

In this chapter I will discuss some issues concerning the combination of DQs and NPs. The aim is to keep the specification of DQs maximally simple, and to attribute the peculiarities of the distribution and behaviour of DQs in nominal contexts to characteristics of the nominal system, not to the DQ.

In 6.1 I will again address the distinction between *g*-positions and *q*-positions, elaborating on the discussion in the previous chapter. As in the verbal system, both types of scalar positions play a role in the nominal system, though it turns out that there are some interesting differences between NPs and VPs in this respect. In 6.2 the position of DQs with respect to adjectives will be discussed. French is a language with postnominal adjectives, which are, according to several linguists, the result of movement of the noun to the head of the functional projection Num(ber)P (cf. Valois 1991 and Bernstein 1993). Given this approach to adjective placement, the fact French DQs always occur to the left of the noun would imply that DQs are adjoined to NumP, not to NP. I will argue that the evidence for N-to-Num movement is not conclusive, which will allow me to maintain that the DQ is adjoined to NP. A further peculiarity of French DQ-NP combinations is the obligatory presence of *de* 'of' as in *beaucoup de livres* 'a lot of books'. This phenomenon will be studied in 6.3 and I will argue that *de* has to be inserted to ensure case marking on the NP (cf. Chomsky 1981). Section 6.4 concentrates on partitive noun phrases containing a DQ, such as *beaucoup de ces livres* 'many of these books'. Partitives trigger a proportional reading in the context of some DQs. I will argue against Partee's (1988) proposal that the proportional readings are due to ambiguity of the quantifier. Section 6.5 recapitulates the main points of the chapter.

6.1 Grades and quantities in the nominal system

In chapter 2 it was argued that mass nouns and plurals contain a scalar *q*-position, while singular count nouns contain a non-scalar *q*-position. In accordance with this, DQs combine with mass nouns and plurals, not with count singulars (cf. 4.1):

- (1) a. #beaucoup de cheval
 a-lot *of horse*
 b. beaucoup de chevaux
 a-lot *of horses*
 c. beaucoup de thé
 a-lot *of tea*

This section examines properties of the *q*-position found in NPs. I will show that the distinction between the *g*-position found in adjectives and the scalar *q*-position in NPs is a matter of linguistic representation, and is not based on a conceptual difference between grades and quantities.

Comparing argumental noun phrases with lexically related adjectives shows that in certain cases the same conceptual scale can be realized as a quantity or as a grade, depending on the way it is syntactically realized. In order to show this I will make use of the distribution of *erg* ‘badly’ and *veel* ‘a lot’ in Dutch. In section 5.2.1 it has been argued that *erg* and *veel* are diagnostics for the presence of a *g*-position, corresponding to a **grade**, and a *q*-position, representing a **quantity**. *Erg* combines with grades, and *veel* with quantities. On the basis of the distribution of *erg* and *veel* I will argue that grades and quantities are linguistic notions that are clearly distinct from their conceptual counterparts. A quantity is associated to either an *e*-position, in verbs, or to an *r*-position, in NPs. Adjectives, no matter what type of conceptual scale they define, linguistically represent a grade.

Intuitively the difference between a grade and a quantity might be described by stating that a grade is abstract and a quantity is concrete. We would talk about a grade or degree of happiness and a quantity of sand, not the other way around. Looking at language, both the situation in which something that intuitively is a grade behaves like a quantity and the opposite one, where an intuitive quantity is represented as a grade, occur.

The paradigm in (2) is an example of an abstract scale that intuitively seems to be a **grade**:

- (2) a. Jan heeft veel geluk in de liefde
 Jan has much luck in the love
 ‘Jan has a lot of luck in love affairs’

- b. Jan is erg gelukkig in de liefde
Jan is very lucky in the love
 ‘Jan is very lucky in love affairs’

There is no obvious difference in meaning between these sentences, but given the use of *veel* ‘a lot’ in (2a) and *erg* ‘very’ in (2b), we want to call the scalar argument position in (2a) *q* and the one in (2b) *g*. The difference between a *q*-position and a *g*-position does not correspond in this case to a conceptual difference, but to a syntactic difference. The word *geluk* ‘luck’ is an argumental noun phrase, and hence it contains an *r*-position to which a *q*-position is associated. The word *gelukkig* ‘lucky’ is a scalar adjective, which means that it has an open *g*-position in its grid. The two scales in *geluk* ‘luck’ and *gelukkig* ‘lucky’ are conceptually the same, but their representation in syntax differs.

The opposite situation is illustrated in (3). In these sentences a scale which would qualify as a quantity from a conceptual point of view is represented by either *g*-position or a *q*-position:

- (3) a. Dit gerecht bevat veel zout
this dish contains a-lot salt
 ‘This dish contains a lot of salt’
 b. Dit gerecht is erg zout
this dish is very salty

Again the sentences have very similar meanings. In both cases we have the impression that we are talking about an important **quantity** of salt, and yet, when *zout* is used as an adjective as in (3b), this ‘conceptual quantity’ is represented as a grade. Given that adjectives cannot be argumental and contain neither an *r*-position nor a *q*-position, the scale has to be represented as a *g*-position.

The abstract noun/adjective pair in (2) and the concrete noun/adjective pair in (3) show, on the one hand, that a conceptual grade (*luck/lucky*) can be projected in language as a quantity, and, on the other, that a conceptual quantity (*salt/salty*) can be projected as a grade in an adjective.

In certain expressions nouns do not function as arguments. As the *q*-position depends on the presence of the *r*-position and referentiality, we expect no *q*-position in predicative nominals. Predicative nominals are hence expected to be similar to adjectives, which will turn out to be correct.

In French non-argumental nominals can be detected by the absence of the indefinite determiner. Bare plurals and mass nouns cannot function as arguments in French and have to be marked by an indefinite article. In the example in (4a) the indefinite article *du* ‘of the, some’ is lacking, which I take to be evidence for the predicative status of the noun. If the noun is an

argument, as in (4b), the indefinite article must be present:

- (4) a. Jean a (*du) peur
Jean has (of-the) fear
 'Jean is afraid'
 b. Jean a *(du) fric
Jean has (of-the) money
 'Jean has money'

This correlates with the lack of *de* in constructions with a DQ. Normally *de* has to be present (cf. 6.3 below):

- (5) a. Jean a trop (*de) peur
Jean has too-much (of) fear
 'Jean is too much afraid'
 b. Jean a trop *(de) fric
Jean has too-much of money
 'Jean has too much money'

In some cases the noun phrase is ambiguous between argument and predicative use, indicated by optionality of *de*:

- (6) a. Cela me fait (du) plaisir
that me does (indef art) pleasure
 b. Cela me fait énormément (de) plaisir¹
that me does enormously (of) pleasure
 'That gives me (much) pleasure'

The Dutch sentence corresponding to (6b) can contain either *veel* or *erg*, without clear difference in meaning:

¹ Predicative nouns are adjective-like in French, as they can combine with Deg-heads (cf. 4.2.5):

- (i) Cela me fait très plaisir/ si plaisir
this me does very pleasure/ so pleasure
 'This gives me a lot of pleasure/so much pleasure'

In Dutch Deg-heads cannot be used in this context:

- (ii) *Dat doet me even/te plezier
that does me as/too pleasure

- (7) Dat doet me veel/erg plezier
that does me a-lot/badly pleasure
 ‘That gives me much pleasure’

If we assume that *plezier* ‘pleasure’, as in the French example in (6) can either function as an argument or as a nominal predicate, the choice between *veel* and *erg* can be interpreted as follows. In case *plezier* is an argument it contains an *r*-position and a *q*-position associated to it. In case it is a predicate, the *r*-position is absent, and the conceptual scale corresponding to the noun *plezier* is realized as a *g*-position. The difference in syntactic status of *veel plezier* ‘a lot of pleasure’ and *erg plezier* ‘badly pleasure’ is supported by the observation that *veel plezier*, as other argumental noun phrases, may be extracted in order to obtain a focus interpretation, while extraction of *erg plezier* is bad (Helen de Hoop, p.c.):

- (8) a. Veel plezier doet me dat
a-lot pleasure does me that
 b. *Erg plezier doet me dat
badly pleasure does me that
 ‘It gives me really much pleasure’

In the examples discussed in (2) to (8) scales introduced by *g*-positions and by *q*-positions seem to be conceptually the same. The way in which the scale is represented is determined by syntactic considerations.

In certain cases *g* and *q* can coexist in nominals. The examples in (9) illustrate nouns containing a *g*-position which is independent of the argument status and the quantity referred to by the noun:

- (9) a. Jan is een verschrikkelijke mazzelkont
Jan is a terrible lucky-dog
 b. Jan is een erge opschepper
Jan is a bad braggart
 c. Er lopen hier veel verschrikkelijke mazzelkonten
there walk here a-lot terrible lucky-dogs
 rond
around
 ‘There are a lot of terrible lucky dogs around’

A *mazzelkont* ‘lucky dog’ is a lucky person and an *opschepper* ‘braggart’ someone who is swanky. This property is scalar and the degree of luck and swankiness is modified by *erg* ‘bad’ or *verschrikkelijk* ‘terrible’, which has nothing to do with the quantity of lucky dogs and braggarts, respectively. The example in (9c) shows that the *g*-position and the *q*-position can be

independently saturated by a high degree adjective (*verschrikkelijk*) and a DQ (*veel*) respectively.

Instances of a conceptual scale that can be represented as a grade or as a quantity has so far been illustrated by opposing argumental noun phrases to adjectives or non-argumental noun phrases. The same phenomenon can be found comparing the *q*-position in a VP to a *g*-position in an adjective. Consider the Dutch examples in (10):

- (10) a. Jan kletst veel
 Jan talks a-lot
 b. Jan is erg kletserig
 Jan is very talkative

This example is parallel to (3). The adjective is derived from the verb, and, intuitively, *erg* in (10b) modifies the quantity of talking. Syntactically the scale is represented by a *g*-position.

Interestingly the opposite situation, which for nouns was illustrated in (2) on the basis of the pair *geluk* 'luck' / *gelukkig* 'lucky', does not seem to exist. In section 3.3.2.2 it was argued that stage level verbs combine with *veel* and contain a *q* position, while individual level verbs contain a *g*-position which can be modified by the high degree adverb *erg*. What we see for a noun such as *geluk* 'luck' is that if it plays a certain role in the sentence (the role of argument), the conceptual scale it is associated to (degree of luck) can be represented as a quantity. This is impossible for individual-level verbs.

In section 5.2.2 I argued that individual-level verbs, which are similar to abstract nouns, never contain a scalar *q*-position, either because there is no *e*-position present, or because of a uniqueness presupposition on the event argument. Both options imply that there is no scalar *q*-position possible. Only a *q* associated to an *r*-position can define an abstract scale.

In this section I have shown that in many cases the difference between *g*- and *q*- positions is not conceptual, but determined by syntax. Argumental noun phrases contain an *r*-position and a *q*-position associated to the *r*-position. This *q*-position may correspond to a conceptual grade as in (2a). On the other hand, it is possible that a conceptual quantity is represented by a *g*-position in an adjective as in (3b) and (10b).

6.2 NPs, adjectives and NumP

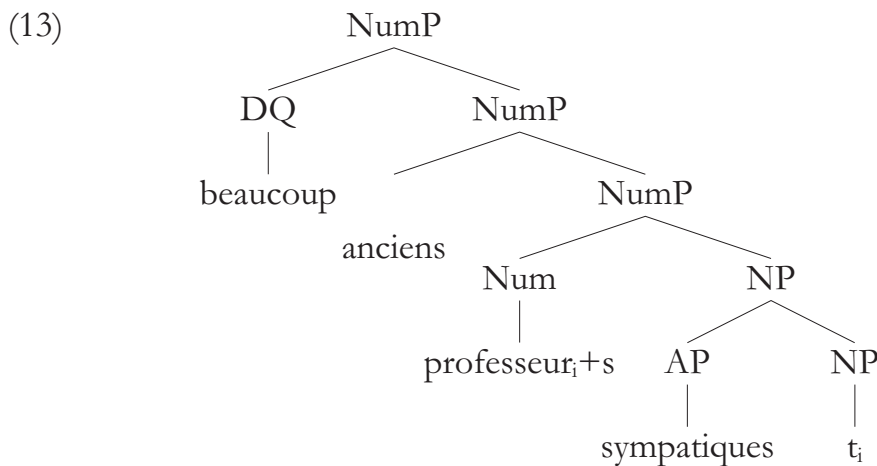
In French, as in other Romance languages, adjectives occur both to the left and to the right of a noun:

- (11) l'ancien professeur sympathique
the-former professor pleasant
 'the pleasant former professors'

DQs indifferently precede the noun and all adjectives:

- (12) a. beaucoup d'anciens professeurs sympathiques
a-lot of-former professors pleasant
 'many pleasant former professors'
 b. *anciens beaucoup (de) professeurs sympathiques
 c. *anciens professeurs beaucoup (de) sympathiques

According to several linguists the opposition between prenominal and postnominal adjectives has to be explained by N(oun) movement to the head of a Num(ber)P dominating the NP (cf. Valois 1991, Bernstein 1993 and Cinque 1994). If this view is correct, we have to assume that the DQ does not adjoin to NP but to NumP, as in the structure in (13). In this structure I abstract away from the position of *de* 'of', which will be discussed in the next subsection, and also from the status of the prenominal adjective *ancien* 'former':



The question raised by this structure is why the DQ adjoins to NumP and not to NP. As for the ungrammatical sentences in (12b) and (12c), the impossibility of adjoining the DQ to the NP may be understood if we assume that all adjectives have to be within the scope of the DQ. The DQ specifies the relative quantity of pleasant individuals who at a certain time in the past were professors, and hence must have scope over all the adjectives, including *ancien* 'former'. One could say that the position of the adjectives forces the DQ to adjoin to a higher functional position. A similar explanation does not account, however, for the ungrammaticality of (14b) and (15b), as these examples only contain an adjective which is adjoined to

the NP, which would not force a higher adjunction site:

- (14) a. beaucoup de professeurs sympathiques
a-lot of professors pleasant
 ‘many pleasant professors’
 b. *professeurs beaucoup (de) sympathiques
- (15) a. beaucoup d’eau chaude
a-lot of-water warm
 ‘a lot of warm water’
 b. *eau beaucoup (de) chaude

The impossibility of (14b) and (15b) is problematic because there is no reason to assume that the noun cannot have moved from out of the c-command domain of the DQ. In (16) is illustrated that the DQ can be structurally lower than a verb which is modified by the DQ:

- (16) Jean travaille beaucoup
Jean works a-lot

The verb *travaille* ‘works’ moves out of the VP to the higher tense or agreement projection. The DQ still has scope over the verb. This sentence is parallel to the examples in (14b) and (15b), where the noun moves to Num. In brief, if the analyses of adjective placement are correct, DQs must — for some mysterious reason — adjoin to NumP and not to NP.

Excluding the uninteresting option that DQs have a lexical specification which ensures that they combine with NumP and not with NP, there are two ways in which this problem can be approached. In the first place, one could argue that there is an independent reason why the DQ cannot adjoin to NP but has to adjoin to NumP. This could be, for instance, that the *q*-position is only available at the NumP level. For plurals this story is actually quite convincing. Under the assumption that the plural is formed in syntax and the plural features are located in Num, it is likely that the scalar *q*-position distinguishing the singular from the plural form is not available at the NP level. For mass nouns as in (15b) this account is less convincing, as mass nouns are inherently scalar. Still, the unavailability of a scalar *q*-position at the NP level might offer an explanation of the higher adjunction site of the DQ in the context of nouns.

The second way of attacking the problem, which I will pursue here, is to argue that post-nominal adjectives are derived without making use of the NumP. If *eau chaude* in *beaucoup d’eau chaude* ‘a lot of hot water’ can be analysed as an NP and not a NumP, even though the adjective comes after the noun, we can assume that the DQ adjoins to the NP, from which the

impossibility of cases such as (14b) and (15b) will follow.

Most evidence against the N to Num raising analyses has been collected by Lamarche (1991). Lamarche observes that when several postverbal adjectives are used, their ordering is the mirror image of the ordering we find in languages where adjectives precede the noun, such as English. He draws the conclusion that postnominal adjectives are right-adjoined to the noun. The adjectives are structurally ordered in the same way to the left of the noun in English and to the right in French, resulting in a mirror image effect. According to Lamarche the APs are all part of the NP. Under his analysis the position of the DQ, exemplified in (12), (14) and (15) is unproblematic. The DQ is always directly adjoined to the lexical projection. I will discuss an alternative to Lamarche's right adjunction analysis below, based on Barbiers (1995). Before discussing this alternative, I will go over the evidence against N-to-Num movement.

The N-to-Num analysis predicts that the order of adjectives in French is the same as in English. This looks plausible when we look at the paradigm in (17) (cf. Hetzron 1978). The evaluating adjective precedes the size adjective which in turn precedes the colour adjective:

- (17) a. a beautiful big red ball [English]
 b. een mooie grote rode bal [Dutch]
 a beautiful big red ball
 c. un joli gros ballon rouge [French]
 a beautiful big ball red
 d. una bella grande palla rossa [Italian]
 a beautiful big ball red

The data in (17) suggest that the only difference between the Germanic languages with prenominal adjectives and the Romance languages with both pre- and postnominal adjectives is the position of the noun.

Lamarche shows, however, that if there is more than one postnominal adjective, the ordering of the post-nominal adjectives is the mirror image of what we expect under the N- to-Num analysis:

- (18) a. une femme canadienne enceinte
 a woman Canadian pregnant
 ‘a pregnant Canadian woman’
 b. une voiture blanche rouillée
 a car white rusty
 ‘a rusty white car’

In these cases the order of the adjectives in French is the mirror image of their order in the English translations. The examples illustrate the neutral

order of adjectives, and a special interpretation or focus is necessary to change this order.

The mirror image pattern is also found in the context of event nominals, as is shown in (19):

- (19) a. l'invasion américaine instantanée de l'Irak
the-invasion American sudden of the-Iraq
 'the sudden American invasion of Iraq'
 b. #l'invasion instantanée américaine de l'Irak
the-invasion sudden american of the-Iraq
 '#the American sudden invasion of Iraq'

This is an important observation because the two adjectives precede the NP complement *de l'Irak* 'of Iraq'. The fact that adjectives can occur between a noun and its complement has been one of the principal motivations for adopting N-to-Num movement (cf. Valois 1991). The data in (19) show that this solution is not obvious, and that an extraposition analysis might be preferable.

A different problem for the N-to-Num analysis discussed by Lamarche is the fact that an NP complement may precede the postnominal adjective as in (20):

- (20) les producteurs de pétrole indépendants
the producers of petrol independent
 'the independent producers of petrol'

As the postnominal adjectives are derived via N-to-Num movement, the possibility of (20) is surprising.²

One can add a further problem to the ones signalled by Lamarche, which is that the prenominal adjective can be both within or outside the scope of

² According to Cinque (1994) Lamarche's counterevidence to N-to-Num movement is only apparent. Cinque argues that postnominal adjectives in Romance are not ordered with respect to each other because they constitute a different type of adjectival modification. Next to the standard attributive adjectives, which in English must precede the noun, nouns can be modified by predicative adjectives. Predicative adjectives can occur postnominally in English as well, and their order is much freer than the order found for attributive adjectives (cf. Sproat & Shih 1988). An English example containing predicative adjectives is *a man bruised and battered* which is not distinct from *a man battered and bruised*. I do not agree with Cinque's criticism. If the two adjectives were predicative, we would expect that we can freely order them without any difference in meaning, which is not the case. Moreover, examples such as (19) cannot be explained along Cinque's lines. In (19) the adjectives exhibiting the mirror image effect intervene between an event nominal *invasion* 'invasion' and its complement *de l'Irak* 'of Iraq'. As predicative adjectives can never intervene between an event nominal and its complement, Cinque's alternative analysis is not available for this type of sentences.

a postnominal adjective. Consider for instance (21):

- (21) un ancien président américain sympathique
a former president American pleasant
 ‘a pleasant former American president’

Taking the English translation to be a reflection of the neutral scope order, this example shows that the adjective *ancien* ‘former’ has scope over *américain* ‘American’ but falls within the scope of *sympathique* ‘pleasant’. This cannot be accounted for within the N-to-Num movement analysis. To see why, we need to take a closer look at prenominal adjectives first.

Valois (1991) and Lamarche (1991) analyse prenominal adjectives as heads which are incorporated into N. Bernstein (1993) also gives head status to prenominal adjectives, but generates them in an AP dominating the NumP. The arguments used to motivate head status of adjectives such as prenominal *ancien* ‘former’ are incompatibility with a degree modifier and the impossibility of predicative use:³

- (22) a. *un très ancien président
a very former president
 b. *le président est ancien
the president is former

Not all prenominal adjectives have these properties. *Une très petite église* ‘a very little church’ and *cette église est petite* ‘this church is small’ are fine. This shows that the arguments for head status do not apply to all obligatorily prenominal adjectives.

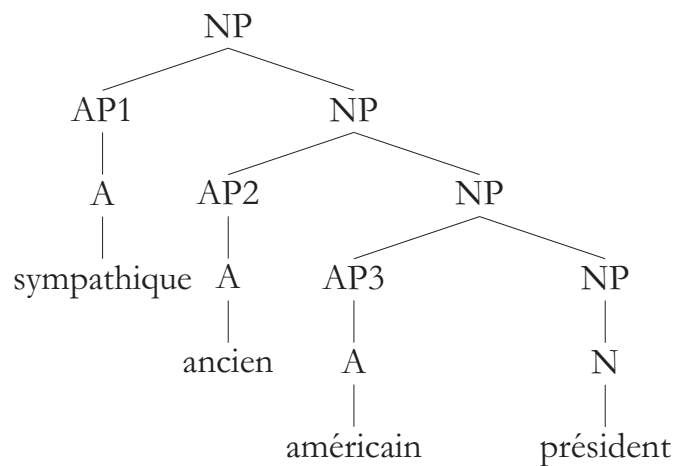
Neither an analysis in which the prenominal adjectives are incorporated in N, nor the alternative analysis in which they are generated in an AP dominating NumP, as proposed by Bernstein, can account for the scope relations in (21). On the one hand, if *ancien* ‘former’ were to be incorporated into N, we would expect that it always gets narrowest scope with respect to postnominal adjectives. On the other hand, if *ancien* were the head of an AP dominating NumP, we would expect that it always has wide scope over all other adjectives. Both predictions are wrong, given the scope relations in (21). In what follows I will treat all attributive adjectives as adjuncts. The special behaviour of prenominal adjectives such as *ancien* ‘former’, illustrated in (22), will be attributed to the way these adjectives are interpreted.

The scope relations can be derived from the hierarchical order if we

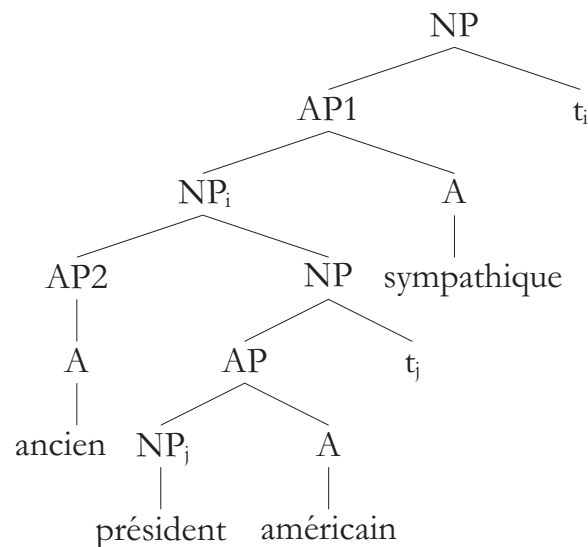
³ The examples are ungrammatical in the intended reading, where *ancien* translates as ‘former’. Postnominal *ancien* ‘ancient’ can be modified and used as a predicate: *une église très ancienne* ‘a very old church’ and *cette église est très ancienne* ‘this church is very old.’

accept both left and right adjunction. Right adjunction, as mentioned in the chapter 1, is banned within the Antisymmetry framework of Kayne (1994). An interesting alternative to right adjunction has been developed by Barbiers (1995) (cf. section 5.1.2, where this theory was used to derive postverbal adverbial DQs). Within Barbiers' framework an XP which seems at first sight right-adjoined to YP is derived by left adjunction to YP and subsequent movement of YP to the specifier of XP. Making use of Barbiers' theory, the right scope relations, based on hierarchical structure, and the right word order of (21) can be derived. The deep structure, in which the scope relations are established, is given in (23a) and the resulting surface structure in (23b):

(23) a. DEEP STRUCTURE

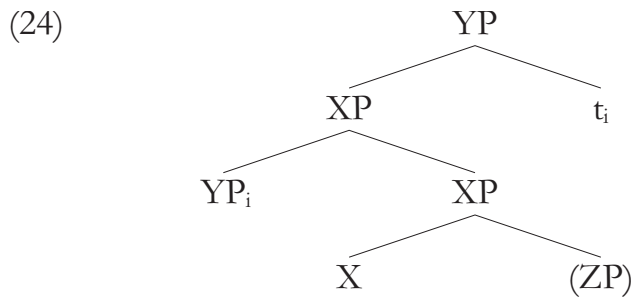


b. SURFACE STRUCTURE



According to Barbiers, the trigger for movement to the specifier of an adjunct is the need to establish what he calls a qualification relation, which I will take to be a relation in which a theta identification is established. In

the structure in (24) the XP functions as a ‘qualifier’ or a predicate of YP:



The configuration in (24) can be created by overt or by covert movement. The choice between covert and overt movement could be seen as the source of the existence of prenominal and postnominal adjectives, respectively. Prenominal adjectives such as *petit* ‘small’ trigger movement at LF, while post-nominal adjectives such as *sympathique* ‘pleasant’ trigger movement before LF.

This approach might throw light on the behaviour of adjectives such as *ancien*, which radically differ in meaning depending on whether they are used pre- or postnominally. A small list of examples is given in (25) (cf. Bernstein 1993 for discussion of these adjectives in different Romance languages):

- (25)
- | | | | | | | |
|----|-------------------|---------------|----------------|---------------------------|----------------|----------------------|
| a. | une | ancienne | église | une | église | ancienne |
| | <i>a</i> | <i>former</i> | <i>church</i> | <i>a</i> | <i>church</i> | <i>old</i> |
| | ‘a former church’ | | | ‘an old church’ | | |
| b. | un | simple | soldat | un | soldat | simple |
| | <i>a</i> | <i>mere</i> | <i>soldier</i> | <i>a</i> | <i>soldier</i> | <i>simple-minded</i> |
| | ‘a mere soldier’ | | | ‘a simple-minded soldier’ | | |

When used prenominally, these adjectives have an interpretation which does not involve theta identification (cf. Higginbotham 1985:566). An old church is both a church and old as compared to other churches, a simple-minded soldier is both a soldier and a simple-minded individual, but a mere soldier is not a soldier and a mere individual. (cf. section 1.2). Let us assume that the configuration in (24) indicates theta identification. In that case the non-intersective interpretation of prenominal *ancien* and *simple*, which does not involve theta identification, corresponds to the absence of the configuration in (24) at all levels, i.e. also at LF. If the configuration is established, theta identification must take place, and the adjectives must be interpreted as ‘old’ and ‘simple-minded’, respectively. As the postnominal position is the result of the configuration in (24), these adjectives can never be interpreted as ‘former’ and ‘mere’ when used postnominally.

The examples in (22) showed that *ancien* in the sense of ‘former’ resists

degree modification and cannot be used predicatively, which has been argued in the literature to be due to head status of these adjectives in prenominal position. I showed that the assumption that these adjectives are heads is problematic in view of scope relations between different adjectives (cf. (21)). In the approach sketched above, the impossibility of predicative use was attributed to the lack of a theta identification relation between the subject *le professeur* ‘the professor’ and the predicate *ancien* ‘former’. The presented account of the interpretation differences in terms of the configuration introduced by Barbiers makes it possible to relate the behaviour of *ancien* NP internally to its behaviour as predicate, without making the assumption that prenominal *ancien* ‘former’ is a head: *ancien* in the sense of ‘old’ may be predicative and postnominal because its interpretation involves theta identification, *ancien* in the sense of ‘former’ must be prenominal and may not be used as a predicate, because its interpretation does not involve theta identification. The second argument for head status of prenominal *ancien* ‘former’, which is the impossibility of degree modification, can be accounted for in an alternative way as well. Non-scalar adjectives, such as *next* cannot be modified by a degree expression as they do not contain a *g*-position. Prenominal *ancien* ‘former’ seems to be a non-scalar adjective, which accounts for its incompatibility with degree modifiers without assigning the adjective head status.

The approach presented here is rather sketchy. I did not address the question how prenominal *ancien* ‘former’ is interpreted, and what kind of configurations this involves. Moreover, the status of prenominal adjectives such as *petit* and *vieux*, which in spite of their being prenominal do not share any of the other properties with prenominal *ancien* ‘former’, has not been elaborated on. One might assume, as I did above, that these adjectives trigger movement of the NP at LF only, which accounts for the observed word order. The reason why movement is covert in some cases and overt in others is a problem that needs further investigation. What is important, however, is that this way of accounting for the order of adjectives within the NP does not make use of N-to-Num movement, which makes it possible to account for the position of DQs with respect to nouns and adjectives in a straightforward way.

In this section I discussed the order of DQs, adjectives and NPs. I argued against the N-to-Num analysis, mostly on the basis of Lamarche (1991), and proposed an analysis based on Barbiers (1995). Within this analysis, all APs are adjoined to NP. The DQ precedes all adjectives, as it must be structurally higher for reasons of scope. The analysis makes it possible to maintain the idea that the DQ adjoins to any lexical category containing a scalar position without making specific assumptions about the availability of a scalar *g*-position in NPs, which would be necessary under an N-to-Num raising analysis of postnominal adjectives.

6.3 The role of *de*

In French, the preposition *de* ‘of’ has to be inserted when a DQ modifies an NP:

- (26) beaucoup *de* livres; énormément *de* sucre; peu *de* chance
a-lot of books a-whole-lot of sugar little of luck
 ‘a lot of books; a whole lot of sugar; little luck’

This construction is commonly called pseudo-partitive because of its resemblance to the partitive construction:

- (27) beaucoup de ces livres
a-lot of these books
 ‘many of these books’

In this section I will mostly restrict myself to pseudo-partitive *de*. The partitive construction will be examined in section 6.4 below.

There are several constructions in French in which a mysterious *de* shows up and the many accounts in the literature have not reached an agreement on its status. According to Hulk (1996) *de* is a quantificational head, Den Dikken (1995) calls *de* a nominal copula, and Kayne (1994) recently analysed *de* as a complementizer introducing a subject-predicate connection, to cite but some of the recent accounts offered in the literature. Traditionally *de* is seen as a genitive case marker, a view which has recently been defended by Battye (1991), and which I will follow here. I want to stress that there are many unsolved and thorny problems concerning the status of *de*, which call for extensive cross-linguistic study of *de* and genitive in different contexts, and which are beyond the scope of this thesis (cf. Englebort 1992, 1993 for a comprehensive study concerning the history and distribution of *de* in French).

There are two reasons to consider that the need for case is the reason *de* has to be inserted. The first is the similar distribution of *de* and genitive case marking. In French *de* is inserted between a DQ and an NP while in other languages, such as older varieties of Dutch and modern Russian, the NP bears a genitive case ending in the context of a DQ. Given that genitive is case, we would like *de* to be case as well. The second argument is that we find *de* only when DQs combine with a noun. In the context of APs and VPs *de* is absent. As the need for case is a typical property of NPs, the fact that we find *de* with nouns is an indication that case might be the relevant

factor.⁴

The necessity to insert a *de*-like element in the context of NPs depends on a number of factors, and languages differ with respect to the contexts in which a *de*-like element is required. In French all DQs trigger *de*-insertion, but in English only classifier constructions DQs do. *A lot* triggers *of*-insertion, but *much* does not: *a lot *(of) soup* and *much *(of) soup*. Many Romance languages are similar to English in this respect. In Portuguese, for instance, we find *um monte *(de) libros* ‘a pile of books’ and *muitos *(de) libros* ‘many books’. As far as I know there do not exist any languages in which DQs trigger genitive marking on the noun they modify while classifier constructions do not.

Next to the French type (all nominal DQ constructions are pseudo-partitives) and the English type (classifier constructions give rise to pseudo-partitivity) there is a third possibility, which is exemplified by modern Dutch. In modern Dutch neither DQs nor classifier constructions trigger *van*-insertion or genitive marking, as shown in (28):

- (28) a. *veel* (**van*) *soep*(*s)
 much (*of*) *soup*(*GEN*)
 ‘a lot of soup’

⁴ There are some cases of *de* and *of* with VPs and APs. In English it is possible to use *sort of* as an adverb: *John sort of made a statement*. In Romance *de* is found in the context of adjectives. Consider for instance the French example in (i):

- (i) *Quelqu’un de sympathique*
 someone of pleasant
 ‘a pleasant person’

In this construction, which has recently been elaborated on by Hulk and Verheugd (1994) and Hulk (1995), *de* introduces an adjective. It is important to stress though, that this *de*, which Hulk analyses as a ‘quantificational head’, could well be a genitive case marker, because in similar contexts we find genitive case on the adjective, as the Dutch examples in (ii) show:

- (ii) *iets* *leuks/* *iets* *zouts*
 something *nice+GEN/* *something* *salty+GEN*

The parallel between genitive case marking and *de* is found in this non-nominal context as well.

In French *de* is never found with adjectives in the context of a DQ. In Rumanian it is, as in *destul de repede* ‘quick enough’ (cf. Baciu 1978). In the context of NPs *de* is absent, as in Portuguese. I do not think this is an argument not to analyze *de* as a genitive marker, given that *de* and the genitive *-s* in modern and older Dutch are found in similar contexts, as shown in (i) and (ii). I presume the answer to the question why genitive case is necessary in certain structures containing a DQ, will be refined after a more thorough study of the ‘genitive adjectives’ and genitive in the context of verbs. Further discussion of these phenomena is beyond the scope of this dissertation.

- b. een hele hoop (*van) soep(*s)
a whole lot (of) soup(GEN)
 ‘a whole lot of soup’

The genitive preposition *van* ‘of’ does show up in the real partitive construction: *veel/een hele hoop *(van) deze soep* ‘much of this soup’. As far as I know there is always a *de*-like element or genitive present in the real partitive construction. I will argue in section 6.4 below that the status of the *de*-phrase in partitives and pseudo-partitives is different, and I will concentrate in the rest of this section on pseudo-partitives.

Looking at properties of DQs which trigger *de*-insertion or genitive marking, we find a correlation between the presence of *de*/genitive and the absence of agreement on the DQ (cf. also Bovee 1995). French DQs do not agree with the NP they combine with, and *de* is necessary. Portuguese is an example of a language in which the determiner agrees with the NP and where *de* is absent:

- (29) a. peu de femmes peu d’hommes [French]
 little of women F.PL *little of-men M.PL*
 peu de soupe peu de pain
 little of soup F.SG *little of bread M.SG*
- b. muitas mulheres muitos homens [Portuguese]
 many F.PL women F.PL *many M.PL men M.PL*
 muita sopa muito pão
 much F.SG soup F.SG *much M.SG bread M.SG*

Spanish and Italian pattern with Portuguese, and older varieties of Dutch (up to the 19th century) were similar to French. In these varieties of Dutch the NPs are marked for genitive: *veel verdriets* ‘much sorrow+GEN’. The genitive *-s* has dropped in Modern Dutch, but can still be found in some fixed expressions: *niet veel soeps* ‘not much of a thing’.

Martí (1995) discusses the relation between the presence of *de* and agreement in Catalan. The Catalan data offer some nice evidence for the correlation between the presence of *de* and the absence of agreement. In Catalan *de* is found in the context of masculine nouns, but not with feminine nouns:

- (30) a. molta (??de) calor
 much F of heat
 ‘a lot of heat’
- b. molt (d’) oli
 much (of-) oil
 ‘a lot of oil’

The feminine form in (30a) is marked by the suffix *-a* while the masculine form in (30b) is unmarked and could be seen as a non-agreeing form. The preposition *de* can be added when the DQ has the unmarked form but is very marginal in the context of the overtly agreeing feminine form. This is strong evidence for the existence of a correlation between the presence of *de* and the absence of agreement.⁵

As I noted above, *de/genitive* seems to be more frequent in the context of classifier constructions than in the context of adjectival and complex DQs. DQs which derive from classifiers, such as *a lot*, are nominal themselves, given that they contain an indefinite article. Therefore it can be assumed that they need case. **A lot books* then contains two expressions in need of case. In a sentence such as *John read a lot of books* the verb assigns case to the object. Let us assume that this case is used by *a lot*, which leaves the NP *books* without case. *Of-*insertion can be seen as a last resort (Chomsky 1981).

In French all DQs trigger *de* in the context of NPs. We would like to assume that these DQs trigger *de*-insertion for the same reason as classifier constructions. This explanation hinges on the assumption that the non-agreeing DQs use case, and raises the question why they would need case. This question is related to another one, which is why DQs in some

⁵ The correlation is not absolute. There exist languages in which agreement and *de* are both present, and there are agreement-less languages that do without genitive case. Martí (1995) reports about an exception of the first type. In Majorcan the preposition *de* is present next to agreement on the quantifier:

- (i) molta d'aigua
 much of-water
 ‘a lot of water’

According to Joanna Rossello (p.c.) *de* is obligatory with a masculine noun and optional with a feminine or plural noun. In other words, if the quantifier bears agreement morphology insertion of *de* is optional, when it does not, *de* is required, which shows that still the same tendency we find in other languages is present. A clear example of a language in which the NP accompanying an uninflected DQ bears no genitive case is standard German. (ii) shows that the case on the noun is determined by the preposition *mit* ‘with’, which governs dative case. In case the DQ does not agree the NP still bears dative, not genitive:

- (ii) a. mit vielen Kindern
 with many DAT.PL children DAT.PL
 b. mit viel Kindern
 with many children DAT.PL
 c. *mit viel Kinder
 with many children NOM/GEN/ACC.PL

I will not try to accommodate the exceptions to the correlation between the absence of agreement and the presence of *de/genitive*.

languages must agree with the noun they modify. Agreement on a DQ could be seen as a way to syntactically license the DQ as an adjective. In case the DQ does not agree it should be licensed otherwise and I propose that this can be done by using the case of the noun phrase in which it occurs. This yields a caseless NP, which can be saved by *de*-insertion.

A similar proposal has been made by Battye (1991). However, Battye assumes that the quantifier heads an NP which selects the *de NP* as its complement. The element *de* is adjoined to the NP and provides the NP with genitive case. Arguments against a selecting head analysis of the DQ in the context of APs and VPs have been extensively discussed above, and given the desirability of a uniform analysis of DQs in the different contexts in which they occur, these arguments also apply to the nominal system. Extraction data give direct evidence against a selecting head analysis for DQs in the context of nouns, given the possibility of *combien*-extraction:

- (31) *Combien_i a-t-il lu [e_i de livres]?*
how-much has-he read of books
 ‘How many books did he read?’

Analysing *combien* ‘how much’ as a head selecting the *de NP*, as does Battye, would prevent *combien* from being extracted, contrary to fact.

In this section I argued that *de* is inserted as a last resort to provide the NP with case. DQs that do not agree with the NP they modify cannot be analysed as adjectives and get licensed by case. As they use the case which normally would license the NP, *de* has to be inserted.

6.4 Partitives

The partitive construction is typically found in the nominal system, and is characterized by the sequence *Q of the NP*. In the verbal and adjectival domains nothing of the kind exists. The examples in (32a) to (32c) show partitives in the context of different DQs in French, Dutch and English, respectively:

- (32) a. *Beaucoup de ces livres ont paru l’année dernière*
a-lot of these books have appeared the-year last
 ‘Many of these books appeared last year’
 b. *Weinig van de gezakte studenten waren goed voorbereid*
little of the failed students were well prepared
 ‘Few of the students who failed were well prepared’
 c. Most of the children wanted to eat an ice-cream

The partitive construction seems to be freely generated in the context of quantifiers, and is not restricted to the context of DQs. Some examples in which typically adnominal quantifiers feature in the partitive construction are given in (33):⁶

- (33) a. Three of the linguists were dancing
 b. All of these articles are interesting
 c. Each of the children sang a different song

These data suggest that the possibility of creating a partitive construction is not a lexical specification of certain quantifiers, including DQs, but rather a general property of a specific type of quantified noun phrases.

In 6.4.1 I will comment on the syntactic structure of the partitive construction. I will argue that the DQ does not adjoin to the partitive PP itself (the *of the NP*) but to an empty NP. This NP contains the *q*-position which is bound by the DQ. In 6.4.2 I will discuss the interpretation of the partitive construction, and contexts in which a similar interpretation occurs. Section 6.4.3 will be concerned with the proportional interpretation of the partitive in the context of most DQs and quantifiers such as *many*. In all of these sections I aim to keep the lexical specification of DQs as simple as possible.

6.4.1 The syntactic structure of the partitive construction

From a linear point of view the partitive noun phrase occupies the same position with respect to the DQ as other NPs modified by a DQ, as is shown in (34):

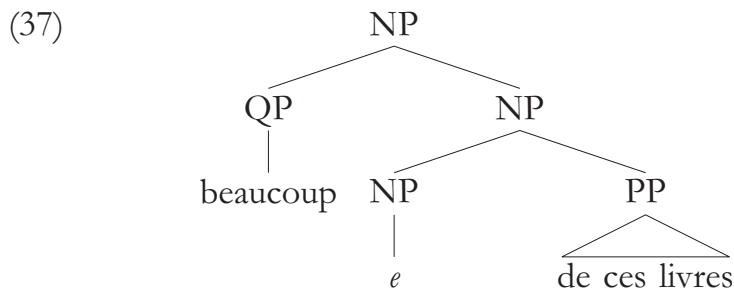
- (34) a. Beaucoup de ces enfants sont dans le jardin
 a-lot of these children are in the garden
 b. Beaucoup d'enfants sont dans le jardin
 a-lot of children are in the garden

The partitive phrase *de ces enfants* in (34a) may occupy the same position as *d'enfants* in (34b) or a different one. If the former option is chosen (cf. for instance Abney 1987), there is no way in which the DQ can be analysed in the same way as in a non-partitive construction. The DQ clearly does not

⁶ In many languages (e.g. French and Dutch) the quantifier corresponding to *all* (the non-distributive universal quantifier) is exceptional in this respect, and cannot occur in the partitive construction: **tous de ces livres* 'all of these books'. Otherwise French and Dutch are similar to English.

identify the scalar position in the DP *ces enfants* ‘the children’, but determines that an important subset of *ces enfants* ‘the children’ is in the garden. This is particularly clear when we consider *peu* ‘few; little’. In *peu de ces enfants sont dans le jardin* ‘few of the children are in the garden’ the DP *ces enfants* may refer to a group consisting of a lot of children, provided that few of them are in the garden. The second option, in which the partitive NP does not occupy the same position as other phrases modified by the DQ, makes it possible to maintain that the DQ is interpreted by saturating a scalar position in an XP in the partitive construction as well. Given the aim to keep the lexical specification of DQs as simple as possible, this second option is preferable. In order to apply the general analysis of DQs in the context of the partitive construction, we have to assume that the partitive construction contains an empty NP with an open *q*-position, and that this empty NP is the host of the DQ.

An analysis along these lines has been defended by Milner (1978a) on different grounds (cf. also Cardinaletti & Giusti 1991). A slightly modified version of the structure he proposes is given in (35), which is the structure I adopt here:⁷



The position which is normally taken by the NP modified by *beaucoup* (*d'enfants* in (34b)) is now filled by a phonologically empty NP.

Evidence for the presence of a second NP in the partitive construction comes from the fact that in some cases a visible pronominal element shows up. In French *un* is present in the partitive constructions *quelques *(uns) de ces livres* ‘some of these books’ and *chacun/*chaque de ces livres* ‘each of these books’. The analysis allows us to assume that also in partitive constructions, the DQ binds a *q*-position, which is contained in the empty NP. The function of the partitive PP is to specify the domain of which the set denoted by the NP is a part. In (35), the set corresponding to [*beaucoup e*] is a subset of the set consisting of *ces livres* these books.

Given the observation that partitive PPs are found in the context of most Qs, and independently of their DQ status, it is plausible that their presence

⁷ I will not discuss the exact syntactic position of the partitive PP, which might well turn out to be different from that in (35).

is a possibility in the context of quantified noun phrases in general. This allows us to keep the lexical specification of DQs simple, as we do not have to specify compatibility with a partitive PP as part of the lexical selection properties of DQs.

6.4.2 The partitive reading

The partitive construction always corresponds to a strong noun phrase. The interpretive distinction between strong and weak noun phrases has been introduced by Milsark (1977), who observes that noun phrases can be divided into two classes on the basis of their interpretation, which determines part of their distribution. The semantic difference between strong and weak noun phrases can be roughly described as follows. Strong noun phrases introduce individuals from a contextually given set and are hence specific in the sense of Enç (1991). Weak noun phrases introduce a new set of individuals. As Milsark (1977) shows, only strong noun phrases can be the subject of an individual-level predicate while weak noun phrases are the only ones to be found in English *there*-sentences.⁸ The distributional difference between strong and weak noun phrases is illustrated in (36). The strong DP *everyone* cannot be used in the *there*-sentence (36a), and the weak DP *a man* cannot be the subject of an individual level predicate.

- (36) a. There is a man/*everyone in the garden
 b. Everyone/*a man is intelligent

The indefinite noun phrase *a man* is necessarily weak, and cannot refer to a member of a previously given set. The strong noun phrase *everyone* is necessarily understood with respect to a given set. The partitive construction introduces a subset of a contextually given set, and, as expected, it patterns with the strong noun phrase *everyone*, as shown in (37):

- (37) a. *There are a lot of the linguists in the garden
 b. A lot of the linguists are intelligent

The strong reading found in the partitive construction is also called the partitive reading. The partitive noun phrase introduces a subset of a contextually relevant set. In (37b) this is a set of linguists which is a subset of the set of individuals referred to by *the linguists*.

It is possible to have a partitive reading in the absence of a partitive

⁸ Below it will be shown that in Dutch strong noun phrases can, under certain conditions, occur in *there*-sentences.

construction as well (cf. Diesing 1992 and De Hoop 1992 for discussion of syntactic configurations that trigger this reading). The noun phrase *a lot of linguists* in (38) can have either a weak or a strong reading:

- (38) a. There are a lot of linguists in the garden
 b. A lot of linguists are intelligent

In (38a) *a lot of linguists* must be weak, due to its occurrence in a *there*-sentence. There is no previously given set of linguists of which the linguists referred to by *a lot of linguists* are members. In (38b), where the individual-level predicate triggers a strong reading, *a lot of linguists* must be understood with respect to some previously given set. A large subset of this set of linguists has the property of being intelligent. Hence, in (38b) the interpretation of *a lot of linguists* is similar to the one of *a lot of the linguists*.

Qs that occur in the partitive construction can always have a strong or partitive reading, whether the partitive construction is used or not. A number of real weak Qs (or determiners), such as *a* and unstressed *some* (*sm*), do not occur in the partitive construction and never give rise to strong noun phrases.⁹ DQs all occur in the partitive construction and may have a partitive reading.

The partitive construction is typically found in the context of nouns and there is no corresponding structure possible when Qs combine with either VP or AP. As I will show below, the partitive reading is not readily available outside of the nominal system either. Quantified VPs may have a strong interpretation under influence of focus, while APs always have a weak interpretation.

Normally, a quantified VP does not have a strong reading. Compare for instance the sentence in (39) to (38b):

- (39) John reads the newspaper a lot

In (38b), where *a lot* is part of a strong noun phrase, a large subset of a presupposed set of linguists has the property of being intelligent. There is no similar reading for (39). The sentence does not convey information about an significant part of John's newspaper reading.

In the context of a focused constituent, however, a strong reading may be obtained, as is illustrated by (40):

- (40) John reads the newspaper a lot ON THE TRAIN

⁹ The notation *sm* for unstressed *some* has been introduced by Milsark (1977), and is based on the phonological difference between stressed and unstressed *some*.

This sentence states that a relatively large portion of John's newspaper reading activities takes place on the train, and can hence be seen as a verbal counterpart of the strong reading.

The difference between the sentences in (39) and (40) is that (39) lacks a phrase which can function as the scope of the quantifier. Let us turn back once more to weak and strong noun phrases. Strong noun phrases, contrary to the weak ones, depend in their interpretation on the presence of a contrastive predicate, which functions as their nuclear scope. This can be illustrated by the behaviour of strong and weak noun phrases in Dutch *there*-sentences, as illustrated in (41):¹⁰

- (41) a. Er zijn twee katten
 there are two cats
 b. *Er zijn twee van de katten
 there are two of the cats
 c. Er zijn twee van de katten in de tuin
 there are two of the cats in the garden

According to De Hoop (1992), the source of the ungrammaticality in (41b) is the absence of a contrastive predicate, which is necessary in the context of a strong noun phrase. Adding the predicate *in de tuin* 'in the garden' makes the sentence fine as this predicate is contrastive and offers a number of contextual alternatives (in the house, on the street etc.). This throws a light on the quantified verb phrases in (39) and (40). The sentence in (39), where the DQ *a lot* modifies a VP only has a weak reading, because there is no contrastive predicate present which may function as the scope of the quantifier, and can therefore be compared to the existential sentence in (41a). There is a lot of newspaper reading by John. In (40), the contrastive predicate *on the train* (as opposed to in the kitchen and in his bedroom) functions as the scope of the quantifier, and as a result a strong reading, similar to the one introduced by the partitive construction, can be obtained.

The examples show that DQs such as *a lot* normally do not introduce a strong reading in the context of verbs, but that the strong reading may be obtained in the context of a focused constituent. In the nominal system, the strong reading is more easily available. As said in chapter 1, I consider the syntactic scope of a quantified noun phrase to correspond to its c-command domain, while focus may change the scope relations at a semantic level. The difference between noun phrases and verb phrases follows from the fact that noun phrases function as subjects of a predicate, while verb phrases are

¹⁰ In Dutch the use of existential sentences is less restricted than in English, and may contain certain strong noun phrases in case they contain a contrastive predicate (cf. De Hoop 1992 for discussion).

predicates themselves. The predicate of a quantified noun phrase functions as the syntactic scope of the Q. Quantified VPs lack a syntactic scope, but may be interpreted as strong quantifiers in case focus is involved.

With adjectives strong readings are absent, even in the context of focus, which can be shown on the basis of superlative forms. Before going over to the examples containing adjectives, I will first discuss some cases where the superlative DQ *most* introduces a strong reading, which will allow us to see that this reading is absent in the adjectival cases.

In (42) *most* occurs in a partitive construction, which always has a strong reading:

- (42) a. Most of the salt is in the dish on the red plate
 b. Most of the intelligent remarks are made by Sue

Consider the following situation for (42a). There are three dishes on the table, each of which contains a certain amount of salt. In this context the sentence in (42a) says that more than half of the total amount of salt is in the dish on the red plate. The sentence in (42b) does not only mean that, in a given situation, Sue made more intelligent remarks than any other person, but also that she uttered most of the total number of intelligent remarks that were made.

If we compare these sentences to the ones in (43) we see that adjectives do not allow for the strong interpretation of *most*, not even in the context of focus:¹¹

- (43) a. The dish on the RED plate is the saltiest dish
 b. The most intelligent student is SUE

The sentence in (43a) is true in a situation in which there are three dishes which together contain a certain amount of salt and that less than half of the total amount of this salt is contained in the dish on the red plate, provided that the dish on the red plate contains more salt than either of the two other dishes. We do not compare the amount of salt in the red dish to the total amount of salt in the three dishes, as we did in (42a), but to the amounts in each separate dish. Similarly the sentence in (43b) does not imply that Sue is more intelligent than all the other contextually relevant people together, only that she is more intelligent than each of them separately. Again we see that this is not the strong reading of *most* that we find in the context of a partitive noun phrase.

So far we have seen that the partitive construction is a typical nominal

¹¹ As I argued in chapter 4 the superlative suffix *-st* and the DQ do not differ in interpretation. The choice between the two is based on the Elsewhere Condition.

phenomenon, though the strong reading it triggers may be found in the context of quantified VPs as well, provided that a focused contrastive predicate is present. In the context of APs neither the partitive construction nor the partitive reading are available.

6.4.3 Proportional interpretations

Partee (1988) claims that quantifiers such as *many* and *few* are ambiguous between a proportional and a cardinal reading. Her arguments could be extended to many DQs (*a lot*, *little*, *much*, *most*, French *beaucoup* ‘a lot’ *peu* ‘few; little’, *énormément* ‘a whole lot’ etc.). Hence the question arises whether these DQs are ambiguous after all or whether their different occurrences still can be accounted for in the same way, as I argued so far. In this section I will challenge Partee’s ambiguity thesis. I will defend the view that the partitive reading is necessarily proportional in the context of certain quantifiers (cf. also De Hoop 1992). Proportionality is a property of partitives in the context of an expression of relative quantity. The proportional interpretation of certain strong noun phrases is not due to ambiguity of the Q, but to the interaction of the interpretation the quantifier always has and the partitive construction. This will allow us to keep the lexical specifications of DQs maximally simple.

The difference between a proportional and a cardinal interpretation can be illustrated on the basis of the following example:

(44) Many students study linguistics

The proportional interpretation can be obtained by taking all students of the world as our reference set. According to the sentence, then, the set of linguistics students is relatively large as a proportion of all students in the world, which is obviously false. In the cardinal interpretation we do not compare the number of linguistics students to the total number of students, but look at the cardinality of the set of linguistics students. Adding up all linguistics students in the world will give a high figure, and hence the sentence is true on its cardinal interpretation.

According to Partee the two interpretations of the sentence correspond to two different readings of an ambiguous quantifier *many*. She argues that proportionality cannot be a side effect of the strong (partitive) reading of quantified noun phrases, as there exist non-proportional partitives as well. Numerals never yield a proportional interpretation, even when used in a partitive construction. Partee explains the difference by assuming that numerals are not ambiguous while *many*-type quantifiers are. The difference between the two types of quantifiers is illustrated by the following pair of

sentences:¹²

- (45) a. Three linguists in this room are women iff there are three women linguists in this room
 b. Many linguists in this room are women iff there are many women linguists in this room

The implication in (45a) is clearly true. The one in (45b), however, as Partee puts it, gives rise to conflicting feelings, which she attributes to the tendency to interpret the first *many* proportionally, and the second cardinally. Because of this, the first *many* can correspond to a smaller number than the second *many*, which makes the implication false. If there is a lecture by a famous linguist at which, disappointingly, only five linguists show up, four of which are women, we can say that many linguists in the room are women. However, in this same situation, it would not be appropriate to say that there are many women linguists in the room. The proportional interpretation is absent in the context of *three*, even if interpreted as a partitive *three of the linguists*, and therefore the implication holds without making anybody feel uncomfortable. Three is always three, whether we are talking about three members of a previously given set or not. For Partee this is a reason to assume that numerals only have one reading, which expresses cardinality and which can be either strong or weak. Strong, or partitive, when we are talking about *three* out of a previously given set, and weak otherwise. Quantifiers such as *many* are ambiguous between a proportional reading (strong) and a cardinal reading, similar to the one of *three*.

De Hoop (1992) argues that no distinction between the partitive reading of cardinal numerals and the proportional reading of quantifiers such as *many* should be made. Her main argument is that the partitive and

¹² The property illustrated by the sentences in (45) is called the intersection property, and has been formalized in the Generalized Quantifier framework (cf. Barwise & Cooper 1981). Within this framework determiners are seen as elements that relate two sets, one of which is given by the NP and the other by the predicate. The formal definition of the intersection property used by Partee is as follows, where D stands for determiner, and A and B for the sets related to each other by D. The last clause in (i) is the formal counterpart of the examples in the (45):

- (i) **Definition** D has the intersection property iff:
 a. $D(A)(B)$ iff $D(A \cap B)(B)$ or equivalently
 b. $D(A)(B)$ iff $D(B)(A)$ or equivalently
 c. $D(A)(B)$ iff $D(A \cap B)(\text{'exist'})$

proportional readings are triggered in exactly the same contexts.¹³ In the context of individual level predicates, for instance, quantifiers such as *many* have a proportional interpretation, while numerals have a partitive interpretation:

- (46) a. Many students are intelligent
 b. Three students are intelligent

In both of these sentences the strong reading is triggered by the individual-level predicate *intelligent*. The noun phrases must be interpreted with respect to a previously given set, which results in a proportional interpretation in (46a) and in a non-proportional partitive interpretation in (46b). According to De Hoop (1992) both are instances of the partitive reading.

The idea that proportionality is a side effect of partitivity and not an independent phenomenon can be further motivated by the observation that the proportional reading does not coexist with a non-proportional partitive reading. If quantifiers such as *many* were ambiguous between a cardinal reading similar to the one of cardinal numerals such as *three* and a proportional reading similar to the reading of quantifiers such as *all*, we would predict that they have two distinct strong readings. Next to the strong proportional reading, we would expect to find a strong cardinal reading, corresponding to the one found in (46b). It turns out, however, that the non-proportional partitive reading is found in the context of the cardinal numerals only. *Many* must be proportional when part of a strong noun phrase. The impossibility of a strong cardinal reading for quantifiers such as *many* similar to the one in (46b) can be illustrated on the basis of the examples in (47), which tell us about paintings of the famous painter Duchovnik. Duchovnik made only five paintings during his life time, and four of these, his studies in blue, are on display in the Stedelijk Museum in Amsterdam. The fifth painting, a study in green, is in a private collection.¹⁴

- (47) a. We saw few Duchovniks in the Stedelijk Museum
 b. Four Duchovniks are studies in blue
 c. Few Duchovniks are studies in blue

Given what we know about Duchovniks, the first sentence may well be true, even if we have seen all four Duchovniks of the Stedelijk Museum, as four is a relatively small number. The sentence in (47b) is obviously true, as

¹³ I will not go over the data supporting this claim, which can be found De Hoop (1992), chapter 3.

¹⁴ These sentences are inspired by Huettner's test; see Partee (1988) for discussion.

four of the five paintings painted by Duchovnik are studies in blue. As the predicate *are studies in blue* is an individual-level predicate, the subject noun phrase has a partitive interpretation. The parallel sentence in (47c), also forces a strong interpretation of its subject. Given the ambiguity thesis, we expect that there are two possible readings: the proportional reading, and a strong cardinality reading which is similar to the one of (47b).¹⁵ The proportional reading is available, and obviously makes the sentence false. Given that four out of five Duchovniks are studies in blue, the studies in blue do not form a relatively small subset of the Duchovniks in the world. However, if it were true that *few* has also a non-proportional reading similar to the reading we find for *four*, which we also have in (47a), the sentence should have a second reading under which it would be true, given that (47b) is true. A strong reading in which *few* is interpreted as ‘a small number’ (the cardinality reading) is absent; the sentence only has the (false) proportional interpretation. We can conclude from this that *many*-type quantifiers have only one strong reading, which is necessarily proportional. Proportionality can then be seen as a side effect of the partitive reading in the context of these quantifiers, and not as a result of ambiguity of the Qs.

Contrary to cardinal numerals such as *three*, Qs that trigger a proportional interpretation never indicate absolute quantities, and have to be interpreted with respect to a contextually given norm. What counts as *few* depends on the context. For example, in (47a), *few Duchovniks* can refer to the four Duchovniks in the Stedelijk Museum in a situation in which we have seen a large number of paintings, only four of which were Duchovniks. If except for the Duchovniks we have hardly seen any other paintings, the sentence is not so felicitous. Partitives are interpreted with respect to a reference set, which in the partitive construction is represented by the noun phrase in the partitive PP. The data discussed so far indicate that the partitive or strong reading of quantified noun phrases containing a Q expressing relative quantity is necessarily proportional. The norm with respect to which these Qs are interpreted depends on the size of the reference set. In *a lot of the students*, for instance, what counts as ‘a lot’ depends on the size of the set of the students. The fact that we evaluate *a lot* as a proportion of the reference set introduced by the partitive should be seen as the result of a general interpretive process triggered by expressions of relative quantity that have to be interpreted with respect to a norm, not to ambiguity of these expressions.

Having argued so far that *many*, *a lot* etc. should not be seen as ambiguous, it is interesting to look at *most*. *Most* in the sense of ‘more than

¹⁵ I disregard the possible interpretations that may be obtained through focus. For discussion of the interaction between focus and quantifiers such as *few*, see for instance Westerståhl (1985), Partee (1991), Herburger (1992) and De Hoop & Solà (1995).

half' is classified among the strong quantifiers, but *most* or *the most* also functions as the superlative of *much/many*. Given that the cardinal and proportional readings of *a lot* are not a matter of ambiguity, we would like to say that *most* is not ambiguous between a superlative ('more than any other') and a proportional reading ('more than half') either, and that the proportional reading of *most NP* is the result of partitivity. A similar suggestion for Dutch *de meeste* 'most; the most' has been made by Hoeksema (1983). Hoeksema takes the superlative 'more than any other' as the basic interpretation of *de meeste* and argues that the 'more than half' interpretation is obtained in those cases where the cardinalities of exactly two groups are compared. In that case 'more than any other' boils down to 'more than the other' which corresponds to 'more than half'. This makes the 'more than half' interpretation a special case of the superlative.

Dutch *de meeste* 'the most; most' is simpler than its English counterpart, as there are not two different forms (*most/the most*), which, in the context of nouns distinguish between a strong (*most*) and a weak reading (*the most*).¹⁶ I will leave the difference between *most* and *the most* aside, and use Dutch examples to illustrate the point.

- (48) a. De meeste kinderen kregen een kadootje
'Most children got a present'
b. Jan, Peter en Fred vierden hun verjaardag. Jan kreeg de meeste kadootjes
'Jan, Peter and Fred celebrated their birthdays. Jan got the most presents'

The noun phrase *de meeste kinderen* 'most of the children' in (48a) has a proportional reading ('more than half of the children got a present'). In (48b) *de meeste* 'the most' functions as a superlative. John got more presents than either Peter or Fred, but not necessarily more than half of the total number of presents.

Let us look at numerals once again, which have a non-proportional partitive reading:

- (49) Three of the women are linguists

This sentence states that if we take the set of women and the set of linguists, there will be overlap between the two, and the cardinality of the

¹⁶ The distinction between *most* and *the most* is illustrated by the translations of the examples in (48). *Most* in the translation of (48a) has a strong reading, while *the most* in the translation of (48b) has a weak reading. In the latter sentence *most* can also be used, but if the weak, superlative interpretation is intended, *the most* is strongly preferred. I will leave this issue aside.

intersection is three. The set corresponding to *the women* can be divided into two subsets on the basis of the criterion of whether they are linguists or not, and the set of women linguists contains three members. Consider now (50), where *three* is replaced by *most*:

- (50) De meeste vrouwen zijn taalkundige
the most women are linguist
 ‘Most women are linguists’

In order to understand *de meeste* at least two sets must be compared. In (50) these are the subset of the women who are also linguists and the subset of the women who are not. The fact that the proportional reading corresponds to ‘more than half’ can be seen as the result of comparing exactly two sets. In non-partitive contexts, such as (48b), more than two sets can be compared, in which case the ‘more than half’ does not occur.

We can conclude that the proportional interpretation we find in the context of *many*, *most* and *a lot* is not the result of ambiguity of these Qs but should be attributed to general interpretative mechanisms, triggered by Qs which do not indicate an absolute quantity, but a quantity which is understood with respect to a norm.

6.5 Conclusions

In the preceding four sections I discussed several aspects of the distribution of DQs in the context of NPs, taking as a starting point the desire to keep a maximally simple definition of DQs. The goal of this chapter was to show that peculiarities of DQs in the context of NPs were the result of general properties of (quantified) noun phrases. In the first subsection I discussed the nature of the scalar position bound by the DQ in the NP. In argumental noun phrases, whether the noun is abstract or concrete, this position has the properties of a *q*-position, not of a *g*-position. Looking at nouns and adjectives that from a conceptual point of view introduce the same scale, we see that the scale manifests itself as a *q*-position in the noun, and as a *g*-position in the adjective. This shows that the difference between the two types of scales is not a conceptual one, but depends on syntactic factors. In 6.2 I argued that adjectives are adjoined to the NP and that no NumP is present between the DQ and the NP. This makes it possible to derive the order of a DQs, the NP and adjectives on the assumption that DQs adjoin to NP and not to a higher functional projection in the superstructure of the NP. In 6.3 I argued that the element *de* in French *beaucoup de livres* ‘a lot of books’ is inserted to ensure that the argumental noun phrase gets case. *De* is inserted as a last resort when a DQ uses the

case assigned to the noun phrase. Finally I argued in 6.4 that the partitive construction and the partitive interpretations are general properties of quantified noun phrases. The meaning effects found in partitives are due to general interpretive mechanisms, not to ambiguity of the Q.

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