have a gradable adjective with a non-thematic degree argument G (cf. Schwarzschild 2005). Arguably, the class of dimensional adjectives has a displacement behavior which is different from that of gradable adjectives, which are lexically specified for a degree argument G. Compare in this respect the different movement behavior of certain nouns (e.g., proper names moving to D as opposed to common nouns not moving to D).

An alternative approach would be to say that the high degree adverb *extrem* in (ia), even though occupying an A-type position in our analysis, functions as a sort of operator and that A-bar movement to [Spec, DegP] of the small clause-XP across the high degree adverb yields a sort of relativized minimality effect; compare, for example, the superiority effect in **What did who buy?*, where *what* is A-bar moved across the *wh*-word *who*, which occupies an A-type position (viz. Spec, TP). Under the assumption that an MP like *un kilometru* in (32) and an MP like *deux mètres* in (38) are not operator-like elements, A-bar movement of the small clause XP to [Spec, DegP] across the inverted MP does not yield a relativized minimality effect.

¹⁹ See also Kayne's (1994) analysis of *two pictures of John's*, where *two pictures* is taken to be a phrase that is moved to [Spec, DP] and as a result of that precedes the sequence of *John's*. In Kayne's analysis, as opposed to den Dikken's, *of* is analyzed as a (prepositional) D and not as a nominal copula that surfaces in contexts of A-type predicate movement. Kayne's structure for *two pictures of John's* is given in (i).

- (i) $[_{DP} [\text{two pictures}]_j [_{D'} [_{D} \text{of}] [_{John} ['s [e]]]]]$ (Kayne 1994:86)

- (40) a. $[_{XP} \text{une pizza } [_{X'} X \text{chaude}]]$
 b. $[_{FP} \text{chaude}_i [_{F'} F (= de)+X_j [_{XP} \text{une pizza } [_{X'} t_j t_i]]]]$
 c. $[_{DP} [\text{une pizza } [_{X'} t_j t_i]]_k [_{D'} D+[_{F'} F(=de)+X]_l [_{FP} \text{chaude}_i [_{F'} t_l [_{XP} t_k]]]]]]$

Another nominal construction which, according to den Dikken (2006:238), involves the movement steps in (38) is the French possessive construction *une voiture de Jean*, which derives from the underlying structure in (41a), which can also surface in a language like French, as in: *une voiture à Jean*. In (41b), Predicate Inversion has applied to the dative PP predicate, triggering the appearance of the nominal copula *de*. After remnant movement of the small clause XP around the inverted PP predicate and head movement of the complex head $[_{F'} F(= de)+X]$ to D have taken place, we get the linear order *une voiture de Jean*.²⁰

- (41) a. $[_{XP} [\text{POSSESSUM } (= \text{une voiture})] [_{X'} X [_{PP} P_{\text{dative}} \text{POSSESSOR } (= \text{à Jean})]]]]$
 b. $[_{FP} [_{PP} P_{\text{dative}} \text{Jean}]_i [_{F'} F (= de)+X_j [_{XP} \text{une voiture } [_{X'} t_j t_i]]]]$
 c. $[_{DP} [_{XP} \text{une voiture } [_{X'} t_j t_i]]_k [_{D'} D+[_{F'} F(=de)+X]_l [_{FP} [_{PP} P_{\text{dative}} \text{Jean}]_i [_{F'} t_l [_{XP} t_k]]]]]]$

Summarizing, I have shown that that the adjectival expression *longue de deux mètres* cannot be treated on a par with an adjectival expression like *fier de son fils*. I proposed an analysis in which the MP undergoes Predicate Inversion across the dimensional adjective, yielding the order *MP de A*. The surface word order *A de MP* was obtained by remnant movement of the small clause XP to [Spec, DegP]. Interestingly, this combination of movement steps has also been attested in nominal constructions featuring the nominal copula *de* and having the predicative phrase in final position at the surface.

4.2. The pattern MP A

4.2.1 Genitival measure phrases

Consider the following examples from Germanic languages such as Dutch, Afrikaans, German, and English, respectively:²¹

- (42) a. *Dit brood is [drie dagen oud].*
 This bread is three days old
 ‘This bread is three days old.’
 b. *Hierdie rivier is [drie meter breed].*
 This river is three meter wide
 ‘This river is three meters wide.’

²⁰ I abstract away here from the incorporation of P into the functional complex $F+X$. See for this the representation (47b).

²¹ Observe that in the German example (42c), the MP carries accusative case. In older variants of German, the MP carried genitival case (See also the Middle Dutch examples in (43)).

- c. *Dieser Graben ist [nur einen Meter tief].*
 This grave is only one meter deep
 ‘This grave is just one meter deep.’
- d. *John is [six feet tall].*

The adjectival pattern in (42) differs from the French/Romanian/Spanish *A de MP* pattern in two respects. First of all, the MP precedes the adjective. Secondly, there is no linking element (i.e., a nominal copula) that separates the MP from the adjective. Presence of a linking element yields an ill-formed pattern: e.g., Dutch **drie dagen van oud*, English **six feet of tall*.

On the basis of the absence of an overt nominal copula one might conclude that Predicate Inversion is not involved. Before jumping to this conclusion, I would like to make some further observations which may help us decide what the right analysis is of the *MP A*-pattern. As a first observation, I would like to present the following facts from Middle Dutch (1200-1500; cf. Stoett 1977:117):²²

- (43) a. *Sijn aenscijn was eens voets breet.*
 His appearance was one-GEN foot-GEN wide
 ‘His bodily appearance has a width of one foot.’
- b. *(De sneeuw) lach meer dan knyes hooch.*
 (The snow) lay more than knee-GEN high
 ‘(The snow) came higher than my knee.’
- c. *Blikende borte die eens jaers out es.*
 children-who-outlive-their-parents who one-GEN year-GEN old are
 ‘children who are one year old.’
- d. *nagels lanc ende knokels diep.*
 nails-GEN long and bones-GEN deep
 ‘several nails and bones deep.’

In these examples, the measure phrase carries the genitival case suffix *-s*, which is also the case form found on masculine and neuter singular possessor-nouns in Middle Dutch possessive noun phrases such as (44a,b):²³

- (44) a. *die Gods genade*
 that God-GEN mercy
 ‘the mercy of God/ God’s mercy’
- b. *die sone Jacobs*
 those sons Jacob-GEN

²² Also in Old Swedish, the MP carried genitival case:

- (i) *tväggia ara gamall* (Old Swedish; L.-O. Delsing p.c.)
 two-GEN years-GEN old
 ‘two years old’

²³ Historically, *-s* is a genitival case suffix that appeared on masculine and neuter singular nouns in Middle Dutch (1200-1500); see Stoett (1977); van Loey (1980).

‘Jacob’s sons’

In present-day Dutch, we still find the bound morpheme *-s* in possessive noun phrases but it displays a grammatical behavior which is different from the Middle Dutch genitival case suffix. In present-day Dutch, for example, the possessive *-s* only appears on prenominal possessors (45a). Postnominal placement is impossible, as shown by (45b). Furthermore, when it is in prenominal position, it cannot co-occur with a preceding determiner (45c). Finally, it can also occur on feminine nouns (45d):

- (45) a. *Jacobs zonen*
Jacob-s sons
b. **de zonen Jacobs*
the sons Jacob-s
c. **de Jacobs zonen*
the Jacobs sons
d. *Maries zonen*
Mary-s sons

In view of the above considerations, it seems fair to conclude that *-s* in present-day Dutch can no longer be analyzed as a genitival case suffix (see also Corver 1990; Weerman and De Wit 1999). The question therefore arises as to how to interpret this grammatical element. In recent years, the ‘possessive’ *-s*, which appears in constructions like (45a), has received a variety of analyses. It has been analyzed as a functional head D within the extended nominal projection, as in (46a) (cf. Corver 1990; De Wit and Weerman 1999). As an alternative, it has been proposed that *-s* is a possessive marker (i.e., a functional head Pos) heading a projection Pos(essor)P(hrase); see (46b) (cf. Schoorlemmer 1998; van de Craats et al. 2000).

- (46) a. [_{DP} *Jacob* [_{D'} *-s* [_{NP} *zonen*]]]
b. [_{DP} *D* [_{PosP} *Jacob* [_{Pos'} *-s* [_{NP} *zonen*]]]]

In den Dikken (1998) an alternative analysis (based on English) is proposed according to which *-s* is a nominal copula, i.e., a bound morphemic equivalent of the preposition-like element *van* (English: *of*; French *de*) that appears in nominal constructions featuring DP-internal predicate inversion (see also Corver 2003). Just like the nominal copula *van* in the *N van N*-construction, it is a meaningless element that shows up for purely structural reasons, viz. the application of head-to-head movement (i.e., X-to-F movement) for reasons of domain extension. In the next subsection, I will present this analysis in more detail.

4.2.2. The nominal copula *-s* in possessive noun phrases

In den Dikken (1998), it is argued that DP-internal predicate displacement also applies within possessive noun phrases like *John’s car*, which features the ‘linking’ element *’s*, i.e., the bound morpheme which is traditionally referred to as the Saxon genitive (see also Corver 2003). Rather than interpreting this element as a clitic or affix-like element base-

generated in a functional head position (say D or Pos), den Dikken proposes that 's should be interpreted as another instantiation (i.e., PF-spell-out) of the nominal copula that surfaces in contexts of DP-internal Predicate Inversion. The derivation that underlies a construction like *John's car* is represented in (47):²⁴

(47) a. base structure of possessive constructions

$[_{DP} Spec [_{D'} D [_{FP} Spec [_{F'} F [_{XP} POSSESSUM [_{X'} X [_{PP} P POSSESSOR]]]]]]]]]$

b. derivation of possessive construction

$[_{DP} Spec [_{D'} D [_{FP} [_{PP} t_k POSSESSOR]_i [_{F'} F (= 's) +X_j+P_k [_{XP} POSSESSUM [_{X'} t_j t_i]]]]]]]]]$

(47a) represents the source structure in which the possessor (*John*) is contained in a prepositional predicate (i.e., PP), which is headed by a dative assigning null preposition (i.e., P₀) and which takes the possessum (*car*) as its subject.²⁵ Thus, the 'underlying' possessive meaning roughly corresponds to: 'car (is) to John'. (47b) represents the structure, which is derived by: (i) the application of X-to-F-movement (for reasons of domain extension (equidistance), (ii) incorporation of P into the F-complex (yielding the possessive 'have'-relation at the nominal level), (iii) predicate inversion of the "beheaded" dative PP across the possessum to [Spec,FP].

Notice that this analysis of the DP-internal possessive relationship draws a parallel with recent analyses of possessive *have*-constructions (as in: *John has a car*), according to which, in line with Benveniste's (1966) original insight, the possessive *have* construction derives from the *be+to* construction (cf. Freeze 1992; Kayne 1994).²⁶ In den Dikken's (1998, 2006) implementation of Benveniste's original idea, a possessive clause like *John has a car* has (48a) as its 'underlying' structure and (48b) as its derived structure:

(48) a. $[_{IP} Spec [_{I'} I [_{FP} Spec [_{F'} F [_{XP} a\ car [_{X'} X [_{PP} P_{dative}\ John]]]]]]]]]$

b. $[_{IP} Spec [_{I'} I [_{FP} [_{PP} t_k\ John]_j [_{F'} F+X_i+P_k (= has) [_{XP} a\ car [_{X'} t_i\ t_j]]]]]]]]]$

In (48a), the possessor (*John*) starts out as the complement of a dative preposition and the possessum (*a car*) as the subject of the small clause. The possessive HAVE-construction is derived by incorporation of P out of the dative PP (i.e., the predicate) into the copular verb BE, which results from X-to-F movement, with subsequent Predicate Inversion of the beheaded dative PP to [Spec,FP]; see (48b).²⁷

²⁴ I assume that this Predicate Inversion analysis is also at the basis of the Dutch possessive noun phrase *Jacob's zonen* (Jacob's sons) in (45a).

²⁵ In certain languages, this 'underlying' possessum-possessor pattern surfaces, as in French *un livre à Jean* (a book to Jean; 'Jean's book'); see Kayne (1994) and den Dikken (1998) for discussion.

²⁶ The possessive *be+to* pattern surfaces in a language like French (cf. (ia)). French also permits the possessive 'have' pattern (cf. (ib)).

(i) a. *Le livre est à Pierre*

The book is to Pierre

b. *Pierre a le livre*

Pierre has the book

²⁷ The verbal form HAVE (i.e., F+X+P) raises to I to pick up/check its Tense property.

4.2.3. The nominal copula in Dutch adjectival contexts

Having argued for the existence of a bound morphemic nominal copula *-s* in possessive noun phrases like English *John's car* and Dutch *Jan-s auto*, I will now turn to adjectival constructions that also feature a linking element *-s*. I will analyze this bound morpheme as an instance of the nominal copula.

The starting points of my analysis are the following adjectival constructions from late 19th and early 20th century Dutch (cf. Royen 1947-1954):

- (49) a. ...*alhoewel dat [dekselkaters lastig] aan me vallen zal.*
 ...although that cover+tom-cat-s difficult to me fall will
 '...although that will be extremely difficult for me.'
- b. *Ben jij die jongen die [zoo bliksems mooi kan teekenen?*
 Are you that boy who so lightning-s beautifully can draw
 'Are you that boy who can draw so bloody/devilishly well?'
- c. *Het was [verdraaid lekker].*
 It was distorted-s tasty
 'It was extremely tasty.'

Also in present-day Dutch, we run into adjectival expressions featuring a linking morpheme *-s*: *sterven-s-benauwd* (die-s-sultry; 'very sultry'), *dood-s-bang* (death-s-afraid, 'very afraid'), *hond-s-brutaal* (dog-s-impudent; 'very impudent'), *ziel-s-blij* (soul-s-happy, 'very happy'), *bliksem-s-goed* (thunder-s-good; 'very well'), *mieter-s-lastig* (damned-s difficult; 'very difficult'), *deksel-s-mooi* (cover-s-beautiful; 'very beautiful'), *drommel-s-heet* (deuce-s-hot; 'very hot'), *hel-s-koud* (hell-s-cold; 'very cold').

In all these adjectival expressions, a nominal element (i.e., N) is separated from the adjective by an intervening 'linking' morpheme *-s*. The nominal element can be a noun (e.g., *duivel*, 'devil'; *bliksem* ('lightning')) or a nominal form of the verb (i.e., a participle (e.g., *verdraaid*; 'distorted') or an infinitive (e.g., *sterven*; '(to) die')). The first element has a (high) degree meaning and modifies the gradable adjective from which it is separated by *-s*. In some of the examples, the high degree is expressed by means of a simili-expression. The expression *hondsbrutaal* (dog-s-impudent), for example, may be paraphrased as: *zo brutaal als een hond* (so impudent as a dog; 'extremely impudent'). In view of the parallelism with the Romanian adjectival construction in (30), where the degree modifier also takes the form of a simili-expression, I will analyze *-s* as a nominal copula, i.e., the surface reflex of the presence of F in predicate inversion environments. The derived structures of adjectival structures such as *hondsbrutaal* (dog-s-impudent) and *duivelsaardig* (devil-s kind; 'very kind') then look as follows:

- (50) a. $[_{FP} \text{hond}]_j [_{F'} F (= -s) + X_i [_{XP} \text{brutaal}]_{<I,G>} [X' t_i [_{AP} t]_j]]]$
 b. $[_{FP} \text{duivel}]_j [_{F'} F (= -s) + X_i [_{XP} \text{aardig}]_{<I,G>} [X' t_i [_{AP} t]_j]]]$

In these representations, *hond* and *duivel* are NPs that occupy the specifier position of a syntactic phrase FP. Importantly, *hondsbrutaal* and *duivelsaardig* are not analyzed as

adjectival compounds, i.e., word-like units. Initial support for their syntactic status comes from the phonological stress pattern associated with these adjectival expressions. Before turning to this stress pattern, observe that stress typically falls on the left member with regular adjectival compounds like *zeeziek* (sea-ill, ‘seasick’). Thus: *ZEEziek*, where capitals indicate stress. This stress pattern is constant in the sense that it is found with adjectival compounds both in their predicative use and in their attributive use:

- (51) a. *De matroos is ZEEziek.*
 the sailor is sea-sick
 ‘The sailor is seasick.’
 b. *de ZEEzieke matroos.*
 the sea-sick sailor
 ‘the seasick sailor’

Interestingly, adjectival expressions such as *doodsbang* (death-s-afraid) have variable final accent. When used predicatively, the accent either falls on the adjective or is distributed equally over the two constituents making up the complex adjectival expression; see (52a) (cf. de Haas and Trommelen 1993:425). When used attributively, the accent typically falls on the left member; see (52b).

- (52) a. *De matroos was doodsBANG* (or: *DOODsBANG*).
 the sailor was dead-s-afraid
 ‘The sailor was terribly afraid.’
 b. *de DOODsbange matroos*
 the dead-s-afraid sailor
 ‘the terribly afraid sailor’

It turns out that the stress patterns in (52) correspond to the stress pattern found with adjectival phrases featuring a modifier like *erg* ‘very’ or *vreselijk* ‘terribly’ (e.g. *De matroos was erg BANG* (or: *ERG BANG*)). From this parallelism in the way stress is distributed over the adjectival expression, we may conclude that the phrase *doodsbang* has the same internal syntactic make-up as *erg bang* and *vreselijk bang*, i.e., in all three adjectival phrases, the degree element occupies the specifier position of a syntactic phrase.²⁸

²⁸ As shown by (53b), F does not spell out as an overt nominal copula in Dutch. In this respect it differs from Romanian (compare (28)). I will tentatively, assume that in Dutch the nominal copula spells out as a zero-allomorph in this example. Interestingly, in a language like Finnish, a degree adverb that modifies an adjective carries genitive case (cf. Vainikka 1993; Corver 2000), i.e., the same case that is also found on possessors in possessive constructions. For example:

- (i) a. *valtavan kylmä*
 enormous-GEN cold
 ‘enormously cold’
 b. *Hän on noin vanha.*
 He is that-GEN tall
 ‘He is that tall.’

- (53) a. $[_{FP} \text{dood}_j [_{F'} F (= -s) + X_i [_{XP} \text{bang} [_{X'} t_i [_{AP} t_j]]]]]$
 b. $[_{FP} \text{erg/vreselijk}_j [_{F'} F + X_i [_{XP} \text{bang} [_{X'} t_i [_{AP} t_j]]]]]$

Another, more syntactic argument, in support of the ‘complex-syntactic’ rather than ‘complex-morphological’ status of an expression like *doodsbang* comes from subextraction, more particularly P-stranding. As shown in (54a), P-stranding (i.e., subextraction of an R-pronoun) is possible both with pre-adjectival and post-adjectival adjectives. As shown in (54b), P-stranding is blocked with pre-adjectival PP-complements, when the latter is separated from the adjective by an intervening modifier. This, arguably, is due to the fact that the PP-complement has raised (scrambled) to a higher structural position in the adjectival projection. Extraction from this higher position is blocked, a sort of freezing effect. When we consider (54c), we see that P-stranding is also blocked when the PP-complement occupies a pre-adjectival position and the adjective is modified by a simili-noun:

- (54) *Ik vraag me af....*
 I wonder me PRT (‘I wonder’)
- a. *waar_i Jan toendertijd [AP bang [t_i voor]] was* (A+PP)
 what Jan at-the-time afraid – of was
- a.’ *waar_i Jan toendertijd [AP [t_i voor] bang]] was* (PP+A)
- b. *waar_i Jan toendertijd [AP erg bang [t_i voor]] was* (MOD+A+PP)
 what Jan at-the-time very afraid – of was
- b.’ **waar_i Jan toendertijd [AP [t_i voor] erg bang]] was* (PP+MOD+A)
- c. *waar_i Jan toendertijd [AP doodsbang [t_i voor]] was* (*doods*+A+PP)
 what Jan at-the-time dead-s-afraid – of was
- c.’ **waar_i Jan toendertijd [AP [t_i voor] doodsbang]] was* (PP+*doods*+A)

The impossibility of P-stranding in (54b’,c’) suggests that the PP in these ill-formed sentences occupies the same syntactic position—possibly a position adjoined to the FP—whose (internal) specifier position is occupied by the displaced degree-predicate. Schematically:

- (55) a. $*\text{waar}_y \dots [_{FP} [_{PP} t_y \text{ voor}]_k [_{FP} \text{erg}_j [_{F'} F + X_i [_{XP} [\text{bang } t_k] [_{X'} t_i [_{AP} t_j]]]]]]]$
 b. $*\text{waar}_y \dots [_{FP} [_{PP} t_y \text{ voor}]_k [_{FP} \text{dood}_j [_{F'} F (= -s) + X_i [_{XP} [\text{bang } t_k] [_{X'} t_i [_{NP} t_j]]]]]]]$

In sum, also in Dutch adjectival expressions we find the grammatical element *-s*, namely when a nominal modifier having a high degree interpretation (e.g., a simili-expression like *hond* ‘dog’, as in (50a)) precedes an adjective. I will interpret this linking element as an instance of the nominal copula.

In Corver (2000), it is argued that the genitival case in (i) instantiates the nominal copula, which shows up in contexts of predicate inversion.

Interestingly, the pattern $NP+_{-s}+A$ also occurs with simili nouns denoting a measure. The noun that is used to indicate a measure is often some physical entity or object.²⁹ Consider, for example, the following examples:

- (56) a. *De poppen in Bunraku zijn haast [manshoog] en buitengewoon expressief.*
The puppets in Bunraku are nearly man-s-high and extremely expressive
'The puppets in Bunraku are man-sized and are extremely expressive.'
- b. *Ik woon daar [hemelsbreed] 10 km vandaan.*
I live there heaven-s-wide 10 km away-from
'I live 10 kms away from it as the crow flies.'
- c. *Er stonden [mansdikke] bomen in de tuin.*
There stood man-s-thick trees in the garden
'There were trees in the garden which were as thick as a man.'

The expression *manshoog* in (56a) can be paraphrased as: 'as high as a man'. In other words, the nominal element *man* provides the measure. In line with my analysis of adjectival expressions such as *duivelsaardig* and *hondsbrutaal* in the previous section, I will assign the following structural representation to an adjectival expression like *manshoog*. In this representation, $-s$ is taken to be a bound morphemic instance of the nominal copula.

(57) $[_{FP} man_j [_{F'} F (= -s) + X_i [_{XP} hoog_{<I,I>} [X' t_i [_{AP} t_j]]]]]$

At this point, it should be noted that besides the pattern (*simili*) $MP -s A$ we also find the pattern (*simili*) $MP A$, in which there is no linking $-s$ present. Consider, for example, the following adjectival expressions:

- (58) a. *Het water stond knie(*s)hoog*
The water stood knee(-s)high
'The water got to my knees.'
- b. *De paling was arm(*s)dik*
The eel was arm(s)thick
'The eel was as thick as an arm.'

Also adjectival expressions like *hondsbrutaal* (dog-s-impudent), which were discussed in Section 4.2.3, have counterparts in which there is no linking $-s$ available:

- (59) a. *Het huis was peper(*s)duur*
The house was pepper(s)expensive
'The house was high-priced.'
- b. *Het meisje was brood(*s)mager*
The girl was bread(s)thin
'The girl was as lean as a rake.'

²⁹ See also Schwarzschild's (2005:222) remark: 'An adjective, if it takes a direct measure phrase, will take any relevant one, even nonce ones: *the pile was five prisoners high*.' In this example, the non-thematic Interval-argument is predicated over by the measure 'five prisoners'.

The question, obviously, arises as to why the linking morpheme is absent. Before exploring potential reasons for its absence, let me point out that these *-s*-less patterns arguably also have a more complex syntactic representation. Just like the pair (54c-c'), it is impossible to extract the so-called R-pronoun *waar* from within the PP-complement when the latter constituent occupies a position to the left of the adjectival expression *doodongelukkig*.

- (60) *Ik vraag me af..*
 I wonder me PRT..
 'I wonder
- a. ..*waar_i Jan toendertijd [doodongelukkig [PP t_i van]] is geworden.*
 ..what Jan at-the-time dead-unhappy - of has become
 ..what Jan became very unhappy of at the time.'
- b. *..*waar_i Jan toendertijd [[PP t_i van]_j doodongelukkig t_j] is geworden.*
 ..what Jan at-the-time - of dead-unhappy - has become
 ..what Jan became very unhappy of at the time.'

Importantly, subextraction of *waar* out of the same PP is possible when we have a 'simplex' adjective *ongelukkig* (cf. (61)). Although speakers tend to have a slight preference for (61a), they accept (61b) and find it much better than the ill-formed (60b).

- (61) *Ik vraag me af..*
 I wonder me PRT..
 'I wonder ...
- a. ..*waar_i Jan toendertijd [ongelukkig [PP t_i van]] is geworden*
 ..what Jan at-the-time unhappy - of has become
 .. what Jan became unhappy of at the time.'
- b. ?..*waar_i Jan toendertijd [[PP t_i van] ongelukkig]] is geworden*
 ...what Jan at-the-time - of unhappy has become
 ..what Jan becamese unhappy of at the time.'

The contrast between (60b) and (61b) suggests that the PP in the former example occupies a different structural position, i.e., a position from where subextraction is not permitted. I will assume here that the PP in (60b) has undergone leftward scrambling to a position to the left of the displaced degree predicate *dood*. Subextraction of the R-pronoun is not permitted then from within the scrambled PP (cf. also Corver 1997b). Schematically (compare with (55b)):

- (62) **waar_y... [[FP [PP t_y van]_k [FP dood_j [F' F+X_i [XP [ongelukkig t_k] [X' t_i [NP t_j]]]]]]]]*

If patterns such as *dood-s-bang* (53a) and *man-s-hoog* (57), on the one hand, and *-s*-less patterns such as *dood-ongelukkig* (60) and *knie-hoog* (58a) both involve the operation of predicate inversion, the question, obviously, arises as to why the nominal copula *-s* does not surface across the board. A possible line of approach would be in terms of allomorphy, i.e., the existence of variant forms of the meaningless nominal

copula. More specifically, besides the free morphemic nominal copula *of/de/van* (Eng/Fr/Du) and the bound morphemic form *'s* (Eng/Du), there is also a zero-allomorph (i.e., a silent ‘realization’) of the nominal copula. The existence of zero-allomorphs is, of course, familiar from other morphological phenomena. Take, for example, the English plural form *sheep* and the past tense form *hit*. Both forms arguably have the following abstract representations, respectively: $[[sheep_N]-\emptyset_{pl}]$, $[[hit_V]-\emptyset_{past}]$, where \emptyset represents the zero-allomorph.

In a framework like Distributed Morphology (cf. Halle and Marantz 1993; Embick and Noyer 2001; Embick 2007), this competition between allomorphs applies at the level of Vocabulary Insertion (VI), i.e., a process that provides phonological content to functional heads, which are assumed to be bundles of features without phonological content in the syntactic derivation. The PF-process of Vocabulary Insertion is illustrated for the English past tense in (63), which is adopted from Embick (2007). In this example, the syntactic node $T_{[past]}$ has phonological material added to it at PF, as specified in that language’s Vocabulary Items.³⁰ Importantly, the entries in (63) are ordered by specificity, with a more specific Vocabulary Item taking precedence over a less specific one; e.g., the rule inserting the Vocabulary Item with the phonological form $-t$ at $T_{[past]}$ in the context of \sqrt{LEAVE} prevents the rule insertion of the default past tense form $-ed$ (whence *left* and not *leaved*).

- (63) Vocabulary Items for Past Tense ($T_{[past]}$)
- a. $T_{[past]} \leftrightarrow -t/__ \{\sqrt{LEAVE}, \sqrt{BEND}, \dots\}$
 - b. $T_{[past]} \leftrightarrow -\emptyset/__ \{\sqrt{HIT}, \sqrt{QUIT}, \dots\}$
 - c. $T_{[past]} \leftrightarrow -ed$

I will assume that the grammar of Dutch has different vocabulary items available that provide the functional node F representing the nominal copula with phonological properties, more specifically the free morpheme *van* (as in the *N van N*-construction), the bound morphemes *'s* (as in *Jan's auto*, ‘John’s car’, *manshoog*, man-s-high, ‘as high as a man’) and \emptyset (*armdik*, arm-thick, ‘as thick as an arm’).³¹ In line with general thoughts on allomorphy, I will assume that the choice of the vocabulary item may be conditioned by the grammatical (i.e., phonological, lexical, (morpho)syntactic) environment in which the functional node F finds itself. Before touching on some possible environmental factors that condition the choice of the phonological form of the nominal copula, I would first like to provide some support for the idea that besides the bound morphemic nominal

³⁰ The \sqrt{ROOTS} (Roots) in (63) are lexical items of the open class vocabulary. Following Embick (2007), I will assume that Roots are present in the syntactic derivation; This means that they are not subject to ‘late insertion’ (i.e., insertion at PF), as the functional heads are.

³¹ Another example of the competition between a free morphemic form and a bound morphemic form is that between the free comparative morpheme *more* and the bound comparative morpheme $-er$ (e.g., *tall-er*, *more intelligent*). See Corver (1997a,b); and see Embick (2007) for an approach of this contrast in terms of Distributed Morphology. One might argue that in certain contexts, viz. when the adjective is ‘intrinsically’ (i.e., lexically specified as) comparative, we have a zero-allomorph of the comparative morpheme. A possible candidate would be *different*, as in *The campus is different than it was thirty years ago*, where the presence of the *than*-phrase suggests the presence of a functional node (Deg) encoding ‘comparison’.

copula 's, we also find a zero-form (i.e., a silent nominal copula).³² The phenomenon I will use to provide evidence for the existence of a phonologically empty nominal copula is that of so-called 's-less genitives in possessive noun phrase contexts. After having discussed this variant of the possessive noun phrase, I will return to the MP+A-pattern in which no overt nominal copula is present either.

4.2.4. –s-less genitives: absence of the nominal copula

In Section 4.2.1, it was argued that the derivation of a possessive noun phrase such as *John's car* involves the operation of predicate inversion and that the 'possessive marker' 's is actually an instance of the nominal copula (cf. den Dikken 1998). In studies on the diachronic development of this 'possessive' marker 's, it has often been stated that this grammatical marker finds its origin as a genitival case suffix (i.e., an inflectional marker attached to masculine and neuter nouns), which gradually developed in the course of the Middle English period into a phrasal clitic that attached to the whole noun phrase and was no longer sensitive to the gender and number properties of its host (i.e., *-(e)s* could also be attached to noun phrases headed by a feminine noun and a plural noun, as in *this girl's doll*, *the children's toys*). As noted in Rosenbach (2002), this change from a genitival case suffix into a phrasal clitic was a gradual process, which is also clear from the co-existence of syntactic patterns in which 's behaves like an inflectional suffix (cf. (64a), where 's attaches to the possessor noun) and patterns in which it behaves like a phrasal clitic (cf. (64b), where –s attaches to the entire possessor noun phrase):

- (64) a. *the kings of England daughter*
b. *the parson of Sparrammys dowter*

Besides the patterns in (64), we also find possessive noun phrases in which there is no morpheme 's at all (i.e., neither directly after the possessor noun nor after the possessor noun phrase). In the literature, these have been labelled 's-less genitives'. Two examples are given in (65); cf. Rosenbach (2002):^{33 34}

- (65) a. *the duke of Somerset dowter*
b. *the butcher wyff*

As noted in Wakelin (1977), the absence of 's was related to certain morphophonological properties of the possessor. For example, nouns ending in *-er* and having no *-es* genitive (e.g., Old English *brōþer*, *mōder*) resisted attachment of 's. Nouns ending in *-s* also lacked the presence of 'genitival' *-(e)s*. The latter property is still found

³² Thus, Predicate Inversion always triggers the occurrence of a nominal copula. This copula, however, is sometimes 'spelled-out' as a zero-form, which means that it is inaudible at the 'sound surface'.

³³ As noted in Wakelin (1977), these 's-less genitives, or maybe better 'bare' possessors, are still productive in certain British English dialects. In Northern English dialects, for example, possessive noun phrases like *my father brother* are still attested. Wakelin (ibidem:115) also notes the occurrence of 's-less genitives with pronominals in certain dialects: e.g., *The cat hurt it foot*.

³⁴ Another empirical domain where bare possessors are found is child language; e.g. *Kendall chair* ('Kendall's chair'). See Brown (1973); Barker (1995:45).

in present-day English. As shown in (66a), plural nouns having *-s* as their plural suffix also ‘block’ the presence of the possessive marker *'s*. The same holds for many older, foreign and classical names (cf. (66b)). For many speakers, also common names ending in *-s* lack the possessive marker in spoken language (cf. (66c)); the pattern featuring *'s*, as in *Jones's*, is typically found in written language (and seems to have a prescriptive flavor).

- (66) a. *the doctors' (*-s) opinion* (‘the opinion of the doctors’)
 b. *Pythagoras' (*-s) theorem*
 c. *Mr. Jones' (-s) house*

It seems likely that the patterns in (66) are syntactically derived in the same way as a (present-day English) possessive noun phrase like *John's car*, in which the nominal copula phonologically surfaces as */s/*. Thus, (66a) has the derived representation in (67), which results among others from the application of Predicate Inversion.

(67) $[_{DP} Spec [_{D'} D [_{FP} [_{PP} t_k \textit{the doctors}]_i [_{F'} F+X_j+P_k [_{XP} \textit{opinion} [_{X'} t_j t_i]]]]]]$

Arguably, the phonological realization of the nominal copula *F* shows sensitivity to its phonological environment, more specifically the final sound of the left adjacent word, which also functions as its phonological host.³⁵ If this host ends in */s/*, the nominal copula is typically spelled out as */ø/*, i.e., a zero-form.³⁶ Thus, when the syntactic representation in (67) is phonologically interpreted at PF, the zero-allomorph */ø/* of the nominal copula is inserted at PF.³⁷

Potential evidence for the presence of the nominal copula in the syntactic (and phonological) representation of *the doctors' opinion* in (66a) comes from the fact that it is impossible to extract the left branch possessor out of the possessor noun phrase (cf. Ross's (1967) Left Branch Condition). Consider the following facts:

- (68) a. *The doctor's *she heard* [*-- opinion*] (i.e., the opinion of the doctor)
 b. *The doctor *she heard* [*-- 's opinion*]

³⁵ I assume that after PF-insertion of the vocabulary item *'s*, *'s* (or, more specifically, the complex functional head $[_F F(= 's)+X+P]$) attaches to (i.e., merges with) the left-adjacent word via the PF-movement rule of Local Dislocation (cf. Embick and Noyer 2001; Embick 2007).

³⁶ See Aboh (2007) for a discussion of the co-existence of possessive noun phrases with a possessive marking and possessive noun phrases without such marking in Gbe languages:

- (i) a. *Kòfì fe agbale* b. *Ama dada* (Emegbe)
 Kofì Poss book Ama mother
 ‘Kofì's book’ ‘Ama's mother’

A crucial factor here is the semantic nature of the possessive relationship, more specifically whether inalienable possession (ib) or alienable possession (ia) is involved.

³⁷ As an alternative, one might argue, in this specific case, that the copula is spelled out as */s/* and that a sequence of identical sounds (i.e., */s/s/* in *the doctors's opinion*) is pronounced as a single */s/* as a result of phonological deletion of one of the adjacent identical sounds. In Dutch, for example, the composite noun *vis-soep* (fish-soup) displays a sequence of */s/-*phonemes (i.e., */vIs/+sup/*). This composite word is pronounced as */vIsup/*.

- (69) a. *The doctors *she heard* [-- *opinion*] (i.e., the opinion of the doctors)
 (i.e., the doctors- \emptyset *she heard* [-- *opinion*])
 b. *The doctors *she heard* [-- *opinion*]
 (i.e., the doctors *she heard* [-- \emptyset *opinion*])

As noted in Corver (1990:173) and Chomsky (1995:263), the subextraction in (68a) is ruled out because *the doctor's* is not a syntactic object, i.e., a constituent. Rephrased in terms of the Predicate Inversion analysis of possessive noun phrases, the sequence $[PP\ t_k\ POSSESSOR]_i + [F+X_j+P]_k$ in (47a) does not form a constituent and therefore cannot be input to any displacement operation. Consider next (68b). This pattern is ill-formed due to phonological reasons, because stranding the bound morpheme (i.e., the functional complex $[F+X+P]$ that phonologically surfaces as /s/) yields a phonological representation which crashes at PF (i.e., the sound /s/ needs a phonologically overt (possessor) host).³⁸ I will assume that the ill-formedness of (69) can be explained along the same lines as the ill-formedness of (68). (69a) is ruled out because the sequence *the doctors* + \emptyset (i.e., the sequence PP + $[F (= \emptyset) + X+P]$ in (66) does not form a constituent; hence displacement is impossible. (69b) is ruled out for PF-reasons: after subextraction of *the doctors*, the complex functional head $[F+X+P]$, which 'spells out' as / \emptyset / (i.e., the zero-allomorph of the nominal copula), remains stranded. At PF, the silent nominal copula / \emptyset / has no appropriate phonological host to attach to; consequently the representation crashes at PF.

The absence of the genitive/possessive marker 's in possessive noun phrases has also been observed for older and present-day dialectal variants of Dutch. Consider, for example, the examples in (70) from seventeenth century Dutch (cf. Koelmans (1978:30)).³⁹ The examples in (71) show that attachment of -s to a complex possessor noun phrase was possible, in principle, in seventeenth century Dutch.⁴⁰

- (70) a. *van de vrienden gezondheid* (17th century Dutch, Koelmans 1978:30)
 of the friends health
 'of the health of the friends'
 b. *in de vyanden handen*
 in the enemies hands
 'in the hands of the enemies'

- (71) a. *dese verharde klierens grote swellingh*
 these indurated glands-GEN large swelling

³⁸ Adopting a copy theory of movement, I tentatively assume that the lower copy in the 'trace'-position is deleted at PF before the PF-operation (i.e., Local Dislocation) applies, which attaches the nominal copula to its phonological host.

³⁹ Just like in present-day English, prenominal possessors in Dutch don't show up on proper names ending in -s; e.g., *Hans(*-s) auto* (Hans car, 'Hans' car'). Compare: *Jan-s auto* (Jan-s car, 'Jan's car').

⁴⁰ Weijnen (1971:119) notes the existence of juxtaposed possessive patterns in Southern-Dutch dialects:

- (i) *ander mensen kinderen*
 other people children
 'other people's children'

- ‘the big swelling of these indurated glands’
 b. *d’oirens lellen*
 the ears-GEN lobes
 ‘the lobes of the ears’

We may speculate about the possible absence of the ‘genitival’ marker *’s* in (70). The existence of a ‘genitival’ suffix *-en* besides *-s* in seventeenth century Dutch, might have played a role in the non-realization of the ‘genitival’ marker.⁴¹ That is, the surface formal similarity of the ‘genitival’ suffix *-en* and the plural *-en* might have led to bare juxtaposed patterns. Also, the formal similarity of the genitival *-s* (e.g., *de mans hayr*; the man-s hair) and the plural morpheme *-s* (e.g., *wijfs*; woman-pl) might have led to morphosyntactic patterns in which (functional) morphemic material is not spelled out.

As noted in Koelmans (1978), the *-s* in (71) is associated with the entire possessor noun phrase (e.g., *dese verharde klieren* in (71a)). That is, *-s* is no longer a truly genitival suffix in these examples. I will interpret *-s* in (71) as an instance of the nominal copula and I propose that the possessive noun phrases in (70) feature a phonetically empty allomorph of the nominal copula, i.e., \emptyset .

Thus far, I have tried to show that possessive noun phrases exist in which the prenominal possessor and the possessum are ‘linked’ to each other by means of a phonologically empty copular element. At the ‘sound surface’, this yields a sequence in which the possessor and the possessum are juxtaposed. Before turning in the next subsection to the syntactic derivation of an adjectival expression like *6 feet tall*, I would like to mention one other nominal context in which the nominal copula *’s* can be absent sometimes, viz. nominal constructions having a prenominal measure phrase. Consider, for example, the following patterns from English:

- (72) a. *He begged for [a week’s vacation].*
 b. *John started the race with [more than a minute’s head start].*
 c. *He was sentenced to [a month’s hard labor].*
- (73) a. *He begged for [two weeks’ vacation].*
 b. *John started the race with [5 to 10 minutes’ headstart].*
 c. *He was sentenced to [eight years’ hard labor].*

Although these and related nominal patterns will be discussed in more detail in Section 5, I would already like to argue here that these nominal constructions featuring the grammatical marker *’s* also involve the phenomenon of Predicate Inversion. An example like (72a), for example involves a predicative relationship between the noun *vacation* and the measure phrase *a week*. More specifically, the latter functions as a predicate nominal that predicates over *vacation*: i.e., ‘vacation is two weeks’. Just like in the possessive noun phrase *John’s car*, the element *’s* is interpreted as an instance of the nominal copula. Schematically:

- (74) $[_{DP} Spec [_{D'} D [_{MP} a\ week]_i [_{F'} F (= -s) + X_j [_{XP} vacation [_{X'} t_j t_i]]]]]]$

⁴¹ E.g., *eens hoeren kindt* (a-GEN prostitute-GEN child; ‘a prostitute’s child’); Koelmans 1978:21)

Analogously to (66a), the nominal copula in (74) arguably does not surface for phonological reasons: i.e., the avoidance of two adjacent sounds /s/.

What is interesting about these prenominal measure phrases is the fact that even with singular measure nouns, absence of the linking 's is quite possible for certain speakers (examples drawn from Google):⁴²

- (75) a. *Peter started the foot race with [more than a minute head start].*
b. *Jackson also received a concurrent sentence of [one year imprisonment] for an additional conviction of Larceny in the Fourth Degree.*

Analogously to my analysis of the 'genitive-less' possessors in Section 4.2.4 (see especially (67)), I will assume that also in these 's-less patterns Predicate Inversion has applied. Importantly, in examples such as (75) — and also (73) — a zero allomorph is taken to be inserted in PF at the functional node F.

Observe that analogously to the examples in (69), where a left branch possessor is extracted out of a noun phrase, it is impossible to extract a left branch measure phrase out of a noun phrase (see (76)). As shown in (77), pied piping yields a well-formed sentence.

- (76) a. *[How many months] *did they give him [-- imprisonment]?*
b. *[How many minutes] *did he get [-- headstart]?*
- (77) a. [How many months imprisonment] *did they give him?*
b. [How many minutes headstart] *did he get?*

I propose that the ill-formedness of the subextractions in (76) receives the same explanation as the one given for the ill-formedness of (69). That is, a sequence which does not form a constituent is fronted (see (78a)) or a zero-allomorph is stranded at PF (see (78b)):

- (78) a. *[How many months]- \emptyset *did they give him imprisonment?*
b. *How many months *did they give him* $-\emptyset$ *imprisonment?*

Having closed off this section with some initial remarks about the syntax of noun phrase-internal MPs, let us now, at last, turn to the pattern that Section 4.2 is all about, viz, the *MP+A* pattern.

4.2.5. MP + A

⁴² Compare, at this point, the examples in (75) with those in (i) and (ii), where we have a possessor-noun:

- (i) *[John *(')s headstart] lasted about one hour.*
(ii) *A letter signed by the king was used to authorize [someone *(')s imprisonment].*

In (i) and (ii), absence of the linker 's yields a strongly ungrammatical sentence. From this contrast, we may conclude that measure nouns display a morphosyntax which is subtly different from those of other nouns.

I will start the discussion of this pattern with the compound-like patterns that were discussed in Section 4.2.3. In those compound-like patterns, there was a linking element *-s* present in between the measure-defining noun and the dimensional adjective that follows it: e.g., *man-s-hoog* (man-s-high, ‘as high as a man’). As exemplified in (57), repeated here as (79), I analyzed these patterns in terms of predicate inversion and interpreted *-s* as an instance of the nominal copula.

(79) $[_{FP} man_j [_{F'} F (= -s) + X_i [_{XP} hoog [_{X'} t_i [_{AP} t_j]]]]]$

Also with these compound-like patterns, we found expressions in which no linking element was present: e.g., *arm-(*)-dik* (arm-s-thick, ‘as thick as an arm’). The overall similarity of these adjectival expressions, as was also clear from (54) and (60), makes a common analysis in terms of Predicate Inversion quite plausible.

(80) $[_{FP} arm_j [_{F'} F (= \emptyset) + X_i [_{XP} dik [_{X'} t_i [_{AP} t_j]]]]]$

The question, obviously, arises as to what system underlies the spell-out as /s/ or /ø/? Although a complete and in-depth analysis of this issue falls beyond the scope of this article, I would like to make a few remarks about it, focussing on the compound-like adjectival pattern N+A (see Section 4.2.3), where N is instantiated by the noun *dood* ‘dead’. Consider the examples in (81) and (82), which are drawn from the *Van Dale*-dictionary of the Dutch language (Geerts et al. 1999):

(81) surface pattern: N+A

- | | |
|---------------------------|---------------------------------|
| a. <i>doodeenvoudig</i> | dead-simple, ‘perfectly simple’ |
| b. <i>doodeerlijk</i> | dead-honest, ‘dead honest’ |
| c. <i>doodongelukkig</i> | dead-unhappy, ‘quite wretched’ |
| d. <i>doodgemakkelijk</i> | dead-easy, ‘dead easy’ |
| e. <i>doodgoed</i> | dead-good, ‘good to a fault’ |
| f. <i>doodgewoon</i> | dead-normal, ‘quite common’ |
| g. <i>doodbedaard</i> | dead-calm, ‘quite calm’ |
| h. <i>doodnuchter</i> | dead-sober, ‘quite sober’ |
| i. <i>doodmoe</i> | dead-tired, ‘quite tired’ |

- (82) a. *doodsbang* dead-s-afraid, ‘deadly afraid’
 b. *doodsbenauwd* dead-s-suffocating, ‘deadly afraid’
 c. *doodsbleek* dead-s-pale, ‘deadly pale’
 d. *doodsgevaarlijk* dead-s-dangerous, ‘quite dangerous’

A first conclusion we may draw from these examples is that the class of *s*-less patterns is larger than the class featuring *s*. From this contrast in frequency, one might tentatively draw the conclusion that the former is the more productive pattern. This conclusion receives some further support from the observation that in present-day Dutch counterparts of the examples in (81) can be found in which *-s* is absent. That is, speakers of Dutch tend to accept patterns such as *doodbang*, *doodbenauwd*, *doodbleek*, *doodgevaarlijk*. The reverse pattern is much less likely to be found: i.e., speakers who

accept, for example, *doodseenvoudig*, *doodseerlijk*, *doodsgewoon*, *et cetera*. I will interpret these facts as support for the idea that in present-day Dutch the *s*-less form in ‘adjectival compounds’ is the default form and that the pattern featuring *s* is the more ‘special’ pattern.⁴³ In terms of the process of Vocabulary Insertion, which inserts the vocabulary item at the locus of the functional node (see also (63)), this implies that the entry specifying the insertion of the vocabulary item *s* is ordered before the default entry which inserts the silent ‘sound’ / \emptyset / at the locus of F.

- (83) Vocabulary items for F (in the ‘adjectival compounds’)
- F \leftrightarrow -s/ { $\sqrt{\text{DOOD_BANG}}$, $\sqrt{\text{DOOD_BENAUWD}}$, $\sqrt{\text{DOOD_BLEEK}}$, $\sqrt{\text{DOOD_GEVAARLIJK}}$ }
 - F \leftrightarrow \emptyset

I will assume that this ordering also holds for those adjectival compounds in which N stands for a measure. Also in this case, the pattern featuring a silent copula turns out to be the more frequent one in present-day Dutch: e.g., *schouder-hoog gras* (shoulder-high grass), *navel-diep water* (navel-deep water), *enkel-diep water* (ankle-deep water), *kin-hoog water* (chin-high water). Thus, forms such as *man-s-hoog*, *man-s-dik* and *hemel-s-breed* in (56) represent the more specific pattern.

Drawing a parallel between these simili-measure nouns and MPs such as *2 meter*, I propose that (Dutch) adjectival expression such as *twee meter hoog* (two meters high) and *twee meter dik* (two meters thick) receive a structural analysis like in (84). That is, the MP undergoes Predicate Inversion and the functional node F is spelled out at as the bound morphemic zero-allomorph / \emptyset / at PF.

- (84) a. $[_{FP} \text{ twee meter}_j [_{F'} F (= \emptyset) + X_i [_{XP} \text{ hoog/dik} [_{X'} t_i [_{MP} t]_j]]]]]$
 b. $[_{FP} \text{ two meters}_j [_{F'} F (= \emptyset) + X_i [_{XP} \text{ high/thick} [_{X'} t_i [_{MP} t]_j]]]]]$

If this is the correct analysis, we make one important prediction, subextraction of the MP should yield an ungrammatical output, quite analogously to the ill-formed subextraction examples in (69) and (78). Now, interestingly, speakers often find it very hard, if not impossible, to move away the MP from the dimensional adjective.⁴⁴ The pied piping variant is much preferred. This seems to be a generalization holding of Germanic languages:

- (85) a. ?*How many meters *is the lake* [-- deep]?
 b. ?*Hvor mange meter *har denne elva engang vært* [-- bred]? (Norwegian)
 How many meter has this river once been -- wide

⁴³ Also in German, the *-s*-less form is more common with ‘adjectival compounds’: e.g., *fingerdick* (finger-thick), *armdick* (arm-thick), *haarbreit* (hair-wide), *himmelweit* (heaven-wide), *fussbreit* (foot-wide), *knie tief* (knee-deep), *mannhoch* (man-high), *et cetera*.

⁴⁴ Extractions out of adjective phrases are generally quite possible, e.g.:

- (i) a. *Who is John* [proud of --]?
 b. *What is he* [dependent on --]?

- c. ??Hoeveel meter is het meer [-- diep]? (Dutch)
 How-many meter is the lake -- deep

I propose that the ill-formedness of the subextractions in (85) receives the same explanation as the one given for the ill-formedness of (69). That is, a sequence which does not form a constituent is fronted or a zero-allomorph is stranded at PF (see (86b)):

- (86) a. *[How many meters]- \emptyset is the lake deep?
 b. *How many meters is the lake $-\emptyset$ deep?

Interestingly, subextraction yields a much better result when two dimensional adjectives are placed in contrast with each other (Compare with (85)):

- (87) a. *How many meters is it [-- deep] and how many meters is it [-- wide]?*
 b. *Hvorange meter er denna elva [-- bred] og hvor mange meter er den [-- dyp]?*
 How many meter is this river -- wide and how many meters is it -- deep
 ‘How many meters wide is this river and how many meters deep is it?’
 c. *Hoeveel meter is het meer [-- diep] en hoeveel meter is het [-- breed]?*
 How-many meter is the lake -- deep and how-manymeter is it -- wide
 ‘How many meters deep is this river and how many meters wide is it?’

Suppose now that the contrastive interpretation of the two dimensional adjectives implies that the syntactic representation of the two adjectival expressions in (87) is slightly different from the one in (84). More specifically, let’s assume, quite in line with analyses of contrastive focus in the clausal domain, that the contrastively focused adjectives undergo leftward movement (particularly, remnant movement of the small clause XP) to the Spec-position of a Focus projection within the extended adjectival projection. Thus, starting with (88a) as the underlying representation and having (88b) as an intermediate representation derived by Predicate Inversion, I will take (88c) to be the representation that follows from displacement of the contrastively focalized constituent to the Spec-position of a functional projection FocP, where contrastive focus is licensed. As indicated in (88c), I assume that the complex head $[F(= \emptyset)+X]$ raises to the Foc-head via head movement, which means that the bound zero-morpheme \emptyset is no longer adjacent to the MP *how many meters*. Notice also that the zero-morpheme is now embedded in a more complex head $[Foc+[F F(= \emptyset)+X]]$. I will assume that, as final steps, the wh-phrase *how many meters* moves to [Spec, DegP], pied piping the rest of the material dominated by FP, and the complex head $[Foc+[F F(= \emptyset)+X]]$ raises (and adjoins) to Deg. These movement steps are illustrated in (88d). From [Spec, DegP], the FP $[_{FP} \text{how many meters}_i [_{F'} t_l [_{XP} t_k]]$ can leave the extended adjectival expression:

- (88) a. $[_{XP} \text{deep } [_{X'} X \text{ how many meters}]]$
 b. $[_{FP} \text{how many meters}_j [_{F'} F (= \emptyset) + X_i [_{XP} \text{deep } [_{X'} t_i [_{MP} t_j]]]]]$
 c. $[_{FocP} [\text{deep } [_{X'} t_i t_j]]_k [_{Foc'} [Foc+[F F(= \emptyset)+X]_i] [_{FP} \text{how many meters}_j [_{F'} t_l [_{XP} t_k]]]]]$
 d. $[_{DegP} [_{FP} \text{how many meters } [_{F'} t_l [_{XP} t_k]]]_p [_{Deg'} [Deg+[Foc+[F(= \emptyset)+X]]_h] [_{FocP} [\text{deep } [_{X'} t_i t_j]]_k [_{Foc'} t_h t_p]]]]]$

Summarizing, I have shown that the derivation of an adjectival expression like *six feet tall* involves the process of Predicate Inversion. A characteristic property of this adjectival construction type is the presence of a zero-allomorph of the nominal copula. It was further shown that from a cross-constructional perspective, the MP+A pattern shows a certain similarity to the possessive noun phrase pattern ‘possessor –s/-ø possessum’ and, arguably, an even stronger parallel to the pattern ‘MP –s/-ø measuree noun’. At this point, the descriptive generalization can be formulated that the MP+A pattern typically occurs in languages that also have the prenominal possessor pattern. A language like French, for example, lacks a prenominal possessor (**Jean livre*) and lacks a pre-adjectival MP (**deux mètres long*).

4.3. *The A+MP-pattern*

Let us now turn to the third type of word order pattern attested in adjectival expressions featuring a MP, viz. A + MP. As shown in (89), this pattern is attested in Italian (cf. Zamparelli 1993):

- (89) *Gianni è [alto due metri].*
 Gianni is tall two meters
 ‘Gianni is two meters tall.’

This order is quite remarkable: Generally, a noun phrase does not directly follow an adjectival head. That is, normally there is an intervening prepositional element. From a certain perspective, the adjectival construction in (89) is somewhat reminiscent of the Italian possessive construction in (90), in the sense that in both constructions a noun phrase directly follows a lexical head (A in (89) and N in (90)):

- (90) *Casa Rossi*
 House Rossi
 ‘Rossi’s house’

Longobardi (1996) analyzes the possessive construction in (90) as a construct state nominal, familiar from the Semitic languages (cf. among others Borer 1984; Ritter 1988, 1991; Siloni 1997). A possessor argument is obligatorily realized non-prepositionally and adjacent to the head noun. This last property is depicted in (91) :

- (91) a. *Casa Rossi nuova*
 House Rossi new
 ‘Rossi’s new house’
 b. **Casa nuova Rossi*

In the literature, these construct state nominals have mostly been analyzed in the following way: the head noun *casa* (i.e., the possessum) raises to the D-head from where the noun is able to case-license the possessor noun phrase that occupies the specifier of a functional projection lower than DP. Schematically:

(92) $[_{DP} Casa_j + D [_{FP} Rossi_i [_{F'} t_j [_{NP} (nuova) [_{NP} t_j t_i]]]]]$

Interestingly, the construct state pattern is not restricted to the nominal domain. It is also found in the adjectival domain, as is shown by the following Modern-Hebrew examples taken from Glinert (1989) and Siloni (2002):^{45 46}

- (93) a. *ha-aHot adumat-ha-eynáyim*
 the-nurse red-the-eyes
 ‘the red-eyed nurse’
 b. *yalda yefat mar’e nixnesa la-xeder.*
 girl beautiful look entered to+the-room
 ‘A good-looking girl entered the room’
 c. *shney bakbukim mle'ey máyim*
 two bottles full water
 ‘two bottles full of water’

As discussed in Siloni (2002), the adjectival expressions in (93) display the characteristic properties of Construct States. First of all, they are head initial. Secondly, the adjective directly precedes a noun phrase, i.e., without the mediation of any (dummy)

⁴⁵ Adjectival construct states also occur as predicates in copular constructions (example from Siloni (2002):

- (i) *rina yefat mar’e.*
 Rina beautiful look
 ‘Rina is good-looking.’

⁴⁶ Pattern (93c) is also found in Dutch (cf. (i)) and, possibly, *vol water* should be analyzed as a construct state pattern as well.

- (i) a. *twee flessen [vol water]*
 two bottles full water
 ‘two bottles full of water’
 b. *De boten raakten [vol water].*
 the boats got full water
 ‘The boats got filled with water.’

In older variants of the Dutch language, a genitival case suffix was attached to the nominal complement of the adjective *vol* (cf. Royen 1947-1954)

- (ii) a. *De beul had handen [vol werks]* (Huet, Rembr. I 64) (Older Dutch)
 the executioner had hands full work-GEN
 ‘The executioner had a lot of work to do.’
 b. *Die knapen zijn [vol vuurs]* (De Bom 72)
 those lads are full fire-GEN
 ‘Those lads are fiery.’

If we apply the (‘traditional’) nominal construct state analysis in (92) to the adjectival construct states in (i) and (ii), we get a derived representation like (iii) :

(iii) $[_{DegP} vol_j + Deg [_{FP} water_i [_{F'} t'_j [_{AP} t_j t_i]]]]]$

prepositional element. Thirdly, phonological alternations are found between construct state forms (e.g., *yefat* in (94b)) and free state (i.e., nonconstruct state) forms (e.g., *yafa*, as in *yalda yafa*, girl beautiful, ‘a beautiful girl’). Fourthly, just like nominal heads in nominal construct states (e.g., *(*ha-)yaldat ha-šxenim*, (the-)girl the-neighbors, ‘the neighbors’ girl’), adjectival heads in adjectival construct states never appear with the definite article. The structural context that shows this are constructions in which an attributive adjective modifies a noun. Normally, adjectives show agreement with the noun they modify in gender, number and definiteness, as in (94a). As exemplified in (94b), it is impossible to have an (agreeing) definite article on the adjectival head of the adjectival construct state. Rather, if the modified noun is definite, the non-head member of the adjectival construct state has to carry the definite article (see *yefat ha-mar’e* in (94c)). As shown by (94d), the non-head member does not bear a definite article when the noun modified by the adjectival construct state is indefinite.⁴⁷

- (94) a. *ha-yalda (*ha-)yafa* (Siloni 2002)
 the-girl (the-)beautiful
 ‘the beautiful girl’
- b. *ha-yaldaha-yefat (ha-)mar’e nixnesa la-xeder.*
 the-girl the-beautiful (the-)look entered to+the room
 ‘The good-looking girl entered the room.’
- c. *ha-yalda yefat (*ha-)mar’e nixnesa la-xeder.*
 the-girl beautiful (the-)look entered to+the room
 ‘The good-looking girl entered the room.’
- d. *yalda yefat (*ha-)mar’e nixnesa la-xeder.*
 girl beautiful (the-)look entered to+the room
 ‘A good-looking girl entered the room.’

Having shown that the pattern *A+noun phrase* is found as an adjectival construct state in Modern Hebrew, it is tempting to analyze the pattern *alto due metri* as an instance of the construct state pattern.⁴⁸ Clearly, in Italian this pattern has a very limited range; it seems to be restricted to adjectival expressions in which A (directly) combines with an MP. The more restricted distribution of this pattern in Italian, however, is also something that holds for the nominal construct state pattern in Italian possessives; its occurrence is quite restricted (cf. Longobardi 1996).

Following the traditional assumption that construct state noun phrases involve head movement of the possessed noun to D and adopting the idea that possessive noun phrases start out from a predication configuration like (95a), the derivation of the Italian nominal construct state *casa Rossi* in (90) is as in (95b-c). In (95b), the possessor *P+Rossi* has

⁴⁷ A fourth characteristic is the assignment of genitival case to the non-head of the construct state. Modern Hebrew does not realize this genitival case morphologically. In Standard Arabic, however, as shown in (i), the genitival case is visible (example taken from Siloni 2002):

- (i) r-rajul-u l-jamiil-u l-wajh-i
 the-man-NOM the-beautiful-NOM the-face-GEN
 ‘the beautiful faced man’

⁴⁸ Hebrew does not have the *A+MP* pattern (T. Siloni p.c.).

undergone movement (i.e., predicate inversion) to Spec,FP. As indicated, I assume that besides adjunction of the small clause head X to F, there is also P-incorporation and head movement of the possessum-head *casa* to the complex head, yielding *casa+F+X+P*.⁴⁹ I tentatively propose that the nominal copula does not spell out when there is already a phonologically contentful head available in the complex head. Thus, spell out of the nominal copula is sort of a last resort operation, which applies to ‘lexicalize’ (i.e., make phonologically visible) the complex head. If there is another linguistic means that takes care of this, insertion of the nominal copula is blocked. In (95c), finally, the complex head has raised up to D, yielding the order *casa Rossi*.

- (95) a. $[_{XP} \textit{casa} [_{X'} X [_{PP} P_{\textit{dative}} \textit{Rossi}]]]$
 b. $[_{FP} [_{PP} P_{\textit{o}} \textit{Rossi}]_i [_{F'} [\textit{casa}_q + F + X_j + P] [_{XP} t_q [_{X'} t_j t_i]]]]]$
 c. $[_{DP} D + [\textit{casa}_q + F + X_j + P]_h [_{FP} [_{PP} P_{\textit{o}} \textit{Rossi}]_i [_{F'} t_h [_{XP} t_q [_{X'} t_j t_i]]]]]]]$

If we take DegP to be the equivalent of DP and if we take (96a) to be the underlying structure, the string *alto due metri* may be derived as in (96b-c).

- (96) a. $[_{XP} \textit{alto} [_{X'} X [\textit{due metri}]]]$
 b. $[_{FP} [\textit{due metri}]_i [_{F'} [\textit{alto}_q + F + X_j] [_{XP} t_q [_{X'} t_j t_i]]]]]$
 c. $[_{\textit{DegP}} \textit{Deg} + [\textit{alto}_q + F + X_j]_h [_{FP} [\textit{due metri}]_i [_{F'} t_h [_{XP} t_q [_{X'} t_j t_i]]]]]]]$

In (96a), the MP *due metri* predicates over the non-thematic Interval-argument I that is associated with the dimensional adjective *alto*. In (96b), Predicate Inversion has applied to the MP and head movement has applied to the adjective *alto* and the small clause head X, creating the complex head $[\textit{alto} + F + X]$. Just like for the possessive construct state pattern in (95), I will assume that spell out of the nominal copula (Italian *di* ‘of’) is blocked if the complex head already ‘surfaces phonologically’ because of the presence of an adjoined lexical head (*in casu*: *alto*).

Summarizing: in this section I argued that the MP that combines with a dimensional (positive) adjective is a predicate nominal that predicates over the non-thematic Interval-argument of the dimensional adjective. Configurationally, the MP starts out in the complement position of a small clause configuration. The surface patterns are obtained by Predicate Inversion (as in: *two meters tall*), Predicate Inversion in combination with remant XP-movement (*long de deux mètres*), or Predicate Inversion in combination with head movement (*alto due metri*). I also tried to show that these patterns show a certain similarity to nominal possessive patterns. Interestingly, there seems to be a certain intra-linguistic cross-constructive similarity as regards the ordering of the predicate (i.e., the MP/the possessor) and the ‘subject’ (i.e., the measuree/possessum). In English, the MP precedes the dimensional adjective (*two meters tall*), just like the

⁴⁹ I abstract away here from the exact ordering of the head adjunction steps. A more precise representation of the complex head which is compatible with cyclic application of head movement and with the Head Movement Constraint would be the following: $[\textit{casa} [_{F'} [_{X'} P + X] F]]$. This complex head is obtained by first incorporating P into the small clause head X, creating $[_{X'} P + X]$, then adjoining this complex head to F, creating $[_{F'} [_{X'} P + X] F]$, and finally adjoining *casa*, yielding $[\textit{casa} [_{F'} [_{X'} P + X] F]]$. Note that in this complex head representation, *casa*, and not F, is the highest adjoined element. This deeper structural embedding of F may also be a reason why it is not spelled out phonologically. In a way, it is too deeply embedded to be visible for spell out at PF.

possessor precedes the possessum (*John's car*). In French, the sequence *de+MP* occurs to the right of the dimensional adjective (*long de deux mètres*), just like the sequence *de+Possessor* occurs to the right of the possessum (*une voiture de Jean*). Italian, finally, permits the sequence *A+MP* (*alto due metri*), just like it permits the order *N_{possessee}+possessor*, as in the construct state pattern *casa Rossi*. Importantly, this cross-constructural similarity, as regards the the computational operations involved, further supports the general idea of cross-constructural symmetry, as discussed in Section 1.

5. Measure phrases in the nominal domain

In the previous section, I identified three adjectival patterns featuring an MP: (i) *A + de + MP* (e.g., French), (ii) *MP + A* (e.g., English), (iii) *A + MP* (e.g., Italian). Each of the languages I discussed, displayed one of these patterns. Thus, the amount of intra-linguistic variation as regards the syntax of AP-internal MPs is limited. The syntax of noun phrase-internal MPs provides us with a different picture. Consider, for example, the following patterns from English:

- (97) a. *He begged for [a week of vacation].*
 b. *He begged for [a vacation of one week].*
 c. *He begged for [a week's vacation].*
 d. *He begged for [a one week vacation].*

In this section, I will examine each of these patterns, also taking a cross-linguistic perspective, and try to give an analysis for each of them.

5.1. The patterns *a week of vacation* and *a vacation of one week*

I will start my discussion of noun phrase-internal MPs with the nominal constructions (97a,b), which both feature the lexical item *of*. As shown in (98), this construction is also found in a language like French:⁵⁰

- (98) a. *Le train a [deux minutes de retard].* (French)
 the train has two minutes of delay
 'The train has two minutes of delay.'

⁵⁰ Other Romance languages, such as Italian and Spanish, also allow the two word order patterns in (98). This is shown in (i) and (ii), for Italian and Spanish, respectively:

- (i) a. *Ha chiesto una settimana di vacanza.* b. *Ha chiesto una vacanza d una settimana.*
 has begged-for a week of vacation has begged-for a vacation of one week
 'He/she begged for a week of vacation.' 'He/she begged for a vacation of one week.'
- (ii) a. *Ha pedido una hora de descanso.* b. *Ha pedido un descanso de una hora.*
 has begged-for an hour of break has begged-for a break of an hour
 'He/she begged for an hour's break.' 'He/she begged for a break of one hour.'

- b. *Le train a [un retard de deux minutes].*
 the train has a delay of two minutes
 ‘The train has a delay of two minutes.’

A remarkable property of the pairs (97a,b) and (98a,b) is the linear order of the MP with respect to the other noun (*vacation, retard*). In the a-examples, the MP follows the noun, whereas in the b-examples it precedes the noun. A common property of both word order patterns is the appearance of the (meaningless) linking element *of/de*. On the basis of this latter shared property, one might hypothesize that the two nominal constructions are derivationally related to each other; that is, one word order pattern is derived from the other. The question then arises as to which of the two orders is the ‘underlying’ one.

In line with the idea that MPs are nominal predicates that predicate over a (non-thematic argument associated with a) subject and assuming that noun-phrase internal predication is configurationally defined in terms of a small clause configuration XP, I will take (99) to be the ‘starting’ syntactic structure that is input to further syntactic operations yielding the word order patterns in (97a,b) and (98a,b).⁵¹

- (99) a. [_{XP} *vacation* [_{X'} *two weeks*]]
 b. [_{XP} *retard* [_{X'} *deux minutes*]]

Taking (99) to be the underlying order, the order in (97b) and (98b) can be derived by (predicate-)moving the MP to a structural position preceding the small clause subject. In line with den Dikken (2006), I will assume that the MP undergoes Predicate Inversion (i.e., predicate movement of the A-movement type) to [_{Spec,FP}]; see (100). Adjunction of the small clause head X to F is required for reasons of domain extension (i.e., equidistance) and this head-adjunction operation triggers the appearance of the nominal copula *of/de* at phonological spell-out. Schematically :

- (100) a. [_{FP} *two weeks*_i [_{F'} F (= *of*) + X_j [_{XP} *vacation* [_{X'} t_j t_i]]]]]
 b. [_{FP} *deux minutes*_i [_{F'} F (= *de*) + X_j [_{XP} *retard* [_{X'} t_j t_i]]]]]

What about the order in (97a) and (98a), where the non-measure noun precedes the sequence *of/de* + MP? If *of/de* is interpreted as an instance of the nominal copula, we must assume that Predicate Inversion has applied in these nominal constructions as well. More specifically, I propose that the appearance of the nominal copula derives from the derivational step depicted in (100). Suppose now that this syntactic structure is input to another displacement operation which in a way reinstates the underlying word order that

⁵¹ Quite along the lines of the analyses given in (29a) and (38a), one might want to argue that the MP in (99) enters into a predication relationship with the non-thematic argument associated with the ‘subject’ (see *G* in (29a) and *I* in (38a)). One might use Williams’s (1981) non-thematic R-role for this. This R-role is associated with the lexical category N and defines the reference of the lexical predicate. Thus, *vacation*_{<R>} denotes ‘each of the various entities that are vacations’. If we take this R-role to be associated with N, the representation in (99a) can be more precisely formulated as follows:

- (i) [_{XP} *vacation*_{<R>} [_{X'} *two weeks*]]

In the representations given in the main text, I will abstract away from this R-role.

the derivation started with, i.e., NP MP. I will take remnant movement of the small clause XP around the inverted MP to yield the surface order of (97a) and (98a). Schematically :

- (101) a. $[_{DP} a [_{WP} vacation [_{X'} t_j t_i]]_k [_{W'} W+[_F F(=of)+X]_l [_{FP} two\ weeks_i [_{F'} t_l [_{XP} t_k]]]]]$
 b. $[_{DP} un [_{WP} retard [_{X'} t_j t_i]]_k [_{W'} W+[_F F(=de)+X]_l [_{FP} deux\ minutes_i [_{F'} t_l [_{XP} t_k]]]]]$

The question, obviously, arises as to why *vacation/retard*, and more specifically the entire small clause XP, raises to a higher structural position within the noun phrase. I would like to propose that this displacement is somehow related to the [+count]-reading of the nouns *vacation* and *retard* in (97b) and (98b). The presence of the indefinite singular article *a/un* suggests that these nouns have a count-reading; nouns that are not countable, i.e., mass nouns, typically do not co-occur with such an indefinite article (see e.g., *John drank (*a) wine* ; *Jean buvait du/*un vin*). Given this, I will assume that *vacation* in (97b) and *retard* in (98b) are count nouns. More specifically, I will assume that the N(P) *vacation/retard* raises to the specifier position of a functional projection where the [+count]-property is associated with the N(P). Being moved to this position, the small clause subject-NP drags along (i.e., pied pipes) the dominating small clause, as depicted in (101). In the examples (97a) and (98a), *vacation* and *retard* have a non-count reading, i.e., a mass reading. More specifically, they may be qualified as abstract mass nouns (as opposed to concrete mass nouns such as *water, beer, et cetera*).

This analysis is in line with Borer's (2005) theory on the grammatical encoding of the mass-count distinction. She argues that the mass-count distinction is not lexically encoded (i.e., it is not a property of listemes) but is rather a property of syntactic structures (see also Chierchia 1998). More specifically, Borer assumes that the mass reading is a default interpretation of nouns and that the count reading results from the presence of functional structure encoding 'countability'.⁵² Displacement of the N(P) from its base position to the Spec-position of the functional layer encoding 'countability' yields a count reading. When we apply this approach to the examples in (101), WP should be interpreted as the functional domain encoding 'countability'.

Empirical support for the presence of the mass-count distinction in examples such as (97a,b) and (98a,b) can be obtained from a language like Dutch, which also displays the word order variation that is attested in languages such as English and French:⁵³

- (102) a. *Jan kreeg toen [vijf cent korting].*
 Jan got then five cent discount
 'Jan got a discount of five cents.'
 b. *Jan kreeg toen [een korting van vijf cent].*
 Jan got then a discount of five cent
 'Jan got a discount of five cents.'

⁵² More precisely, Borer (2005) proposes the presence of a DivP. Div is a functional head which has a divisional function on mass.

⁵³ Observe that Dutch differs from English (97a) and French (98a) as regards the overt presence of a linker. That is, in Dutch, the linker *van* is absent in (102a). If (102a) and (102b) receive the structural analyses in (101) and (100), respectively, the conclusion must be drawn that the nominal copula only surfaces as *van* in the latter structural context. At the moment, I have no explanation for the fact that *van* is only spelled out overtly in the nominal pattern in (102b).

A well-known characteristic of a count noun (i.e., a noun with a count reading) is the availability of plural morphology. As shown in (103a), plural morphology is possible with the pattern *N van MP*, but not with the pattern *MP N*.⁵⁴ This suggests that in the former pattern *korting* has a count reading, while in the latter pattern it has a mass reading.

- (103) a. *Jan krijgt hier normaal [kortingen van vijf cent].*
 Jan gets here normally discounts of five cent
 ‘Jan normally gets here discounts of five cents.’
 b. **Jan krijgt hier normaal [vijf cent kortingen].*
 Jan gets here normally five cent discounts
 ‘Jan normally gets here discounts of five cents.’

Another characteristic of mass nouns in Dutch is that they can never have diminutive morphology. This is exemplified in (104), where (104a) represents the mass reading and (104b) the count-reading :

- (104) a. *Jan dronk wijn(*tje).*
 Jan drank wine(DIM)
 ‘Jan drank wine.’
 b. *Jan drinkt graag een wijntje.*
 Jan drinks gladly a wine-DIM
 ‘Jan loves to drink a glass of wine.’

Observe now that diminutive morphology is possible on the noun in the pattern *N van MP*, but again not with the pattern *MP N* :

- (105) a. *Jan kreeg toen [een kortinkje van vijf cent].*
 Jan got then a discount-DIM of five cent
 ‘Jan got a small discount of five cents.’
 b. **Jan kreeg toen [vijf cent kortinkje].*
 Jan got then five cent discount-DIM
 ‘Jan got a small discount of five cents.’

So far, I have argued that the (English/French) patterns *MP of/de N* and *N of/de MP* are derivationally related to each other. Another property which seems to support the relationship of the two construction types is the appearance of the linking element *of*, which I interpreted as the nominal copula in the sense of den Dikken (2006). Being a nominal copula, this *of* should arguably be distinguished from the element *of* which we find in *picture-noun* phrases. If the *of* in (106) is a different one from the *of* in *picture-noun* phrases, we expect the two *of*'s to display different syntactic behavior. As a matter of fact, this turns out to be the case.

⁵⁴ Importantly, (103b) should be read with phonological stress on *kortingen*. With phonological stress on *vijf cent*, the sequence *vijf cent kortingen* has a compound reading.

Notice, first of all, the minimal pair in (106) and the difference in subextraction behavior depicted in (107):⁵⁵

- (106) a. *He begged for [a picture of some baseball-player].*
 b. *He begged for [a week of vacation].*
 (107) a. *Who_i did he beg for [a picture of t_i]?*
 b. *??What_i did he beg for [a week of t_i]?*

Notice also the subextraction contrast in (109), which is based on the pair in (108):⁵⁶

- (108) a. *He begged for [a picture of two baseball-players].*
 b. *He begged for [a vacation of two weeks].*
 (109) a. *How many baseball-players_i did he beg for [a picture of t_i]?*
 b. *??How many weeks_i did he beg for [a vacation of t_i]?*

The contrast in acceptability between the picture noun phrase and the two MP-constructions (i.e., *a week of vacation*, *a vacation of two weeks*) suggests that a different structural analysis is at the basis of these types of nominal constructions and that the *of* in picture noun phrase is arguably a different one from the *of* in the nominal constructions featuring an MP.⁵⁷ More specifically, I will assume that the *of*-phrase that combines with a *picture*-noun phrase occupies the complement position of N. Extraction from this complement position is permitted (cf. Chomsky 1977). Given my analysis, according to which *a week of vacation* involves predicate inversion of the MP (cf. (100)), displacement of *what* in (107b) involves extraction of the small clause subject (with stranding of the nominal copula). Evidently, subextraction of the DP-internal small clause subject across the inverted predicate yields an ill-formed structure. Notice at this point that a similar extraction from the *N of N*-construction is also ruled out (cf. (110a) with (110b) as the derived representation of the *N of N* construction). The ill-formed extraction pattern in (109b), where the inverted MP-predicate has been moved out of the larger noun phrase, may be put on a par with the ill-formed pattern in (111a), which following den Dikken (2006: 237) also involves DP-internal predicate inversion with subsequent remnant movement of the DP-internal small clause to a position above the landing site of the inverted predicate (see (111b)).⁵⁸

⁵⁵ Notice also that in a language like French it is impossible to apply a movement operation (e.g., *en*-pronominalization) to the *de*-phrase following the MP:

- (i) a. Jean a reçu [deux minutes d'avance].
 Jean has received two minutes of headstart
 'Jean received two minutes of headstart.'
 b. *Jean en_i a reçu [deux minutes t_i].
 Jean of-it has received two minutes
 'Jean received two minutes of headstart.'

⁵⁶ Note that MPs can be fronted in other contexts, as in: *How many weeks did he beg for?*

⁵⁷ What remains unclear at the moment is why, compared to (107b), P-stranding with *of* yields a much worse result with the *N of N*-construction.

⁵⁸ As noted in den Dikken (2006:237), the nominal construction *a man of many talents* expresses a possessive relationship, which may be loosely put as follows: 'man (is) with many talents'.

- (110) a. *What did you meet [an idiot of--]?
 b. $[_{DP} \text{an } [_{FP} \text{idiot}_i [_{F'} F(= \text{of})+X_j (= a) [_{XP} \text{doctor } [_{X'} t_j t_i]]]]]$
- (111) a. *So many talents John is [a man of--]!
 b. $[_{DP} a [_{WP} \text{man } [_{X'} t_j t_i]]_k [_{W'} W+[_{F'} F(=of)+X]_l [_{FP} [_{PP} P+\text{so many talents}]_i [_{F'} t_l [_{XP} t_k]]]]]$

Since the phenomenon of DP-internal remnant movement plays an important role in the derivation of the pattern (ART) + N + *de/of/van* MP, I would like to close off Section 5.1 with a quite remarkable construction type from Dutch, which I will argue also involves Predicate Inversion with subsequent remnant movement of a small clause XP to a position preceding the inverted predicate. The relevant construction type is exemplified in (112); examples drawn from Google.⁵⁹

- (112) a. *Boven het plafond in zijn zaak vond hij [een python van drie meter lang]*
 Above the ceiling in his shop found he a python of three meter long
 ‘Above the ceiling of his shop he found a python which was three meters long.’
- b. *Het bier had [een schuimkraag van twee vingers dik]*
 The beer had a froth-‘collar’ of two fingers thick
 ‘The beer’s froth was two fingers thick.’
- c. *Er zijn mensen die het lekker vinden [brood van zes dagen oud] te eten*
 There are people who it nice find bread of six days old to eat
 ‘There are people who like to eat bread which is six days old.’
- d. *Door de uitbarsting van de Krakatau op 26 augustus 1883 ontstond [een vloedgolf van 36 meter hoog]*
 Because-of the outburst of the Krakatau on 26 August 1883 arose
 a tidal-wave of 36 meter high
 ‘As a result of the outburst of the Krakatau at August 26th 1883, a tidal-wave with a height of 36 meters arose.’
- e. *De wip is [een plank van 30 centimeter breed en 4.20 meter lang]*
 The see-saw is a plank of 30 centimeter wide and 4.20 meter long
 ‘The see-saw is a plank which is 30 centimeters wide and 4.20 meters long.’

The bracketed construction can be neutrally described as follows: (ART) + N + *van* + [MP + A]. The most intriguing property of this construction is that an AP (i.e., [MP + A]) follows the linking element *van*. This occurrence of an adjectival expression after the linking element *van* is reminiscent of the French pattern *une pizza de chaude*, which was briefly discussed in Section 4.1 (example (40)). I would like to propose that, analogously

⁵⁹ English does not have the equivalent of the Dutch nominal construction in (112); see (ia). English does allow the pattern in (ib), which is also attested in Dutch (*een man van twee meter*). The pattern (ib), possibly, receives an analysis similar to the one assigned to *a man of many talents* (see note 58, and den Dikken 2006: 237); see (111b).

- (i) a. **[A man of two meters tall] stood in front of me*
 b. *[A man of two meters] stood in front of me*

to den Dikken's (2006) analysis of *une pizza de chaude* as represented in (40), the derivation of a nominal construction like *een python van drie meter lang* in (112a) involves Predicate Inversion of an AP (*drie meter lang*) and subsequent remnant movement of the small clause XP to a Spec-position above the inverted predicate. Schematically:

(113) a. Base structure

$[_{XP} \textit{python} [_{X'} X \textit{3 meter lang}]]$

b. Predicate Inversion

$[_{FP} [_{\textit{3 meter lang}}]_i [_{F'} F (= \textit{van}) + X_j [_{XP} \textit{python} [_{X'} t_j t_i]]]]$

c. Remnant movement of XP

$[_{DP} \textit{een} [_{WP} [_{\textit{python} [_{X'} t_j t_i]]}_k [_{W'} W + [_{F'} F (= \textit{van}) + X]_l [_{FP} \textit{drie meter lang}_i [_{F'} t_l [_{XP} t_k]]]]]]]$

Summarizing: in Section 5.1., I gave an analysis of the patterns *a week of vacation* and *a vacation of one week*. The former pattern involves predicate inversion of the MP across the mass noun. The derivation of the latter pattern also involves predicate inversion of the MP but has an additional movement step, viz., remnant movement of the small clause XP to the Spec-position of a higher functional projection WP, which is associated with the grammatical feature [+count].

5.2. The pattern a week's vacation

In the previous subsection, I argued that a nominal construction such as *a week of vacation* involves the operation of Predicate Inversion and that the intervening lexical item *of* is a nominal copula. Another nominal construction featuring an MP that precedes the measuree noun is the one in (114), where the bound morpheme 's separates the MP from the measuree. This construction type was briefly discussed in Section 4.3.5 (cf. example (72)).

(114) *He begged for a week's vacation.*

Some further examples of this pattern are given in (115):

(115) a. *He was sentenced to [one month's hard labor].*

b. *He begged for [a week's vacation].*

c. *Sundance will be [one minute's walk from the Hilldale Great Dane].*

d. *Peter started the foot race with [more than a minute's head start].*

e. *Bill's lawyer will ask for [a month's postponement].*

In traditional grammars, the *MP*+ 's has been qualified as the genitive of measure. Although, historically, these MPs arguably carried a genitival case suffix, the 's that follows the MP in present-day English can no longer be interpreted as a genitival case inflection (see also Section 4.2.4). It seems plausible that the pattern in (97c), i.e., *MP* + 's + *N*, should receive a structural analysis similar to the one assigned to a possessive

noun phrase like *John's car*, i.e., *Possessor + 's + N*. In the literature, the bound morpheme *-s* that appears after the possessor is no longer analyzed as a genitival case ending suffixed to the possessor noun. Evidence against analyzing *'s* as a genitival case suffix comes from constructions like *the man with the beard's wife*, where *'s* clearly attaches to the entire phrase *the man with the beard* and not to the head *man*. Notice that the following examples show the same thing for the *'s* appearing after the measure phrase ((116b,c) taken from Poutsma 1928): *'s* attaches to the phrases *a month/minute/week or two* and *a month or so*, and not directly to the measure nouns (i.e., *minute, month, week*), as a genitival suffix would do.

- (116) a. *He was sentenced to [a month or two 's hard labor].*
 b. *The walk was a solitary walk, ...but [a minute or two 's distance from his lodgings].*
 c. *In [a week or two 's time] he had changed into a werewolf.*
 d. *Bill's lawyer asked for [a month or so 's postponement].*
 e. *He needs [a month or two 's rest].*

I propose that the patterns *MP's + N* and *POSSESSOR's + N* should receive the same structural analysis. In Section 4.2.2, it was argued, following den Dikken (1998), that *'s* should be interpreted as a bound morphemic equivalent of the nominal copula *of*. This implies, that *'s* shows up in a structural context in which the operation of Predicate Inversion has applied. Schematically:

- (117) a. base structure of possessive construction
 $[_{DP} Spec [_{D'} D [_{FP} Spec [_{F'} F [_{XP} car [_{X'} X [_{PP} P (= to) John]]]]]]]]]$
 b. derivation of possessive construction
 $[_{DP} Spec [_{D'} D [_{FP} [_{PP} t_k John]_i [_{F'} F (= 's) +X_j+P_k [_{XP} car [_{X'} t_j t_i]]]]]]]]$

As I have already argued in Section 4.2.5, I propose that an expression like *a week's vacation* should be analyzed along the same lines as the possessive noun phrase. More specifically, the MP starts out as a predicate nominal occupying the complement position of X. The MP undergoes Predicate Inversion, which triggers the appearance of the nominal copula *'s*.⁶⁰

- (118) a. base structure of measure phrase construction
 $[_{DP} Spec [_{D'} D [_{FP} Spec [_{F'} F [_{XP} vacation [_{X'} X [a week]]]]]]]]]$

⁶⁰ An alternative analysis would be one in which *a* occupies the D-position in (118b) and that the MP *week* has the structure *ONE week*, where *ONE* is a silent noun in the sense of Kayne (2003). Thus:

- (i) $[_{DP} Spec [_{D'} a [_{FP} [ONE week]_i [_{F'} F (= 's) +X_j [_{XP} vacation [_{X'} t_j t_i]]]]]]]]$

In patterns in which the numeral *one* phonologically surfaces, the indefinite article in D is silent, i.e., phonologically empty:

- (ii) $[_{DP} Spec [_{D'} A(= \text{silent } a) [_{FP} [one week]_i [_{F'} F (= 's) +X_j [_{XP} vacation [_{X'} t_j t_i]]]]]]]]$

b. derivation of measure phrase construction

$[_{DP} Spec [_{D'} D [_{FP} [a\ week]_i [_{F'} F (= 's) + X_j [_{XP} vacation [_{X'} t_j t_i]]]]]]$

The derivation in (118) is structurally very similar to that of *one week of vacation*. It turns out, however, that the two construction types are not parallel in all respects. First of all, the sequence *MP's + N* cannot possibly be preceded by a pronominal possessor (see (119a) and (120a)). As shown by (119b) and (120b), the sequence, *MP + of + N* can be preceded by a (pro)nominal possessor, even though for some speakers it sounds a bit clumsy in certain cases.⁶¹

(119) a. **[Their one minute's silence] was much appreciated by the teacher.*

b. *[Their one minute of silence] was much appreciated by the teacher.*

(120) a. **[Paris Hilton's one month's imprisonment] turned out to be terrible.*

b. ?*[Paris Hilton's one month of imprisonment] turned out to be terrible.*

The non-simultaneous occurrence of POSSESSOR+*s* and MP+*'s* suggests that the possessor and the MP compete for the same structural position. The fact that POSSESSOR+*'s* can be followed by MP+*of* may be interpreted as evidence that the MP in this case occupies a different (more specifically: lower) structural position in the extended nominal projection.

Another contrast between *one week of vacation* and *one week's vacation* regards the meaning of the two noun phrases. The partitive pattern featuring *of* can have a distributive reading, the 'genitival' pattern featuring *'s* cannot. It typically has the reading in which *a week* represents an 'aggregate', i.e., an indivisible measure unit.⁶²

(121) a. *You have a week of vacation, which you can take out in individual days.*

b. *You have a week's vacation, #which you can take out in individual days.*

I will take the structural contrasts in (119)-(120) and the interpretive contrast in (121) to mean that the MP in the *MP's N* pattern and the MP in the *MP of N* pattern occupy different syntactic positions (even though they involve the same computational operation, viz. Predicate Inversion). More specifically, I will tentatively assume that in the *MP+of+N* pattern, the measure phrase occupies the Spec-position of a quantificational functional head (say, QP, as in (122a)), while in the *MP's+N* pattern, the MP occupies the same structural position as the one occupied by the possessor in *John's vacation*. I will take this functional layer to be located below DP, as in (122b), and will loosely qualify it as a functional projection which encodes 'referential' properties.⁶³ In

⁶¹ Notice that the partitive construction behaves in this respect the same as the *N of N*-construction.

(i) a. *[Your beauty of a castle] will be destroyed in a couple of weeks.*

b. *[Peter's nitwit of a brother] will visit us next week.*

⁶² I would like to thank a reviewer for pointing out this contrast.

⁶³ See at this point Szabolcsi's (1983, 1987) analysis of the Hungarian possessive noun phrase featuring a nominative possessor. As indicated in (i), this possessor typically follows the definite article, which suggests that it occupies a syntactic position hierarchically lower than D, more specifically, the Spec-position of a functional layer selected by D.

nominal expressions such as *John's vacation* and *someone's vacation*, the (in)definiteness of the possessor determines the referential (i.e., definite *versus* indefinite) reading of the entire noun phrase; cf. Longobardi 1996). Suppose now that, in *a week's vacation*, the MP is referential in the sense that it defines a time interval as a single unit .

- (122) a. [_{QP} two weeks_i [_Q Q (= of) + X_j [_{XP} vacation [_{X'} t_j t_i]]]]
 b. [_{DP} Spec [_D D [_{FP} [a week]_i [_{F'} F (= 's) + X_j [_{XP} vacation [_{X'} t_j t_i]]]]]]]]

Besides time expressions that refer to a time interval (as in *a week's vacation*), we also find in this Spec-position time expressions that indicate a 'point' in time, as in: *last week's concert*, *tomorrow's weather*, *this week's party*. Note, just like the MPs in (119) and (120), it is impossible for a temporal noun phrase like *last week's* to cooccur with a possessor like *John's*, which suggests that they compete for the same syntactic position, i.e., [Spec,FP] in (122b).⁶⁴

- (123) a. [*Last week's performance*] was a great success.
 b. * [*John's last week's performance*] was a great success.
 c. [*John's performance last week*] was a great success.

Summarizing: a nominal expression like *a week's vacation* involves predicate inversion of the MP *a week*. Importantly, it ends up in a structural position, viz., [Spec,FP], which is structurally different from the one occupied by *a week* in *a week of vacation*. In the latter nominal construction, the MP occupies [Spec,QP]. The different loci of the two MPs possibly correlates with the difference in phonological spell-out of the nominal copula, i.e., in Q the nominal copula spells out as *of* and in F it spells out as *'s*.

5.3. The pattern a one week vacation

Of the patterns mentioned at the beginning of Section 5, there is one pattern left, which I have not discussed so far: *a one week vacation* (cf. (97d)). Although, from a superficial

- (i) (a) *Mari kalap-ja-i*
 (the) Mari-NOM hat-POS-PL(-3SG)
 'Mari's hats'

⁶⁴ Noun phrases of the type *last year's conference* differ from noun phrases of the type *one week's postponement* as regards their ellipsis behavior. The former, just like possessive noun phrases such as *John's car*, permit ellipsis of the noun, leaving behind the temporal noun + 's as a remnant; see (i). As shown in (ii), however, this ellipsis pattern is not possible with MP as a remnant. At the moment, I have no explanation for this contrast.

- (i) a. *John went to [last year's conference] and Mary will go to [this year's --].*
 b. *[Last year's conference] was better than [this year's --].*
 (ii) a. **John was sentenced to [one month's hard labor] and Mary was sentenced to [one year's --].*
 b. ?**[One month's paid vacation] is to be preferred over [one week's --].*

perspective, *a one week vacation* is quite similar to the pattern *a week's vacation*, the two constructions should be distinguished from each other. A first distinguishing feature is, obviously, the presence versus absence of the linking 's:

- (124) a. *He begged for [a one week(*'s) vacation].*
b. *He got [a one minute(*'s) headstart].*

Notice also that the 'bare' (i.e., 's-less) MP-pattern can occur within a possessive noun phrase, whereas the 'dressed' (i.e., *MP's*) pattern cannot:

- (125) a. *[Paris Hilton's one month(*'s) imprisonment] turned out to be terrible.*
b. *[Their one minute (*'s) silence] was much appreciated by the teacher.*

As I argued in Section 5.2, the complementary distribution of the possessor and the *MP+* 's may be interpreted as evidence that they compete for the same structural position. The co-occurrence of the possessor and the bare (i.e., 's-less) MP suggests that they occupy two different structural positions.

The different distribution of bare MP and *MP+* 's is further shown by their placement with respect to attributive APs. As shown in (126), the bare MP can, but the *MP+* 's can not be preceded by an attributive AP modifying the measuree noun. The examples in (127) show that *MP+* 's can occupy a position preceding the attributive AP. For a bare MP, this more peripheral position yields a less acceptable pattern.

- (126) a. *After [a steep one hour(*'s) climb] we reached the hut.*
b. *[Paris Hilton's terrible one month(*'s) imprisonment] was hot news on TV.*

- (127) a. *After [one hour^{??} ('s) very sharp climb up Mrcina], markings led us to the Medvednica ridge.*
b. *After going through [about one month^{??} ('s) so-called medical training],*

In view of the above, we may draw the conclusion that the MP in *a weeks's vacation* occupies a structural position which is different from the one occupied by the MP in *a one week vacation*.

In view of the adjacency of the bare MP and the noun, one may be tempted to conclude that the sequence *one week vacation* in the noun phrase *a one week vacation* constitutes a compound. There is empirical evidence, though, against a compound (i.e., complex word)-analysis of the sequence *one week vacation* and in support of a syntactic representation (see also Jespersen 1977:98). This evidence comes from the phenomenon of *one*-pronominalization. Consider the following examples:⁶⁵

- (128) a. *What do you prefer, [a one month vacation] or [a one week one]?*
b. *John got [a two minute headstart] and Bill got [a one minute one].*

⁶⁵ Observe that *one*-pronominalization is impossible with the pattern *MP's+noun*. This further corroborates the idea that this pattern has a different syntax from the pattern *a one month vacation*.

(i) What do you prefer, [one month's holidays or one week(*'s) ones]?

c. *What do you prefer, [two week vacations] or [three week ones]?*

In these examples, *one*-substitution has been applied to the noun phrase that forms the second conjunct. It turns out that the sequence *a one week one* is fully acceptable. In this respect, the MP *one week* behaves like the attributive adjective *short* in (129).

(129) *What do you prefer, [a long vacation] or [a short one]?*

Importantly, *one*-substitution cannot possibly apply within a composite noun (example drawn from Corver 1990:316):

(130) **John bought a big loudspeaker and Mary bought a big loud one too.*
(Compare: *John bought a big red car and Mary bought a big red one too.*)

One might speculate that *one week* in *a one week vacation* is actually an adjectival expression. First of all, its syntactic distribution — to the left of the noun and to the right of attributive adjectives— is suggestive for such an analysis. Secondly, its behavior in contexts of *one*-pronominalization is compatible with an adjectival analysis of *one week*. Thirdly, whatever the explanation of this phenomenon, just like in the expression *a [2 year(*s) old] child*, where plural morphology is obligatorily absent on the MP contained within an adjective phrase, it is impossible to have plural morphology on the bare MP in (128c); i.e., *two week(*s) vacations*, *three week(*s) ones* (see also Kayne 2003).

Notice at this point that the behavior of *a week* in (123) is reminiscent of other compound-like patterns, which actually turn out to be syntactic phrases. Consider the patterns in (131), where *one*-pronominalization applies to a nominal construction, leaving behind what appears to be a nominal element:

(131) a. *Mary bought a silk dress and Sue bought [a cotton one].*
b. *What kind of concert do you prefer? A Saturday evening concert or [a Saturday afternoon one]?*

In view of this ‘adjective’-like behavior of the MP, one might speculate that there is an abstract morpheme present, which turns the MP —a nominal constituent— into an adjective-like constituent.

Some support for the presence of such a morpheme comes from Dutch, where we find expressions such as those in (132); examples drawn from Royen (1947-1954):

(132) a. *En daar lag [de vijfponds karper] te spartelen.*
And there lay the five-pound-s carp to struggle
‘And then there was this five-pound carp which was struggling.’
b. *Britse Lancasters met [hun zes tons bommen]*
British Lancasters with their six ton-s bombs.
‘British Lancasters with their six-ton bombs’
c. *[Zijn drieduims touw] zwiepte langs dijen en ruggen.*
His three-inch-s rope swished along thighs and backs
‘His three-inch rope swished against thighs and backs.’

- d. *de grote vijf tons kogelvrije Mercedes.*
 the large five ton-s bullet-free Mercedes
 ‘the large, five-ton, bullet-free Mercedes’

In these examples, we find the element *-s* right after the sequence *NUM + measure noun*; e.g., *vijf-pond-s*. Just like in the English examples, the plural morphology is absent after the measure noun; i.e., *pond*, *ton*, *duim*, and *riem* all have the form of a singular noun.⁶⁶ Another peculiar property of the constructions in (132) is that the complex element *NUM+measure noun+-s* does not carry the regular adjectival inflection *-e* that we normally find on attributive adjectives in Dutch. An attributive adjective that modifies the noun *karper* in (132a), for example, typically carries the inflectional marker *-e*, as in *een grot-e karper* (a large-infl carp). Consider at this point also example (132d), where the MP *vijf ton-s* is located in between two inflected attributive adjectives (*grote*, *kogelvrije*). The locus of the MP in between two inflected attributive adjectives is also suggestive for an adjective-like analysis of the MP.

In the line of Cinque’s (1994) proposal that attributive APs are located in the spec-position of a functional projection (say, ZP), I would like to propose that the MP is located in [Spec, ZP] and that the ‘adjectival’ bound morpheme *-s* is base-generated as the head of this projection. Schematically:

(133) [*een* [_{ZP} [_{MP} *vijf pond*] [_Z [_Z *-s*] [_{NP} *karper*]]]]]

Suppose now that the English equivalent *a five pound carp* (and other examples such as *a one week vacation*) have the same representation but with one small difference: the functional projection is headed by a zero-allomorph.⁶⁷ The zero-marking in English is not entirely unexpected, given the fact that attributive APs typically do not carry any overt inflection in English.⁶⁸

⁶⁶ The plural form would be *ponden*, *tonnen*, *duimen*, *riemen*.

⁶⁷ Arguably, forms such as *silk* and *cotton* in (131a) also have a more complex structure, given the fact that we also find forms such as *wooden*, *woolen*, *golden*. Interestingly, these material adjectives can only be used attributively: *a wooden house* versus **This house is wooden*. I tentatively assume that the *-en* morpheme (and its zero allomorph, as in *a cotton-∅ dress*) occupies the head position of ZP, as in (i); compare with (133):

(i) [*a* [_{ZP} [_{NP} *wood*] [_Z [_Z *-en*] [_{NP} *house*]]]]]

⁶⁸ Following Corver (2004), I take the Dutch attributive adjectival inflection (*-e*) to be located/spelled out in a separate functional head position (see also Corver 1997b). Potential support for this comes from the attachment of the adjectival inflection in complex adjective phrases like *zo lang mogelijk* (so tall possible, ‘the tallest possible’). As shown in (ia), the inflection *-e* occurs in those cases on the ‘auxiliary’ adjective *mogelijk* and not on the ‘main’ adjective *groot*. This rightmost position of the adjectival inflection might be taken as evidence for the fact that *-e* spells out an independent functional head position which has the attributive AP in its specifier position (cf. (ib)).

- (i) a. *een [zo lang mogelijk-e] stok*
 a so tall possible-INFL stick
 ‘the tallest possible stick’
 b. [*een* [_{FP} [_{AP} *zo lang mogelijk*] [_F [_F *-e*] [_{NP} *stok*]]]]]

(134) [*a* [_{ZP} [_{MP} *five pound*] [_Z [_{Z-∅}] [_{NP} *carp*]]]]

Interestingly, in certain dialects of Dutch we find inflected ‘MPs’ of the following type: *MP*_{+s+-e}.⁶⁹

- (135) a. *een literse fles* (Kempenland Dutch; de Bont 1958:397)
 a liter-s-e bottle
 ‘a one liter bottle’
 b. *ene pondse snoe^wk*
 a pound-s-e pike
 ‘a pike of one pound’

And also in present-day Dutch, it is quite common to have the inflection *-e*:

- (136) a. *een drieduimse pijp*
 a three-thumb tube
 b. *een mooie gezonde negenpondse knul*
 a beautiful healthy nine-pound-s-e (baby-)boy

I will assume that in the examples (135) and (136), the inflectional properties get spelled out on the functional head *Z*.

Let me close off this section with some facts from Afrikaans, which seem to corroborate the idea that there is an ‘attributive’ position where MPs can be located. Consider, first of all, the examples in (137), which show the optional presence of a ‘linking’ element *de* in between the MP and the noun.⁷⁰

- (137) a. *Die boef het [3 jaar (se) gevangenisstraf] gekry.*
 that villain has 3 year (se) imprisonment got
 ‘That villain got an imprisonment of three years.’
 b. *Jan het [een maand (se) vakansie] gekry.*
 Jan has a month (se) holiday got

⁶⁹ When the attributive adjective modifies a neuter indefinite noun, the inflection is not realized phonologically. I will assume that in those cases, we have a zero-inflection:

- (i) *e joors kalf* (Kempenland Dutch; de Bont 1958:397)
 a year-s calf
 ‘a one year old calf’

⁷⁰ Observe that the MP can be followed by the approximative expressions *of+NUM* and *of+wat*:

- (i) a. *Ek gee haar [’n dag of twee se uitstel vir betaling].*
 I give her a day or two ‘se’ postponement of payment
 ‘I gave her approximately two days’ postponement.’
 b. *Ek het vir haar [’n uur of wat se voorsprong] gegee.*
 I have for her an hour or what ‘se’ headstart given
 ‘I gave her an hour or so’s headstart.’

‘Jan got a one month holiday.’

Interestingly, the element *se* can also optionally occur when there is a possessor present which is followed by *se*.⁷¹ The co-occurrence of *Possessor+se* and *MP+se* indicate that the MP and the possessor do not compete for the same structural position. In this respect, *MP+se* behaves differently from the English *MP*’s in (120a). Although the two elements *se* in (128a,b) are phonologically identical, one may draw the conclusion that the *se* following the possessor is a different lexical item than the *se* that follows the MP. Notice also that in the former case *se* is obligatorily present whereas in the latter case *se* is only optionally so.

- (138) a. [*Jan se maand (se) vakansie*] *sal netso verby wees.*
Jan se month (se) holiday will so over be
‘Jan’s one month holiday will be over before he realizes.’
- b. [*Jan se 30 sekondes se voorsprong*] *blyk later nie groot genoeg te wees nie.*
Jan se 30 seconds se headstart turned-out later not big enough to be not
‘Later, it turned out that Jan’s 30 second headstart was not big enough.’

I tentatively propose that the *se* following the possessor *Jan* in (138) is an instance of the nominal copula and, as such, comparable to the grammatical element *’s* that follows the English possessor *John*’s in *John’s car*. The element *se* that follows the MP, on the contrary, is more of an equivalent of *–s* in (133), i.e., a functional head whose Spec-position is followed by an ‘attributive’ modifier. I will assume that when (the second) *se* does not surface in (138), the functional head is occupied by a zero-allomorph.

Summarizing: in this section, I argued that the pattern *a one week vacation* has a syntax which is different from that of the pattern *a week’s vacation*. More specifically, in the former pattern, the MP behaves more like an attributive AP. I proposed that the MP is base-generated in the Spec-position of a functional projection FP. If I am right in taking the MP to be a predicative phrase (see Section 2), the conclusion may be drawn that besides ‘underlying’ predicative relationships of the type ‘subject-predicate’ (see e.g., (118a)), we also find predicative relationships of the type ‘predicate-subject’ (see e.g., (134), where *five pound* is the predicate and *carp* the subject). In other words, predication is non-directional, a claim which is central in den Dikken’s (2006) study on the syntax of predication.⁷²

⁷¹ Theresa Biberauer informs me that this use of the sequence *Pos se MP se* is only found in colloquial Afrikaans.

⁷² In den Dikken (2006:163, 166), it is argued that nominal constructions such as *an idiot doctor*, *a madman driver*, *a fool policeman*, *et cetera* receive the analysis in (i), where the predicate nominal *idiot* is base-generated in [Spec,RP] and the subject *doctor* occupies the complement position of RP. RP stands for Relator Phrase, which represents the syntactic configuration in which predicative relationships are defined. Importantly, the pattern *an idiot doctor* should be distinguished from *an idiot of a doctor*. The latter pattern starts from an underlying subject-predicate order and is derived by means of DP-internal Predicate Inversion; see example (27).

(i) [_{NumP} *an* [_{RP} [_{NP} *idiot*] [_{RELATOR} = \emptyset [_{NP} *doctor*]]]]

6. Conclusion.

I started this article with the remark that the quest for symmetry is an important characteristic of generative grammar. This search for symmetry was already present in early generative studies on the syntax of measure phrases, such as Ross (1964) and Jackendoff (1977). Continuing this symmetric approach towards the syntax of measure phrases, I tried to further our understanding of measure phrases by giving an in-depth analysis of adjectival and nominal constructions featuring an MP. Symmetry was found at the level of phrase structural organization and at the level of displacement. As for the first level of symmetry, it was argued that MPs are predicate nominals and, as such, typically start out as small clause predicates within the nominal and adjectival projections (e.g., [_{XP} *headstart* [_{X'} *X two minutes*]] and [_{XP} *tall* [_{X'} *two meters*]]). As for the second level of symmetry, it was argued that the same types of displacement processes were attested in the nominal domain and the adjectival domain. More particularly, Predicate Inversion, remnant movement (of the small clause XP) and head movement are computational operations that are attested both in nominal phrases and adjective phrases featuring an MP. The cross-constructural application of these displacement operations suggests that they are not construction-specific processes but rather general rule formats that apply in a more general way on syntactic representations.

It was also noted that, at an intra-linguistic level, a certain parallelism exists between the syntax of adjectival expressions featuring an MP and nominal expressions featuring a possessor. At a more descriptive level, this parallelism is manifested by surface cross-constructural parallelism in word order. In (139a,a'), for example, the MP and the possessor both occur to the left of the 'semantic' head of the construction. In (139b,b'), the MP/the possessor occurs to the right of A/N and is separated from this head by an intervening linking element. In (139c,c'), A/N occurs immediately to the right of MP/possessor; i.e., there is no intervening linking element present which separates A/N from MP/possessor.

(139) a. two meters tall	a.' John's car	(English)
b. long de deux mètres	b.' une voiture de Jean	(French)
c. alto due metri	c.' casa Rossi	(Italian)

This intra-linguistic cross-constructural similarity between MP+adjective patterns and nominal possessive patterns raises the question as to whether this parallelism has any deeper explanation or whether it is merely accidental. From the perspective of current linguistic thinking about cross-linguistic diversity, the parallelism between the MP+A combinations and the possessive patterns seems to be accidental. (Morpho)syntactic variation is typically associated with features/properties of functional elements (see Borer 1984). The 'parametric value' (e.g., whether or not it attracts a lexical head) of this feature seems to be specified per functional element. That is, the parametrized properties of functional categories do not seem to be specified in a cross-categorial fashion. The "localness of parameter-setting" is also suggested by the fact that functional categories that arguably belong to the same lexical class (e.g., the class of quantifiers) may display different syntactic behavior. As noted by Kayne (2005), for example, quantifiers such as

more and *less* must precede the adjective in English (cf. *more intelligent*, *less intelligent*), whereas the quantifier *enough* must follow the adjective (cf. *intelligent enough*). This intralinguistic variation within the adjectival domain suggests that variation is defined very locally; more specifically, at the level of the functional category itself (*in casu*: *enough*_Q is able to induce head movement of an adjectival head, resulting into the word order *A+enough*); see also Corver (1997b). If it is true that this parametric specification is defined locally, i.e., at the level of the functional category, the parallelism between the *MP+A* combinations and the possessive patterns in (139) is, strictly speaking, accidental.⁷³

Another dimension of intra- and interlinguistic variation that was discussed in this article concerned the pronunciation of functional categories; i.e., does a functional element have phonological content or not? It was argued that in contexts of Predicate Inversion, a nominal copula typically gets spelled out phonologically, e.g., as *'s* in *a minute's headstart*, and as *of* in *a minute of headstart* and *a headstart of one minute*. Sometimes, however, predicate inversion was taken to be active in a certain construction, even though the nominal copula did not surface overtly. I argued that in those cases, a zero-allomorph of the nominal copula (i.e., a silent copula) was inserted at PF. The adjectival pattern *two minutes long* was one of the constructions which was analyzed in terms of predicate inversion in combination with spell-out of the nominal copula as a zero-allomorph.

As noted in Section 1, Ross (1964) and Jackendoff (1977) argued for a cross-categorially uniform approach towards the syntax of measure phrases and included the syntax of clauses (e.g., *The box weighs ten pounds*) and the syntax of prepositional phrases (e.g., *six inches over the fence*) in their discussion of MPs. In this article, I restricted myself to the syntax of MPs in the nominal domain and the adjectival domain. I hope, of course, that by 'having taken the syntactic measure' of MPs in these categorial domains, it will be easier to 'get the syntactic measure' of PP-internal and clause-internal MPs in future research.

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⁷³ At this point, Stoett's (1977:117) observation may be relevant that, besides the common pattern *MP-GEN + A* (e.g., *eens jaers out*, 'one-GEN year-GEN old'), one also finds the pattern *A + van + MP* in Middle Dutch, i.e., the pattern attested in Romance languages such as French and Spanish.

- (i) *Si was out van seven jaren.*
She was old of seven years

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