

Pseudopartitives in Norwegian

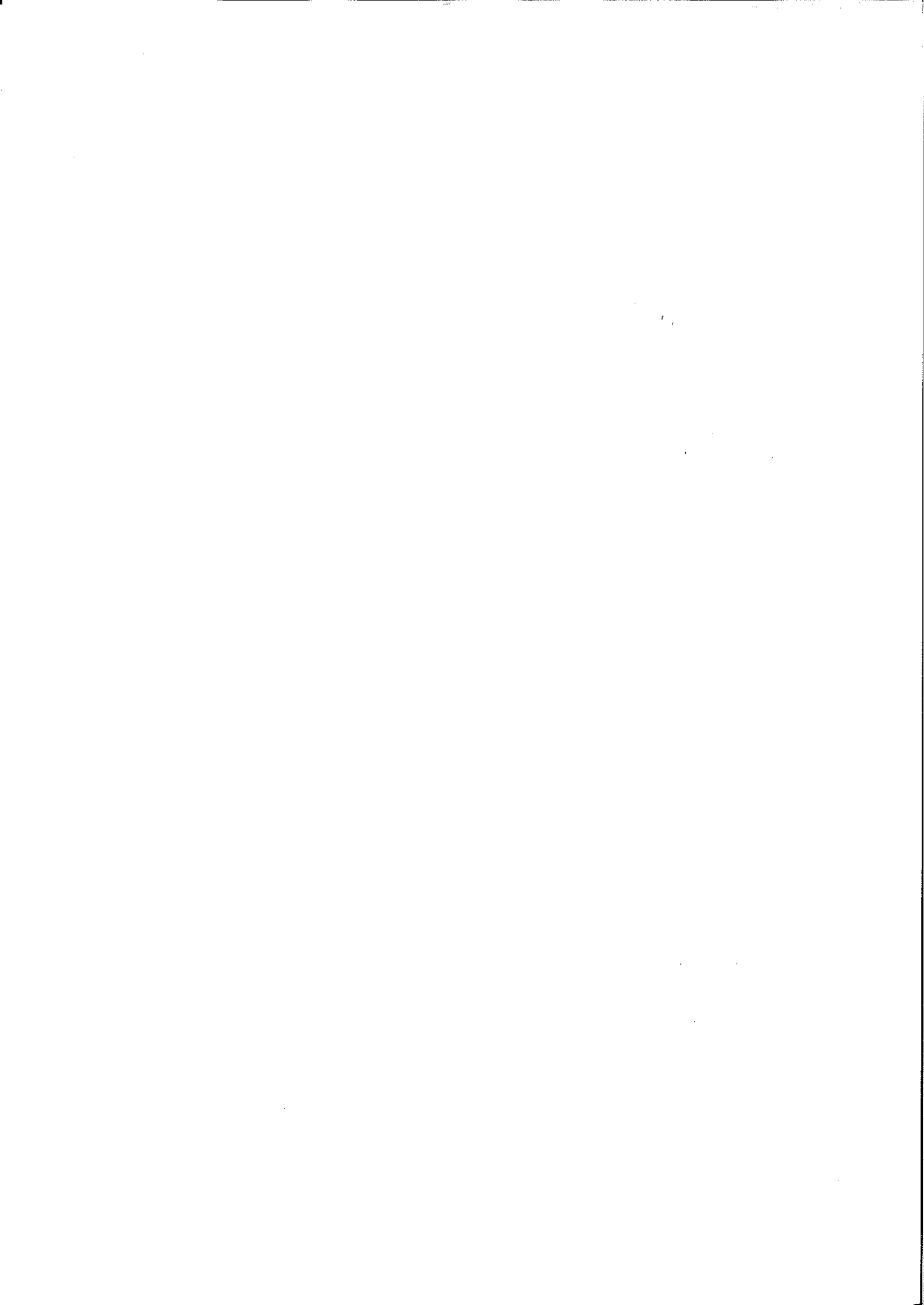
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Introduction

1.1 Pseudopartitives

This work is an investigation of pseudopartitive constructions in Norwegian. Pseudopartitives are well-known from other languages, including English. Examples of English pseudopartitives are *three grams of gold* and *a flock of geese*. These expressions are used to refer to an amount of some substance. Crucially, the phrases involve two nouns. The second noun is usually a plural noun (*geese*) or a mass noun (*gold*) and describes a substance: a number of objects of the same kind (*geese*) or a more or less homogeneous mass of some kind (*gold*). The first noun describes an amount; some have a purely quantitative meaning (*grams*), while others have an additional more qualitative meaning (*flock*). The nominal expressions which in English precede and follow, respectively, the preposition *of* refer, as I shall assume, to real-world objects with the same extension, but categorize them in different ways.

In English, pseudopartitives normally involve the preposition *of*. But the Norwegian pseudopartitive construction that has been discussed most extensively in the literature involves the juxtaposition of two nouns, as illustrated in examples (1) and (2).

- (1) eit utal kattar
 N¹ a-N un-number(N) cat-PL²
 'an uncountable number of cats'
- (2) tre store dropar brunt vatn
 N three big-PL drop-PL brown-N water(N)
 'three big drops of brown water'

¹ N = Nynorsk. See section 2.2 and appendix 2.

² A list of abbreviations used in glosses is found in appendix 1.

Just as in English, the first noun designates an amount, while the second designates the quantified substance. These will be referred to as the *quantifying noun* and the *substance noun*, respectively. Preceding the quantifying noun, there may be a quantifier and sometimes an adjective, and between the two nouns, one or more adjectives may intervene. The term *quantifying nominal* will be used for the quantifying noun along with any quantifier and/or adjective preceding it, while the term *substance nominal* will be used for the substance noun with preceding adjectives (and possible postnominal modifiers). No specific hierarchic relation between the two nouns is implied by these terms. (Definite pseudopartitives have an initial demonstrative (including the definite article) or possessive expression, which in some cases goes with the quantifying noun, in others with the substance noun. This will be discussed in later chapters.)

In pseudopartitive expressions, nouns are used to designate both quantity and quality (substance). In examples (1) and (2), the nominals *eit utal* 'an uncountable number' and *tre store dropar* 'three big drops' are used about quantities. This function is more typically taken care of by quantifiers, as illustrated in examples (3) and (4).

(3) tre kattar
N three cat-PL
'three cats'

(4) mykje brunt vatn
N much brown-N water(N)
'much brown water'

In (3) and (4), the simple quantifiers *tre* 'three' and *mykje* 'much' specify the quantity of cats and water, respectively. (I do not classify the nominals in (3) and (4) as pseudopartitives, but the delimitation of the term *pseudopartitive* is not quite fixed in the literature; cf. below.)

Traditionally, quantifiers have been regarded as uncontroversial subordinate constituents of nominals (noun phrases), although this view has been challenged in certain modern approaches to nominal structure, notably Chomskyan syntax. The structure of juxtapositional pseudopartitives, however, has been what we may call a classic problem: Are such expressions headed by the quantifying noun or by the substance noun? Different theorists have given different answers to this question, and there are data which may be regarded as evidence of structural ambiguity in at least some pseudopartitives. For instance, predicate adjectives and participles may agree with either noun, as illustrated in example (5).

- (5) Ein kasse appelsinar blei stolen/stolne.
 N a-M case(M) orange-PL become-PAST stolen-M/F / stolen-PL
 'A case of oranges was stolen.'

In Modern Norwegian, there is no formal expression of subordination of either noun in the pseudopartitive nominal itself (at least not in indefinite nominals). However, in Old Norse, the language of Norway in the Middle Ages, the substance nominal was normally in the genitive case, which is usually regarded as an indication of the subordination of the substance nominal and the head status of the quantifying noun. An example of such a genitival pseudopartitive is given in (6). This kind of structure was also used in connection with certain numeral expressions, such as the one illustrated in example (7).

- (6) skeppa byggs
 o bushel barley-GEN
 'a bushel of barley'
- (7) þrjú hundruð katta
 o three-N&NOM/ACC hundred(N)-PL&NOM/ACC cat-PL&GEN
 'three hundred cats'

Old Norse expressions like these have given rise to Modern Norwegian juxtapositional pseudopartitives, a development which, if it is the case that substance nouns can now be heads, seems to imply a rearrangement of syntactic structure. Thus, the question about the headedness of juxtapositional pseudopartitives is not only one of synchrony, but concerns diachrony as well.

Further, the existence of complex numerals, as illustrated in (7) above and also in (8), shows that the distinction between simple numeral quantifiers and quantifying nominals may not be entirely clear-cut. Both *tre* 'three' in (3) and *tre millionar* 'three million' in (8) specify the cardinalities of collections of cats. But the expression in (8) is, at least superficially, structured in exactly the same way as the problematic juxtapositional expressions.

- (8) tre millionar kattar
 N three million-PL cat-PL
 'three million cats'

This suggests that the question of the structure of juxtapositional pseudopartitives cannot be isolated from the question of how expressions involving simple quantifiers should be analyzed.

Juxtaposition is the best-known and most frequent pseudopartitive construction in Norwegian: The quantifying noun is immediately followed by the substance nominal. But in some other languages, the substance nominal is marked with a preposition or a case inflection. As seen above, Old Norse had the substance nominal in the genitive case; a similar structure is found in Finnish, where the substance nominal is marked with the partitive case, e.g. *litra viiniä* [litre wine-PARTITIVE] 'a litre of wine' (cf. Karlsson 1975). Prepositional marking is well known from several European languages, including English, cf. a *three grams of gold*.

Norwegian, too, has prepositional pseudopartitives, which are far less known and are usually mentioned in the literature just in passing, if at all. In fact, two different prepositions are used: *med* 'with' and *av* 'of'. In some contexts, it is possible to use either juxtaposition or a construction with one of the prepositions. This is illustrated in example (9).

- (9) ein flokk Ø/med/av kattar³
 N a-M flock(M) Ø/with/of cat-PL
 'a flock of cats'

In other contexts, however, the use of one of the prepositions or of juxtaposition is ungrammatical. For instance, in an example like (10), either juxtaposition or *med* can be used, but not *av*. And in example (11), either preposition can be used, but juxtaposition is ungrammatical. (For words in *-vis*, cf. below and section 5.3.)

- (10) fleire meter Ø/med/*av tau
 N several metre-(PL) Ø/with/of rope
 'several metres of rope'
- (11) tonnevis med/av/*Ø stein
 ton-*vis* with/of/Ø stone
 'tons of stone'

The question of which kind of construction is used in a given context has barely been touched upon in the previous literature.

In contrast to juxtapositional constructions, whose structure has been the subject of much discussion, prepositional constructions have been regarded as unproblematic in a syntactic analysis: The preposition is assumed to be a clear indication that the substance nominal is a subordinate constituent; hence, the quantifying noun is the

³ I use the symbol Ø for the absence of a preposition, i.e. juxtaposition.

head. But this view is not without problems, either. For instance, a predicate adjective may agree with the substance noun, as exemplified in (12) and (13).

- (12) Massevis av mjølk blei sur.
 mass-*vis* of milk(F) become-PAST sour-M/F
 'Lots of milk went sour.'
- (13) Massevis av øl blei varmt.
 mass-*vis* of beer(N) become-PAST warm-N
 'Lots of beer became warm.'

This suggests that the question of headedness of prepositional pseudopartitives may not be as straightforward as has commonly been assumed. To the extent that such problems have been recognized, one has tended to regard the deviant expressions as *construiones ad sensum*. It will become clear in this work that such an approach is also problematic.

The existence of two or three types of expressions that can be used about things with the same extension in the real world is a challenge for the semantic analysis of pseudopartitives. For instance, both *ein flokk kattar*, *ein flokk med kattar*, and *ein flokk av kattar* (cf. example (9)) can be used about a flock of cats. There is hardly any objective difference between the kinds of things that the expressions can be used about. The lack of a clear objective semantic difference might be taken as an indication that the prepositions have the same meaning, or even that they have the same meaning as the absence of a preposition, which could be taken to imply that they have no meaning at all. However, such an assumption will fail to account for a fact that will be amply substantiated in this work: The choice of one construction rather than another is semantically motivated, although not fully predictable. In particular, the distribution of *med* and *av* is intimately connected with the relation between the meanings of the quantifying nominal and the preposition.

Some quantifying nouns, like *utal* 'uncountable number' and *meter* 'metre', are quite abstract and do not on their own pick out referents which are typical objects. Others, like *fedd* 'clove' and *drope* 'drop', do. I regard it as a definitional criterion of pseudopartitives that the two nominals are used about the same real-world object, but that they categorize it in different ways. This "weak coreferentiality" will be referred to as cocategorization. Cocategorization is easily observed with group nouns and portion nouns (cf. section 5.2 for the classes of quantifying nouns): *ein flokk kattar* 'a flock (of) cats', *tre fedd kvitlauk* 'three cloves (of) garlic'. The flock and the cats have the same physical extension, and the same goes for the cloves and the garlic. Of course, a flock is not the same as cats. But the singular (*ein*) *flokk* and the plural *kattar*

categorize the same collection of feline creatures in two ways. The former categorizes it as one single collection, the latter sees it as a plurality of individuals. But, crucially, the nominals are used to refer to real-world entities with the same extension.

This may be less evident with respect to container nouns and primary quantifying nouns, as in *tre flasker vin* 'three bottles (of) wine' and *ein liter vin* 'a litre (of) wine': The bottles and the wine appear to be things with separate extensions, and the abstract concept of a litre may appear not to be able to correspond to any physical object at all. But I contend that in these phrases, the quantifying nouns categorize the same entities as do the substance nouns. Consider the short exchange in (14).

- (14) – Korleis smakte vinen? – Den første flaska/literen var for søt og den andre for
 N tørr.
 '– How did the wine taste? – The first bottle/litre was too sweet and the second too dry.'

Clearly, *den første flaska/literen* is used here to refer to some wine, and it does so by categorizing it in terms of quantity. The container noun *flaska* is used metonymically about a contained amount, rather than about a container, but the container may well be present in the real world, too.

The criterion of cocategorization can be used to distinguish pseudopartitive constructions from various other juxtapositional and prepositional constructions; for discussion, cf. sections 6.1.1, 6.2.2, and 6.2.3. But more importantly, pseudopartitives must be distinguished from partitives. Consider (15) (a pseudopartitive) and (16) (a partitive).

- (15) tre liter Ø/med/*av vin
 three litre-(PL) Ø/with/of wine
 'three litres of wine'
- (16) tre liter av/*med/*Ø denne vinen
 three litre-(PL) of/with/Ø this-M/F wine(M)-DEF
 'three litres of this wine'

The semantic difference is clear: While pseudopartitives designate only one mass, partitives designate two masses: The quantifying nominal designates a submass of the mass designated by the substance nominal. In (15), there is only one amount of wine, whereas in (16), there is one larger mass ('this wine') and one smaller mass ('three litres'), the latter being a submass of the former.

There are also formal differences. While most pseudopartitives are acceptable both with juxtaposition and with *med* (as in (15)), and sometimes even with *av*, partitives

are normally only acceptable with *av* (as illustrated by (16)). Further, while pseudopartitives cannot have a quantifier or demonstrative between the two nouns, partitives can. Finally, while the substance noun in pseudopartitives is normally indefinite, the substance nominal in partitives is normally definite.

The distinction between partitives and pseudopartitives is not always recognized. For instance, Svensson (1998) deals with pseudopartitives, but refers to them as partitives. The term *pseudopartitive* reflects some of its own historical background. At a certain stage of transformational grammar, for instance in Jackendoff (1968), pseudopartitives were assumed to be derived from underlying partitives. The motivation for this kind of analysis seems to have been the use of the (in part partitive) preposition *of* in English pseudopartitives (e.g. *three bottles of wine*). The fact that the same preposition is used in both partitives and pseudopartitives motivated the assumption that pseudopartitives are derived from partitives, a derivation that in some cases was assumed to involve the deletion of *of* (such as *three cats* from **three of cats*). Selkirk (1977) introduced the term *pseudopartitive* to refer to those quantifying constructions in which English uses the preposition *of*, but which are not partitives. These had falsely been assumed to be partitives, hence the term. Selkirk argued that partitives and pseudopartitives are different types of constructions, and her distinction has been adopted by many later theorists (cf. de Hoop 1998). Moreover, some writers, like Delsing (1993), also include ordinary quantified nominals, for instance with numeral quantifiers (e.g. *tre kattar* 'three cats'). In this work, however, the term *pseudopartitive* will be restricted to constructions involving a quantifying noun; the only additional kind of quantifying expression that will be included is quantifiers in *-vis*, which are illustrated in examples (11)–(13). These denominal quantifiers will be discussed in detail in section 5.3.

There exist various pseudopartitive-like constructions where the quantifying nominal and the substance nominal are not adjacent, and where the preposition *av* is obligatory after the quantifying nominal. These include topicalization, as in (17), and clefts, as in (18).

- (17) Vin drakk ho tre glas av.
 N wine drink-PAST she three glass-(PL) of
 'As for wine, she drank three glasses.'
- (18) Det var vin ho drakk tre glas av.
 N it be-PAST wine she drink-PAST three glass-(PL) of
 'It was wine that she drank three glasses of.'

Here the substance nominal refers to the type wine, and the type being given, the quantifying nominal picks out an instance of it. (For the concepts ‘type’ and ‘instance’, cf. section 3.2.) These should not be regarded as pseudopartitives, but rather as a kind of partitives, since the preposition can be said to designate a relation between two distinct real-world objects (a type and an instance of the type). As far as I am aware, this also holds for other cases where the substance nominal is separated from a quantifying nominal obligatorily followed by *av*.

1.2 The aim, scope, and organization of this work

In this dissertation, I try to answer two general questions about the grammar of Norwegian pseudopartitives. The first question is primarily paradigmatic, the second primarily syntagmatic.

Firstly, what are the relations between the pseudopartitive constructions of Norwegian? Specifically, what determines whether juxtaposition or a prepositional construction is used? And in the case of the latter option, what determines whether *med* or *av* is used? These are questions about a paradigm of choices. We shall see that the factors involved concern the meaning of the quantifying expressions and of juxtaposition and the prepositions, and that the choice of a construction depends on how well the meanings go together. As mentioned above, the relations between the pseudopartitive constructions have been scantily treated in the literature. But an understanding of the paradigmatic properties of pseudopartitives is essential for an understanding of their syntagmatic properties.

Secondly, what is the internal structure of the pseudopartitives of Norwegian? Specifically, are they headed by the quantifying noun or by the substance noun? In the context of juxtapositional pseudopartitives, this is, as we have noted, a classic question. In the context of prepositional pseudopartitives, it implies the question of whether the preposition really does mark the subordination of the substance nominal. Synchronically, these are questions about the syntagmatic organization of pseudopartitive nominals. But as we have seen, the synchronic state suggests ambiguity where previous states may have been non-ambiguous. An explanation of synchrony therefore seems to call for diachronic considerations.

This work discusses Norwegian, and although some sections have a broader scope, I generally do not attempt to make claims about universals of language. The discussion relates primarily to Norwegian as it is found in its two written versions, *Nynorsk* and *Bokmål*. No attempt is made to cover the dialects. I am not aware that any dialect diverges radically from the written forms in the domain discussed here,

but there may of course be differences that have escaped my attention. For some more discussion, cf. section 2.2.

The dissertation is a cognitive-linguistic work building on ideas from cognitive grammar, theories about radial structuring of polysemous linguistic categories, and grammaticalization theory. The central notions from these fields are discussed in chapter 2. A couple of fundamental assumptions should nevertheless be mentioned here.

First, a conceptual semantics is assumed. The organization of meaning as found in language does not directly reflect the organization of the real world. Rather, it reflects human categorization or conceptualization of the real world. In particular, much of linguistic structure bears evidence of how abstract concepts are understood on the basis of more concrete concepts by means of metaphor and metonymy.

Second, explanations often take the form of showing that although a piece of synchronic structure or a change may not be predictable, it is not arbitrary, but motivated. While the form of individual morphemes rarely determines their meaning, the meaning of a complex expression is motivated by the meaning of its parts (although not predictable). And the choice between several possible constructions is typically motivated by the meanings of the constituents used as well as that of the construction itself. The polysemy of linguistic expressions is likewise not random, but organized around motivated semantic extensions. Further, changes in grammatical structure are not necessary and hence not predictable, but typically they are pragmatically motivated.

Third, an explanation of the form of a synchronic construction is likely to be found in the history of the construction. Certain aspects of grammatical structure may not be synchronically motivated, but are remnants of the structure of previous stages of the language. Also, the semantic extensions seen in polysemous expressions may no longer be synchronically transparent, but are evidence of previous developments.

The rest of the dissertation is organized as follows. Chapter 2 presents the central theoretical notions. It further includes a brief discussion of the use of data in this work. Chapter 3 is an introduction to the cognitive-grammar analysis of nominals as well as Norwegian noun morphology and nominal structure. Chapter 4 is a detailed analysis of the Norwegian numeral system. A proper treatment of numerals, simple and complex, is a prerequisite for any analysis of pseudopartitive constructions, for two reasons: First, the numeral is often a central constituent of the quantifying nominal. Second, certain complex numerals are structurally similar to non-numeral quantifying nominals and provide a link between typical quantifiers and typical nominals. Chapter 5 is an attempt to establish relevant taxonomies of quantifying

INTRODUCTION

nouns on the basis of their meanings and functions. Further, it contains a section where I argue for the recognition of a special class of denominal quantifiers, namely quantifiers in *-vis*. Chapters 6 and 7 are the main chapters. In chapter 6, I address the first of the general questions asked above: What are the relations between pseudopartitive constructions of Norwegian? I first try to identify the relevant factors for the choice between juxtaposition and the use of a preposition. I next discuss the factors that determine whether *med* or *av* is used. In chapter 7, I try to answer the second main question: What is the internal structure of Norwegian pseudopartitives? I propose synchronic analyses of the various constructions, and I further suggest a framework where the syntax of pseudopartitives is seen in the light of diachrony and pragmatically motivated change. Chapter 8 presents the main conclusions of this work.

2

Theory and data

2.1 Theory

In this work, I draw on ideas from a range of cognitive-linguistic research. (For a very brief overview of the field, see Endresen (1996).) The main concepts of grammatical structure are taken from the works of Ronald W. Langacker, but most of them can also be found in other theories within cognitive linguistics. This apparatus will figure mainly in my analyses of the synchronic aspects of the syntax and semantics of pseudopartitive constructions. The concept of radial categories, whose most important proponent has been George Lakoff, will be used mainly to show how the various senses of grammatical morphemes and constructions are related to each other. This takes us into the field of grammaticalization, for the polysemous structure of grammatical morphemes and constructions can in many cases be understood as reflexes of grammaticalization processes. Grammatical morphemes, such as many prepositions, have radial structures which may seem arbitrary in a synchronic perspective, but which can be seen to be the result of universally wide-spread kinds of semantic extension.

Section 2.1.1 introduces the central concepts of cognitive grammar, while section 2.1.2 discusses polysemy and radial categories. Section 2.1.3 sketches the relevant aspects of grammaticalization.

2.1.1 Cognitive grammar

Cognitive grammar is a comprehensive linguistic framework belonging in the school of cognitive linguistics. It was developed by Ronald W. Langacker, originating in the 1970s and for some time called space grammar. The main introduction to the framework is the two-volume work *Foundations of Cognitive Grammar* (Langacker 1987 and 1991b). Other important sources include *Concept, Image, and Symbol* and its

follow-up *Grammar and Conceptualization* (Langacker 1991a and 1999), as well as Langacker (1988a, b, c, d).

Section 2.1.1.1 is an overview of the structural levels assumed in cognitive grammar. Fundamental semantic concepts that are necessary in order to discuss all kinds of meaningful linguistic elements are presented in section 2.1.1.2. Notions that enter into the picture in morphological and syntactic constructions are dealt with in section 2.1.1.3.

2.1.1.1 Structural levels and the content requirement

The linguistic structures assumed in cognitive grammar are of only three kinds: semantic, phonological, and symbolic structures. No other structural levels are recognized. This is ensured by the content requirement, which I return to below.

Semantic structures specify how basic concepts for things and relations are combined into more complex structures. They reflect the way in which a language conventionally categorizes and organizes the world; i.e., linguistic meanings are conventionalized conceptual structures.

Phonological structures specify, for instance, how sound segments are combined into syllables, syllables into words, and words into word sequences. Phonological structure as such is not a subject of this work.

A symbolic structure is the integration of a phonological structure and a semantic structure. Such a unit is essentially the same as a Saussurean sign: a conventional linking of sound and meaning. A piece of phonological structure symbolizes the piece of semantic structure with which it is combined in a symbolic structure. That is, symbolic structures specify the symbolization relationships of morphemes and morphological and syntactic constructions. This interface is where grammar resides; all constructions have both semantic and phonological aspects. Thus, there is no morphology or syntax that is seen as autonomous from semantics. A form always comes with a meaning. In particular, this is assumed to hold for grammatical morphemes, for instance inflectional affixes and prepositions.

Whenever I present cognitive-grammar analyses in this work, I use either diagrammatic semantic representations (cf. sections 2.1.1.2 and 2.1.1.3) or syntactic constituent structures of the well-known phrase-structure type (although some of the node symbols are somewhat unconventional). But it should be emphasized that this in no way implies an autonomy of syntax from semantics (or the other way around). Both types of structure presuppose that all constituents are symbolic units.

The content requirement (cf. Langacker 1987: 53–54 and elsewhere) puts strict limitations on a linguistic analysis couched in terms of cognitive grammar: The only units that one is permitted to ascribe to a linguistic system are:

- (1) semantic, phonological, and symbolic structures that occur as parts of actual expressions,
- (2) structures that are schematizations (abstractions) over the structures of (1), and
- (3) categorizing relationships between structures of (1) and (2).

The structures mentioned in (1) are specific expression types: specific morphemes, words, phrases, clauses etc. This part of the requirement rules out, for instance, underlying syntactic structures, transformations, and traces. (Langacker does not prohibit zero morphemes. But some cognitive grammarians, e.g. Enger (1998), argue in favour of a more restrictive approach. For a discussion of zero elements, see also Kinn (2000b).) The structures of (2) are more abstract structures, at various levels of abstraction from actual expressions. Such schematic structures may be lexemes, word classes, morphological and syntactic constructions, etc. The relationships mentioned in (3) are, for instance, the categorization of a specific noun as belonging in the noun category, of a sequence of an indefinite article and a noun as a nominal (noun phrase), etc. Thus, cognitive grammar does not view the grammatical system as a device that constructs linguistic expressions. Rather, it is a network of structures where some abstract structures categorize other less abstract structures.

2.1.1.2 Fundamental semantics

Semantic structures consist of two kinds of entities: things and relations, with *thing* being a theoretical term in cognitive grammar. Things are autonomous conceptual entities, while relations are dependent entities that connect two or more things (or relations, but that possibility will not be explored in any detail in the present work), the participants of the relation; cf. Dirven and Radden (forthc.). (Compare this to the distinction in predicate logic between constants/variables and predicates.) Things are typically relatively stable in space and time, while relations are typically relatively unstable. Somewhat simplified, things are the meanings of nouns and nominals (noun phrases) and expressions with similar functions. Relations are the meanings of verbs, adjectives, prepositions, etc. Relations are of two kinds: processes and atemporal relations. The former are the meanings of verbs and will not be further discussed here. But several classes of words that are relevant in the context of quantification have atemporal relations as their meanings: prepositions, adjectives, quantifiers, and possessives. (For detailed discussion of the concepts of 'thing' and 'relation', see Langacker (1987: ch. 5–7) and Taylor (1996: 81–93).)

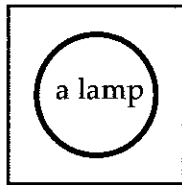


Figure 2.1. The representation of a thing

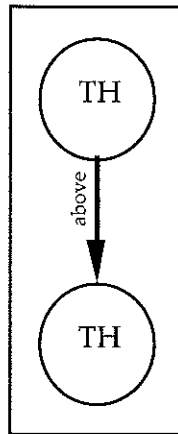


Figure 2.2. The representation of a relation

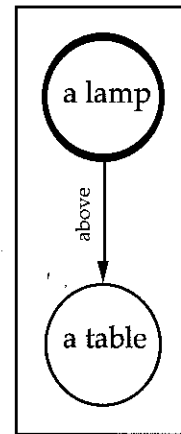


Figure 2.3. The representation of profile and base

Things and relations in semantic structures are conceptual entities, linguistic categorizations of objects in the real world and of relations between them. But to avoid too cumbersome expressions, I shall sometimes refer to a conceptual relation as, for instance, “a spatial relation” rather than as “a (conceptual) relation categorizing a (real-world) spatial relation”, and similarly I shall sometimes refer to a conceptual thing as, for instance “a cat” rather than as “a (conceptual) thing categorizing a (real-world) thing as a cat”.

Figures 2.1 and 2.2 are simple examples of how semantic structures will be represented here; the representations are slightly different from those of Langacker. Things are represented as circles with an explanatory label; cf. figure 2.1, which represents the meaning of the noun *lamp*. Relations are represented as labelled arrows connecting two or more circles (participant things); cf. figure 2.2, which represents the meaning of the preposition *above*. The things (“TH”) that the relation connects are schematic (underspecified) here; the preposition does not specify what kind of things the participants are (cf. below). The significance of the direction of the arrow is explained below, as is the bold type of certain parts of the representation. (The organization along the horizontal and vertical axes does not carry meaning in my representations.)

The semantic content of an expression can be characterized with respect to one or more conceptual (cognitive) domains. Such a domain may be, e.g., space, time, smell, or temperature. The meaning of *lamp* has space as its primary domain, since we know that lamps are concrete objects with a three-dimensional extension. But there is

more to lamps than their physical extension: They emit light, are primarily to be found where there are people because people need light, etc. Such aspects are also part of the total meaning of *lamp*, but are less central than the spatial domain. The primary domain of an expression is its domain of instantiation. The domains are not represented in my format for semantic structures.

The whole array of meaning from the different domains that an expression invokes is the scope of that expression. Some aspects in the scope are more prominent than others. The most prominent part of the scope of an expression is its profile, the rest is the base. The profile of *the lamp above the table* is the thing (lamp) designated by the head noun *lamp*, while the table and the spatial relation between the lamp and the table are base parts of the scope. This is represented in figure 2.3 (the contribution of definiteness has been left out): The profile is in bold type, while the base is not. The same kind of differentiation can be seen in figure 2.2. Langacker assumes that relational expressions profile both the relation itself and the participants. I do not argue with this view, but only the arrows of profiled relations are in bold type in my representations.

In a relation, there is usually an asymmetry between the participants. One participant is particularly prominent; this is the trajector. Other participants are less prominent; these are landmarks. In my representations, trajectors are at the beginning of relational arrows, landmarks at the ends (points). Langacker (1987: 231) explains the trajector–landmark asymmetry as follows: “[The landmark] provides a reference point with respect to which [the trajector] is evaluated or situated: [The trajector] stands out as the entity being assessed, and this assessment takes the form of its relationship to [the landmark].” He assumes that the distinction between trajector and landmark is a linguistic realization of the psychological phenomenon known as figure–ground alignment. The term *trajector* suggests movement along a trajectory. The trajector sometimes does move, especially in connection with processes, but the notion is by definition neutral with respect to movement.

2.1.1.3 A semantically based syntax

Figure 2.4 represents the semantic aspects of the construction of a prepositional phrase, *above the table*. (Definiteness is not represented.) There are two component structures (bottom boxes) and a composite structure (top box). The bottom left box represents the meaning of the preposition, the bottom right box the meaning of the object of the preposition, and the top box the meaning of the whole prepositional phrase. For convenience, my semantic representations of constructions reflect precedence relations; the semantic structure of the constituent that comes first in the

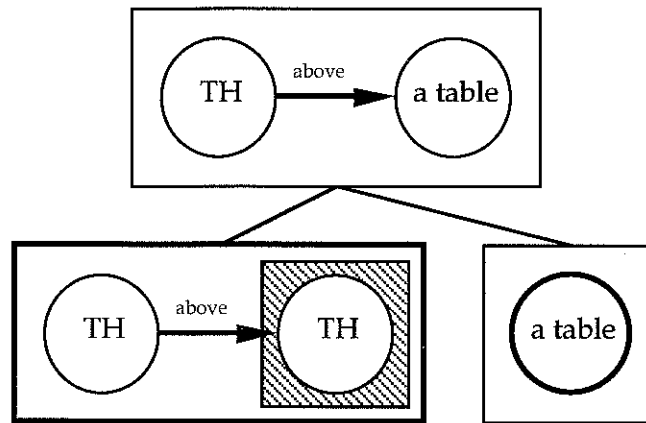


Figure 2.4. The semantic composition of a specific prepositional phrase

expression is represented to the left. But precedence is really a property of the phonological structure.

Grammatical constructions are brought together by valence relations that hold between component structures. These valence relations enable the components to be joined together in composite structures. Cognitive grammar recognizes four valence factors: correspondence, A/D asymmetry, profile determination, and constituency.

A correspondence is the identity of a substructure of one component structure with a substructure of another. In general, one of the component structures is more specific than the other with respect to a particular correspondence. This gives the result that the composite structure inherits the higher degree of specificity, as an effect of the integration of the corresponding substructures of the component structures. In figure 2.4, there is a correspondence between the landmark of the preposition and the profile of its object. The former is more schematic than the latter, and the composite structure inherits the more specific structure. Correspondences are not represented in my format, but the closely related valence factor of A/D asymmetry is.

Typically, there is an asymmetry in a construction between an autonomous structure and a dependent structure, an A/D asymmetry. This opposition is defined on the basis of elaborative relations between the component structures. A structure elaborates another if the former makes the latter more specific. The component structure which undergoes elaboration of a substructure is dependent, while the elaborating one is autonomous. In figure 2.4, the structure of the object of the preposition elaborates the landmark of the preposition. This is represented by the hatching of the background of the elaborated substructure. The landmark becomes

more specific, as is clear from the representation of the composite structure. Hence, the preposition is the dependent structure, while the object is autonomous. It is not necessary that there be a simple A/D asymmetry. Two component structures may elaborate each other, and it is also possible that there is no elaborative relation.

In a construction, the composite structure usually profiles the same entity as one of the component structures. Such a component structure is the profile determinant of the construction. In figure 2.4, the profile determinant is the structure of the preposition. The profile-determinant component structure is represented with a bold-type frame. The composite structure and the profile-determinant component structure are of the same semantic type, but the former is more specific than the latter. For instance, in figure 2.4 the preposition profiles a locative relation with two schematic participants, while its object profiles a thing. The prepositional phrase profiles the same relation as the preposition, except that the landmark participant is not schematic. Hence, the preposition is the profile determinant. There is not necessarily one and only one profile determinant in a construction. Cognitive grammar leaves open the possibility that the composite structure can profile an entity that none of the component structures profiles. It is also possible that two (or more) component structures profile the same entity and share that profile with the composite structure.

Three notions of grammatical function are defined on the basis of profile determination and A/D asymmetry: head, complement, and modifier. The head of a grammatical construction is defined to be the profile determinant. That is, head-hood is a relation between component and composite structures. A structure which is not a profile determinant is a complement if it is autonomous and a modifier if it is dependent. That is, complementation and modification are relations between head and non-head component structures. In figure 2.4, the preposition is the head and the object is a complement. Since it is not necessarily the case that there is a profile determinant in a construction, it is acceptable to have headless constructions. It is also possible to have more than one profile determinant. In such cases, I shall use an additional notion proposed by William Croft: The head of a construction is "the profile determinant that is the primary information-bearing unit" (Croft 1996: 58; italics removed). The primary information-bearing unit is "the most contentful item that most closely denotes the same kind of thing that the whole constituent denotes" (ibid.).

Constituency is far less important in cognitive grammar than in many other theories. Constituency is simply the "order" in which component structures are put together to form larger and larger composite structures. Any expression which acts

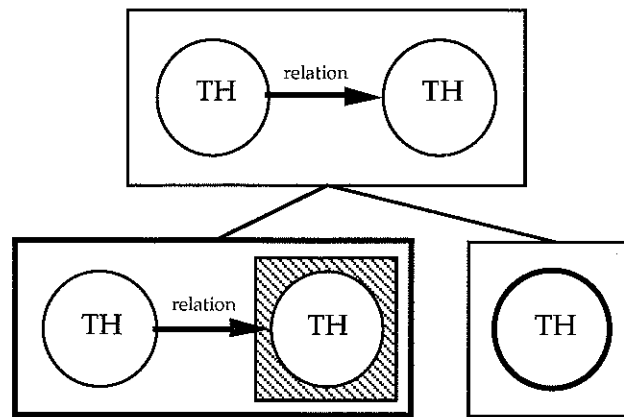


Figure 2.5. The semantic composition of the constructional schema for prepositional phrases

as a component structure is a constituent. There are not really any grammatical rules in cognitive grammar; a grammar consists of a network of constructional schemas. A constructional schema is an abstraction over a set of specific constructions, showing what is common to them, and such abstractions may exhibit different levels of specificity. The representations used in this work are specific rather than schematic, but figure 2.5 shows the constructional schema for adnominal prepositional phrases with nominal objects. Both the relation and its participants are schematic, but the valence relations are the same as in the more specific structure in figure 2.4.

An actual construction elaborates a constructional schema. That is, we have basically the same type of relation as between parts of component structures in a construction. The preposition schema in figure 2.5 is elaborated by the concrete preposition in figure 2.4: The schematic relation is elaborated by the above-relation. The nominal schema in figure 2.5 is likewise elaborated by the object of the preposition in figure 2.4. The composite structure schema, the one of the prepositional phrase, is elaborated in both of these ways.

There is not necessarily a compositional relationship between a composite structure and its component structures. Each level is subject to separate analysis, and the degree of compositionality in a complex expression is regarded as an empirical matter. But a constructional schema describes what is common to all expressions that instantiate it. A prepositional constituent – with a relational profile – and a following nominal constituent – with a nominal profile – (as in figure 2.4 and schematically in figure 2.5) can be combined in a prepositional phrase where the profile of the nominal corresponds to the landmark of the prepositional relation, and where the composite structure has the same relational profile as the preposition. Thus, the

constructional schema for prepositional phrases tells us how an actual prepositional phrase is put together. It describes how (a certain amount of) compositionality is achieved. But it should be kept in mind that schemas are merely abstractions over actual constructions; they are not rules of composition as such.

2.1.2 Polysemy and radial categories

It is well known that natural language categories are often not classical or Aristotelian categories defined by necessary and sufficient criteria of equal importance. Rather, what we typically find is prototype-based categories (cf. Lakoff 1987, Taylor 1995).

Many, perhaps most, natural language categories are polysemous. This is not least true for grammatical morphemes. For instance, English *by* means 'beside', 'through causation of', 'not later than', etc. At least two different ways to approach polysemy have been suggested; I shall call these the core-sense model and the meaning-chain model, respectively (cf. Taylor 1988).

In the core-sense model of polysemy, one assumes that the category as a whole can be characterized on the basis of a core meaning that is common to all the different senses. The core sense is more abstract than the individual senses, but compatible with all of them, although the latter may be partly in conflict with each other. The individual senses elaborate the core sense (cf. Langacker's notion of 'elaboration'). Unless it is modified, this model faces some serious problems: A characterization that is general enough to cover all senses of a highly polysemous word will probably be so general that it will not distinguish the category from other categories. It is hard to see how one can abstract over e.g. the various senses of *by* to a core sense that also excludes the meaning of semantically related prepositions, for instance *with* or *at*.

In the meaning-chain model, the different senses of a polysemous expression are seen as linked to each other by various kinds of semantic extension (cf. Lakoff 1987). From one sense, a category may be semantically extended in a number of ways. The different senses radiate from a source sense (often identical with the prototype sense), and the result is a more or less complex category. One sense is fairly closely related to its adjacent senses, but may be rather different from more distant senses, and possibly have nothing at all in common with the most distant ones. This would appear to be a more promising way to approach a word like *by*, although I shall not attempt it here, but cf. Langacker (1991a: 139–143). The meaning-chain model allows one to characterize instances of Wittgenstein's family resemblances. A polysemous semantic category whose senses are related in such a fashion is a radial category. The

problem of over-extension connected with the core-sense model is avoided, but sometimes at the cost of giving up a common meaning core.

The notion of radial categories has been used to analyze a host of different types of natural language categories. Taylor (1995) applies it, for instance, to derivational and inflectional categories, intonational patterns, and word classes. Above all, the radial category approach has been applied with success to a type of words that have often resisted treatment because of their complexity: prepositions. I return to this in chapter 6.

Langacker's (1987) network model combines the core-sense model and the meaning-chain model: Some senses may be elaborations of a schematic sense, i.e. a core sense, while other senses are related to more central ones by extension, i.e., the category is radial. This is the approach of this work, although the notion of radial categories will be more central than the notion of core senses.

The discussion above has been based purely on synchrony. But extension is a fundamentally diachronic notion. If an expression is polysemous, one of its senses can be assumed to be older than the rest – the historically original meaning of the expression. Thus, the structure of a complex category can be understood as the result of diachronic processes, primarily grammaticalization. (This is different from approaches where some senses of an expression are derived from others by means of "manipulation rules" or the like in a synchronic analysis (cf. e.g. Schepping 1991).)

2.1.3 Grammaticalization

Grammaticalization theory is a large and diverse area and cannot be treated at great length here; I refer the reader primarily to Heine et al. (1991), but also to Traugott and Heine (eds.) (1991a, b) and Hopper and Traugott (1993). Croft (1990a: 230–244) provides a succinct overview of the various semantic, morphosyntactic and phonological aspects of grammaticalization. Loosely speaking, grammaticalization is the process by which lexical items become grammatical morphemes or less grammatical morphemes become more grammatical. In modern grammaticalization theory, it has become increasingly more common to regard grammaticalization as something that happens not to morphemes in isolation, but to morphemes in constructions.

In parts of the literature (cf. Croft 1990a: 236–237), *desemanticization* and (*semantic expansion*) are terms for two related kinds of semantic development. The former refers to the shift from a lexical to a grammatical meaning, while the latter refers to the shift from a less grammatical meaning to a more grammatical meaning. In addition, the

term *desemanticization* suggests that the old meaning is lost, while the term *expansion* implies that the old meaning continues to exist beside the new one.

An example of desemanticization (lexical to grammatical) is seen in the development of the Norwegian preposition *bak* 'behind' from the noun *bak* 'back': The body-part meaning is more concrete than the locative relational meaning. Another example (grammatical to more grammatical) is the development of English *that* from a demonstrative to a complementizer.

The contrast of lexical meaning vs. grammatical meaning is, of course, no clear-cut dichotomy; nor is it always obvious which of two senses of an expression is the more grammatical. Heine et al. present a list of hypotheses about degrees of grammaticalization, and they also put forward two scales where conceptual categories are arranged according to the lexical vs. grammatical continuum (cf. Heine et al. 1991: 156–161). They argue that there are basically only two different semantic processes involved in grammaticalization (Heine et al. 1991: 113):

One is conceptual transfer, which is metaphorical in nature and relates different cognitive domains with one another [...] The second [...] is pragmatically motivated. It involves context-induced reinterpretation and metonymy and leads to the emergence of overlapping senses [...].

Coalescence and condensation are related processes that are typical of the phonological and syntactic side of grammaticalization. "Condensation is the process by which the morpheme undergoing grammaticalization becomes the syntactic sister of a smaller constituent" (Croft 1990a: 234). Croft exemplifies this with the development of phrases like *inside the box* from *inside of the box*. In the older version with *of*, *inside* and *of the box* are co-components (sister components) of the construction. In the younger version, *inside* is a co-component of *the box*. The noun phrase co-component of the younger version is a smaller constituent than the prepositional-phrase co-component of the older version. It is possible that condensation is not a very good criterion for grammaticalization (cf. Croft 2000: 158), but the issue is of small importance to the present work. Condensation is often a precursor to coalescence.

Coalescence is the process whereby two words become one word (compounding, cliticization, or affixation) or two morphemes become one morpheme (fusion). The development of complex words like Norwegian *inni* 'inside of' from an adverb and a preposition, *inne* + *i* 'inside' + 'in', is an example of compounding.

Simplification or decategorialization (cf. Hopper 1991) is the loss of paradigmatic oppositions, a development often seen when verbs or nouns are grammaticalized into, for instance, auxiliaries or adpositions. For instance, English auxiliaries like *can*

and *will* have no infinitive or participles, although such forms did exist in earlier stages of the language and continue to do so in the paradigms of other English verbs.

Any given semantic field can be studied with special reference to the sources of the grammatical structures that are employed. Such studies are found in Heine (1993, 1997a: ch. 5, 1997b), which deal with auxiliation and possession in a world-wide perspective, and Koptjevskaja-Tamm (forthc.), which addresses the typology of partitives and pseudopartitives, primarily from the perspective of the languages around the Baltic Sea.

In a universal perspective, one finds that the concepts and constructions of a semantic field tend to be developed from a very limited number of source structures (Heine et al. 1991: 32–39). For instance, a comparative construction is normally derived from one of eight sources (Heine 1997a: ch. 6, Stassen 1985), called event schemas. These include the action schema (X is Y, surpasses Z), the location schema (X is Y at Z), the source schema (X is Y from Z), etc. (where X is that which is compared, Y the property, and Z the standard of comparison, as in *I (X) am older (Y) than you (Z)*). The set of source structures of a given semantic field can tell us quite a lot about how that field is conceptualized. Further, the origin of a particular construction often explains its grammatical properties (cf. Heine 1993: 119–129).

2.2 Data

The use of language data in this dissertation is of two types. On the one hand, I describe what is a well-formed Norwegian expression and what is not. On the other hand, two or more kinds of expression can convey approximately the same meaning, in which case I try to establish which kind of expression is the more common relative to different variables.

The former type of description is based on grammaticality judgements. With all its shortcomings and problems (cf. Schütze 1996), the method of using such judgements remains central to theoretical linguistics. Being a native speaker of Norwegian, I have been my own primary informant. Whenever I have been in doubt, I have consulted other informants.

But cognitive grammar is a usage-based approach to language (cf. Langacker 1987, 1988d, 2000, Kemmer and Barlow 2000) where “[s]ubstantial importance is given to the actual use of the linguistic system [...]” (Langacker 1987: 494). In the present work, this has two important consequences. First, most of the illustrations are authentic examples of language use (unfortunately restricted to the written medium). Second, I have used corpora to attain some empirical support for my analyses.

Most of the authentic examples come from the corpora (cf. below). Some additional examples have been found on the world wide web. (A list of web sources can be found in appendix 3.) Each example, authentic or not, has been given an abbreviated code. The first part says which of the two versions of written Norwegian it is; B is for Bokmål and N for Nynorsk. If the example is both Nynorsk and Bokmål, this part is left out. (If there is a relevant systematic difference between the two forms, information is provided.) The second part of the code gives the source of the authentic examples. These abbreviations are listed in appendix 2. There is no second part in the code of constructed examples.

Many authentic examples have been modified in some way. The most frequent modification is shortening, and some sentences have been rearranged syntactically, but never so that the relevant pseudopartitive or its syntactic function has been changed. Numerals that are written with figures in the original have been changed into numerals written with words. All changes in examples are marked either with "...” or with “[]”.

The corpora that I have used are newspaper and novel texts that are available for on-line electronical searches on the web server of The HIT Centre (the service centre of the Humanities Information Technologies Research Programme) at the University of Bergen.

The largest corpus consists of texts from the newspaper *Bergens Tidende*. It can be accessed via the web page <http://kh.hd.uib.no/tactweb/avis.htm>; a password is needed. The texts are from the period from 1994 to 1998, and according to information on the pages, the size of the corpus is 8.621 million words. There is no information about the shares of Nynorsk and Bokmål, but I have estimated that there is 88.1 % Bokmål and 11.9 % Nynorsk. The estimate is based on the relative frequency of *ikke* (Bokmål) and *ikkje* (Nynorsk) 'not'.

Two smaller corpora of novel texts from the twentieth century have also been used. These are accessible to anyone on the web pages <http://kh.hd.uib.no/tactweb/roman-nn.htm> and ... [tactweb/roman-bm.htm](http://kh.hd.uib.no/tactweb/roman-bm.htm). A list of the 66 novels from which the texts have been taken can be found on the page ... [tactweb/nta-lst.htm](http://kh.hd.uib.no/tactweb/nta-lst.htm). The former corpus consists of Nynorsk texts; the size is 1.44 million words. The latter corpus consists of Bokmål texts; the size is 1.4 million words.

In addition to finding examples, the primary use that I have made of the corpora has been searches to find out about the relative frequency of constructions depending on the context, for instance the relative frequency of juxtapositional and prepositional pseudopartitives in the context of the various kinds of quantifying nouns. The data gathered in corpus searches have been categorized qualitatively and analyzed by

only the simplest quantitative means: Examples have been counted and percentages calculated. I have not attempted to ascertain that the results are statistically significant, but rather tried to be cautious in drawing conclusions. Unless I state otherwise, searches include all parts of all the three corpora.

Of course, investigations based only on written texts cannot be claimed to be representative of the spoken language. This is a problem for the discussion in section 6.1. It is also possible that different corpora of written texts would have given different results, but I have no reason to suspect that there would be significant deviations. I therefore regard the corpus texts as reasonably representative of written Norwegian with respect to the phenomena discussed in this work.

To conclude, the results of my corpus investigations must be seen as suggestive rather than conclusive. They are meant to provide preliminary information about a domain that has so far been largely unstudied. Later studies, with a larger and more representative choice of texts and with proper statistic analyses, will hopefully complement and possibly modify the picture sketched in this work.

3

Nominals

This chapter is a brief introduction to the cognitive-grammar approach to nouns and nominal structure in general and to Norwegian nominal morphology and syntax in particular. Section 3.1 discusses the meaning of some central groups of nouns, while section 3.2 discusses larger nominal structures that involve adjectives, quantifiers, and determiners. Section 3.3 is a sketch of the morphology of Norwegian nouns and of indefinite and definite nominals involving quantifiers.

3.1 The meaning of nouns

This section discusses three main categories of nouns: singular count nouns, plural count nouns, and mass nouns. At the end, I briefly discuss the meaning of relational nouns, a group that includes quantifying nouns.

It is common in cognitive grammar to assume that the members of the three categories of singular count nouns, plural count nouns, and (singular) mass nouns designate semantic entities of three separate kinds (cf. Langacker 1991b: 78). Singular count nouns designate individuals, plural count nouns designate replicate masses of individuals, and mass nouns designate homogeneous masses. These semantic types represent the three main kinds of things (noun meanings).¹

A singular count noun designates a discrete individual. A discrete individual is bounded in its domain of instantiation (cf. section 2.1.1.2); that is, the notion of its limits is an inherent part of the meaning of the singular count noun. For instance, the singular count noun *cat* designates an individual of the type cat. (For the concept 'type', see section 3.2.) A cat is something that is conceptualized as physically limited; it is bounded in three-dimensional physical space, which is its domain of instantiation. Figure 3.1 shows how the semantic structure of singular count nouns

¹Langacker uses the term *non-replicate mass* for what I call a homogeneous mass. Further, he in part uses the term *discrete entity* for what I call an individual, an infelicitous choice of terminology since *entity* is used not only about things, but also about relations.

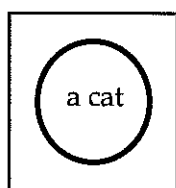


Figure 3.1. The semantic structure of a singular count noun

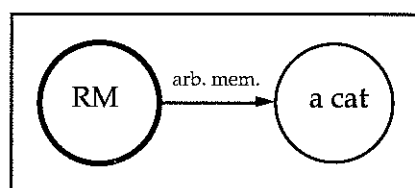


Figure 3.2. The semantic structure of a plural count noun

will be represented in this work: a bold-type circle around a label telling what type of individual it is. (This is also the profile.) Semantically more complex nouns like quantifying nouns will include in their scope additional semantic entities which are part of the base (i.e. not profiled). Schematic individuals will have the label “an individual”.

A plural count noun designates a replicate mass of discrete individuals. A replicate mass as designated by a plural alone is an indefinite number of discrete individuals of the same type. A discrete individual is bounded in its domain of instantiation, but a replicate mass as designated by a plural noun alone is not. That is, the notion of limits to the mass is not an inherent part of the meaning of the plural noun. For instance, the plural noun *cats* designates some indefinite number of individuals of the type *cat*. Each one of these is bounded as specified above. But the entity that they constitute, the replicate mass, is not bounded: There is no specification of the size of the mass (measured for its cardinality, its weight, etc.). (Some readers may wish to think of a replicate mass as a set, where the meaning of the noun is a predicate that is true about all the members. Note that the meaning of e.g. *cats* is assumed to be ‘a set with an indefinite number of cats (and only cats)’, not ‘the set of all cats’, although the latter is included among the possibilities allowed for by the former and is a possible reading depending on the context.) Figure 3.2 shows how the semantic structure of plural nouns will be represented. A bold-type circle (the profile) around the label “RM” (short for “replicate mass”) is connected by a relation arrow labelled “arb. mem.” (short for “arbitrary member”, cf. below) to a circle which is of the kind used for individuals, except that it is not in bold type. In my representations, a schematic replicate mass will be related to an arbitrary member individual with the label “an individual”.

In cognitive grammar, replicate masses are often represented as a number of identical symbols (the individuals) enclosed by a line (cf. e.g. Langacker 1991b: 78).

This is a rather cumbersome format, especially when the replicate masses are part of rather complex semantic representations. I have therefore devised a different format which also makes it easier to treat the replicate mass and its members separately. (Not everything that is true about the mass is necessarily true about its members, and vice versa.) A replicate mass is exhaustively constituted of individuals of a certain type. That is, one can pick an arbitrary member of the mass and no matter which one is chosen, it will be of that same type. This relation between a replicate mass and each of its members is the basis for categorizing the mass; we have a replicate mass of cats if (and only if) something is categorized as a collection of objects which are all categorized as cats. That is, the individuals are reference points in the evaluation of the mass. I propose that this should be regarded as an instance of the well-known trajector–landmark asymmetry: The replicate mass is a trajector, and the members are landmarks. The only extraordinary aspect of this relation is that there is an indefinite number of landmarks; a prototypical relation has only one or two. Since all members are of the same type, it is sufficient to represent only one arbitrary member, as in the right-hand part of figure 3.2. Other members are participants of exactly the same relations as the arbitrary member. (Some readers may wish to think about an arbitrary member as a variable.)

Singular and plural count nouns differ with respect to bounding (cf. above). They also differ with respect to the quantifiers that they are used with. If we look at numerals, singular nouns are only used with the one for 1, while plurals are used with the rest: *one cat* vs. *four cats*. (This holds for languages like English and Norwegian, but is not universal. For instance, Turkish has different singular and plural forms of nouns, but the singular form is used after numerals (cf. Brendemoen and Hovdhaugen 1992): ‘House’ is *ev* and ‘houses’ *evler*, but ‘two houses’ is *iki ev*, literally ‘two house’.) In languages with agreement, words like adjectives, demonstratives and possessives will have different forms depending on the number of the noun; this is the case for Norwegian (cf. section 3.3). Individuals are replicable; put together several of the same type, and you have a replicate mass. Replicate masses, on the other hand, are expansible (cf. Langacker 1987, 1991b); put together two replicate masses of the same type, and you have another larger replicate mass. (In the formal-semantics literature the term *cumulative* is used; cf. Krifka (1991), Lønning (1987).) To a certain extent, replicate masses are contractible (cf. Langacker 1987, 1991b): A replicate mass can often be divided with several replicate masses as the result. Contractibility is more typical of homogeneous masses, however. (A corresponding term in formal semantics is *distributive*, cf. Krifka (1991).)

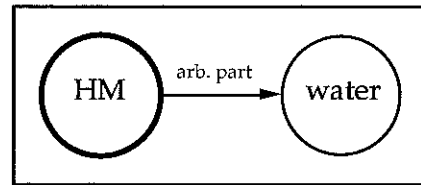


Figure 3.3. The semantic structure of a mass noun

A (singular) mass noun designates a homogeneous mass. A homogeneous mass as designated by a mass noun alone is not bounded in its domain of instantiation. In this it resembles a replicate mass. But while replicate masses are constituted of discrete individuals, each with its own bounding, homogeneous masses are constituted of smaller parts of homogeneous mass without any individuation. They are conceptualized as internally uniform. For instance, the mass noun *water* designates some indefinite-sized mass of the type *water*. Any part of this conceptualized mass is also a homogeneous mass of the same type: *water*. (Of course, in reality there are limits. The water in a tiny drop is still a natural referent when one uses the mass noun. But when one gets down to the H_2O molecule, the use of a singular count expression is more appropriate: *water molecule*. The point is that a mass noun designates a homogeneous mass, which means that it is used to talk about objects that for the purposes of communication are treated as not constituted of discrete individuals. For discussion, cf. Svensson (1998).) Figure 3.3 shows how the semantic structure of mass nouns will be represented. A bold-type circle (the profile) around the label "HM" (short for "homogeneous mass") is connected by a relation arrow labelled "arb. part" (short for "arbitrary part") to a normal-type circle that encloses a label which states what type of homogeneous mass it is. In my representations, schematic replicate mass will be related to an arbitrary part with the label "mass".

In cognitive grammar, homogeneous (or non-replicate) masses are usually represented in a way that is parallel to the representation of replicate masses referred to above, except that there is no repetition of identical symbols (cf. Langacker 1991b: 78). The format employed in the present work is parallel to the alternative representation of replicate masses discussed above. A homogeneous mass is exhaustively constituted of non-discrete smaller parts of homogeneous mass of a certain type. One can pick out an arbitrary part of the mass, and regardless of which part is chosen, it will be of the same type. (Note that there is no inherent partition of the mass; the arbitrary part is created, so to speak, by picking it out. An important

kind of picking-out (from both homogeneous and replicate masses) is found, as we shall see in later chapters, in connection with quantifying nouns, which individuate submasses of whole masses.) I regard the relation between a homogeneous mass and its parts, too, as an example of the trajector–landmark asymmetry: The whole mass is a trajector, and its parts are landmarks. Here, too, only one landmark needs to be represented. (It would not be possible to represent them all, since their number is infinite.)

Since plural count nouns and singular mass nouns have different grammatical numbers, they are used with different forms of adjectives and the like in languages with agreement; this is relevant for Norwegian (cf. section 3.3). What is more important is that plural nouns can be used with numerals, while mass nouns cannot (unless they are reclassified (cf. Svensson 1998), in which case they are no longer mass nouns): *four cats*, **four water*. But the similarities between plural nouns and mass nouns are more significant than the differences, at least in the context of pseudopartitives. Both categories may be used with many types of quantifying expressions; cf. *two kilograms of apples*, *two kilograms of flour*. Both replicate masses and homogeneous masses are expansible (cf. above). Homogeneous masses are contractible to a larger extent than are replicate masses (cf. above). Homogeneous masses are uncountable, which is why mass nouns are not used with numerals. This property is sometimes called transnumerality (cf. e.g. Biermann 1982). But plural nouns are often used in a similar sense; cf. that both types are used with weight expressions like *two kilograms*. Although counting is possible, it may be irrelevant (cf. Link 1991: 418).

Nouns designate things, while most other words have relational profiles. However, although the profiles of nouns are nominal, many nouns include relations in their semantic bases. Examples are kinship nouns like *mother*, which includes the notion of a child and the relation between the two, part nouns like *top*, which includes the notion of a whole of which the top is a part, and most importantly, quantifying nouns like *million* and *litre*, which include the notion of a quantified mass. The semantic structure of quantifying nouns is introduced in section 4.2.4, which discusses the meaning of multiplicative numeral structures that involve nouns like *million*.

3.2 The functional organization of nominals

The standard approach of cognitive grammar to the structure of noun phrases can be found in Langacker (1991b: ch. 1–4). It is common to use the term *nominal* instead of

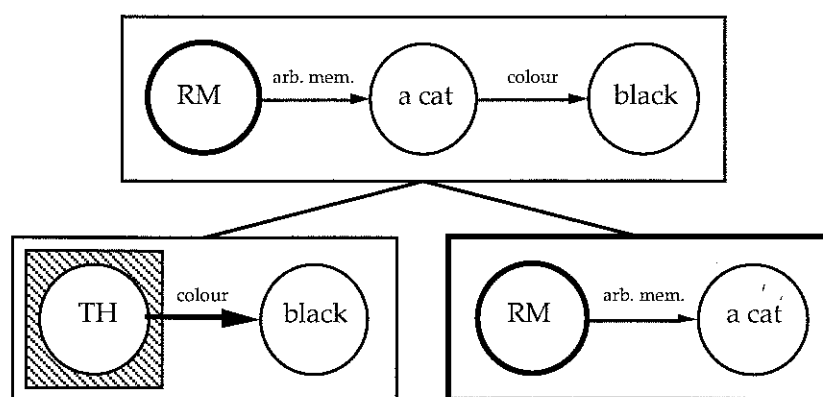


Figure 3.4. The semantic composition of a modified nominal, *black cats*

noun phrase, a usage that I shall adopt. The class of nominals also includes pronouns, nominalized adjectives, etc. Since most postnominal constituents of nominals are of little relevance to the issues of the present work, they have been left out of the following presentation. Prepositional phrases are of course important, but their analysis is postponed to chapter 7.

The noun itself specifies a type. For example, the noun *cats* says that we are dealing with a replicate mass of individuals of the type *cat*. The type may be modified by means of an adjective. For example, *black cats* says that the individuals in the replicate mass are of the type *black cat*.

A nominal with a noun and one or more adjectives, but without quantifiers and determiners, will be called a modified nominal, abbreviated “mNom”. The treatment of adjectives is adopted from Langacker (1987: 216–217) with only slight representational modifications and will not be discussed in detail here. Adjectives are analyzed as relational expressions, designating the relation between individuals or masses and some region in a conceptual domain, for instance a colour. The semantic composition of a modified nominal, *black cats*, is shown in figure 3.4. The trajector of the adjective corresponds to and is elaborated by the individuals in the replicate mass profiled by the noun. The noun is the profile determinant and head of the construction. (Recall that the generalizations (“rules”) with respect to the compositional properties of the construction would be attributed to a constructional schema, which is an abstraction over specific expressions.)

Types are distinguished from instances. In Langacker (1991b), an instance, but not a type, is analyzed as occupying a location in the domain of instantiation. For physical objects like cats, the domain of instantiation is three-dimensional space. While the type *cat* occupies no physical space, instances of cats do.

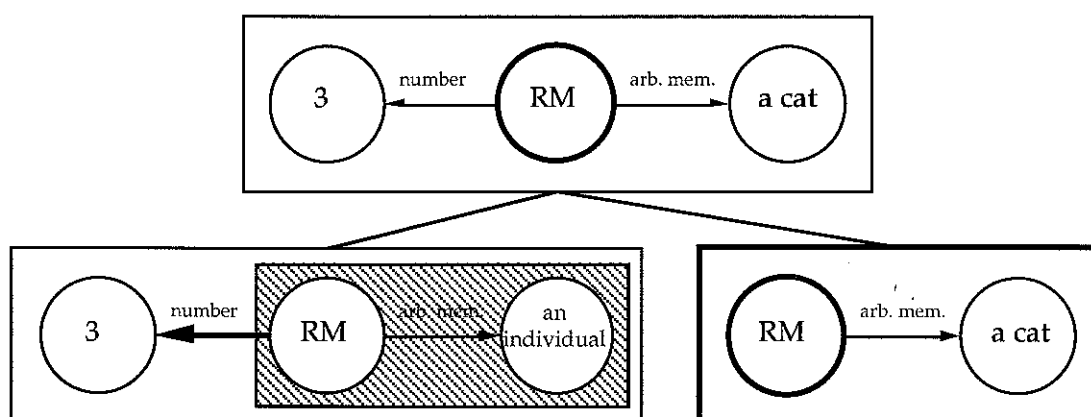


Figure 3.5. The semantic composition of a quantified nominal, *three cats*

Quantification, as in *three cats*, presupposes that one is talking about instances rather than a type. That is, the nominals that are analyzed in this work all designate instances. Since the distinction between types and instances is not directly relevant to the matters discussed here, types are not shown separately from instances in my representational format. Note that instances are neutral between specific or non-specific readings; the distinction can be handled by means of the construct of mental spaces (cf. Langacker (1999: 46–48), Sweetser (1999), Fauconnier (1999) and references there to works by Gilles Fauconnier and by Mark Turner). Quantification can relate to any of a number of scales of measurement: cardinality, weight, length, etc. Langacker (1991b: 81–82) distinguishes between two main classes of quantifying expressions: absolute and relative quantifiers. Absolute quantifiers specify only the size of a mass; e.g., *three cats* says that the replicate mass of cats has the cardinality 3. Relative quantifiers have an additional grounding function (cf. below) in that they specify the size of a mass in relation to another mass – a reference mass; e.g., *most cats* says approximately that the replicate mass of cats is more than half the size of the mass of all cats or some contextually restricted mass of cats (two possible reference masses). No reference mass is involved in the meaning of absolute quantifiers. Only absolute quantifiers will be analyzed in this work.

A nominal with a noun and a quantifier (and possibly one or more adjectives), but without determiners, will be called a quantified nominal, abbreviated “qNom”. The indefinite article is assumed to be primarily a quantifier, not a determiner. Quantifiers are analyzed as relational expressions, designating the relation between a mass (sometimes an individual) and an abstract measure, for instance a number. The semantic composition of a quantified nominal, *three cats*, is shown in figure 3.5. The trajector of the numeral corresponds to and is elaborated by the meaning of the noun.

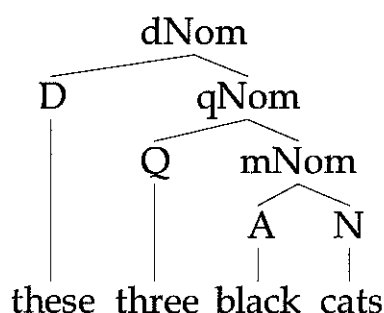


Figure 3.6. The functional layers of a nominal

The noun is the profile determinant and head of the construction. (This is discussed in section 4.3.2.) For a discussion of determiners as heads in cognitive linguistics, see Hewson (1991) and van Langendonck (1994).

Grounding, as in *these cats*, also presupposes that one is talking about instances, not a type. The ground is the speech event and its elements, notably speaker, hearer, time and place. Separate words that have to do with the grounding of things include determiners: definite articles, demonstratives, and possessives. (For a discussion of possessives as grounding expressions, see Langacker (1991b: 167ff). For an extensive cognitive-grammar analysis of possessives in English, see Taylor (1996).) The expression *these cats* says approximately that the replicate mass of cats can be identified on account of its being in the vicinity of the speaker. Definiteness will be treated in terms of relations between profiled things and speech event elements. Indefiniteness will simply be left unrepresented in my semantic structures; this would of course be inadequate if grounding were central, but it seems appropriate in the present context.

A nominal with a noun and a determiner (and possibly a quantifier and/or one or more adjectives) will be called a determined nominal, abbreviated "dNom". Since neither demonstratives nor possessives are central to the questions of the present work, I shall simply follow Langacker in assuming that possessives, like adjectives and quantifiers, profile relations (Langacker 1991b: 167ff, 1991a: 179, 1999: 179), while demonstratives (including the definite article) profile things (Langacker 1991b: 89ff, 147–148); the latter profile schematic things that correspond to the non-schematic things that the nouns profile.

The three functions of modification, quantification, and grounding are often reflected iconically in nominal structure. Modifying elements are typically closest to the noun, since they and the noun together specify the type of the nominal. Quantifying elements are typically "outside" modifiers, since they do not relate to

the type, but specify quantity. This is also related to the thing itself, however, and quantifiers are therefore semantically closer to the noun than determiners, which relate the thing to external entities. An English nominal like *these three black cats* illustrates the iconically structured layers of the nominal very well, as shown in figure 3.6. Of course, the full picture of English nominals does not everywhere fall into place equally neatly.

3.3 Norwegian nominals

In this section, I first give a brief sketch of the morphology of Norwegian nouns (section 3.3.1). The rest of the section presents the most relevant aspects of the syntax of Norwegian nominals. Indefinite nominals are discussed in section 3.3.2, while definite nominals are the subject of section 3.3.3. For more detailed discussions of Norwegian nominal structure, the reader is referred to Vannebo (1972), Lødrup (1989) and Faarlund et al. (1997).

3.3.1 Noun morphology

Norwegian nouns exhibit two inflectional categories: number and definiteness. (Some dialects still have a certain amount of case inflection, distinguishing a nominative and a dative case; cf. Sandøy (1985: 100).) Count nouns are inflected for singular and plural number; mass nouns normally have only singular forms. Both count and mass nouns are inflected for definiteness (indefinite and definite forms). A typical Norwegian count noun consequently has four forms: indefinite singular, definite singular, indefinite plural, and definite plural, while a typical mass noun has two forms: indefinite (singular) and definite (singular).

Every Norwegian noun belongs to a gender category. Nynorsk and most versions of spoken Norwegian have preserved the old three-gender system with masculine, feminine, and neuter gender. In Bokmål it is possible to use a three-gender system or a system where masculine and feminine have been fused into a common gender. The two-gender system is also found in some spoken variants, for instance in the dialect of Bergen. Norwegian is thus in a middle position between conservative Nordic languages like Icelandic and Faroese, which have three genders, and innovative languages like (Standard) Danish and Swedish, which have two genders. For more details on gender in Norwegian, see Faarlund et al. (1997: 149–159).

NOMINALS

	Singular		Plural	
	Indefinite	Definite	Indefinite	Definite
Masculine <i>båt</i> "boat"	båt	båten	N: båtar B: båter	N: båtane B: båtene
Feminine <i>skål</i> "bowl"	skål	N: skåla B: skålen/skåla	skåler	skålene
Neuter <i>hus</i> "house"	hus	huset	hus	N: husa B: husene /husa

Table 3.1. Some typical Norwegian noun paradigms

Within the gender classes, and partly cutting across them, there are inflectional classes. For more information on the inflection of nouns in written Norwegian, see Faarlund (1988). Table 3.1 shows typical paradigms for count nouns.

3.3.2 Indefinite nominals

A typical indefinite nominal can have a quantifier, one or more adjectives, and a noun (in addition to various postnominal modifiers, which will not be discussed here), but no determiner (demonstrative or possessive). That is, they may be quantified nominals, but not determined nominals. Examples are given in (1)–(3).

- (1) ein gul båt
N a-M yellow-M/F boat(M)
'a yellow boat'
- (2) eit gult hus
N a-N yellow-N house(N)
'a yellow house'
- (3) tre gule båtar
N three yellow-PL boat-PL
'three yellow boats'

The numeral or indefinite article *ein* 'one' agrees in gender (and definiteness, cf. below) with the head noun; some other quantifiers also exhibit agreement inflection, but *ein* is the only numeral that does (cf. section 4.1.1). The adjective agrees in number with the head noun, and in the singular it also agrees in gender (and

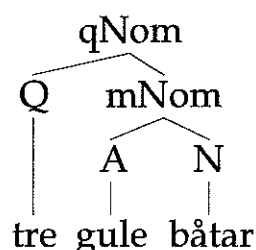


Figure 3.7. A quantified nominal, *tre gule båtar* 'three yellow boats'

definiteness). (Some dialects also differentiate genders in plural agreement.) The typical pattern in indefinite nominals is that the masculine and the feminine (singular) have no suffix, while the neuter (singular) and the plural (all genders) end in *-t* and *-e*, respectively. (Indefiniteness is not expressed directly in my glosses. If a word which may be inflected for definiteness does not have a gloss that includes "DEF", it is indefinite.) With singular count nouns, *ein* is close to obligatory, while there is no requirement for a quantifier with plural nouns or singular mass nouns.

It is common in cognitive grammar to assume that adjectives are subordinate constituents of the nominal, and I adopt that assumption here. It is also common to regard quantifiers as subordinate; this will also be my approach. I discuss the status of numeral quantifiers in section 4.3.2. The constituent structure of a quantified nominal will be represented as in figure 3.7.

3.3.3 Definite nominals

In addition to the constituents found in indefinite nominals, definite nominals can have one or two determiners. For Norwegian, I shall distinguish between three kinds of definite nominals: possessive-definite nominals, singly definite nominals, and doubly definite nominals. In possessive-definite and singly definite nominals, the noun itself is indefinite, while in doubly definite nominals it is definite.

Some determiners agree for number and gender with the head noun, and adjectives are in the definite form ending in *-e*. (Some dialects have more than one definiteness ending depending on number and gender.) The numeral *ein* 'one' (which is rather infrequent in definite nominals) also has the definite ending *-e*; it is the only numeral with definiteness inflection.

Like Langacker (1991b: 147–148), I assume that demonstratives have nominal profiles. This means that the demonstrative and the noun profile the same entity and are both profile determinants. Since the noun is the primary information-bearing

unit, it is the head. Possessives, on the other hand, are assumed to have relational profiles, like quantifiers and adjectives. Thus, they are modifiers.

Whenever there is a prenominal possessive constituent, the noun has to be indefinite. This type of definite nominals will be referred to as possessive-definite nominals (my term) and is illustrated in (4)–(6).

- (4) min eine gule båt/*båten
 N my-M one-DEF yellow-DEF boat(M)/boat(M)-DEF
 'my one yellow boat'
- (5) mitt eine gule hus/*huset
 N my-N one-DEF yellow-DEF house(N)/house(N)-DEF
 'my one yellow house'
- (6) mine tre gule båtar/*båtane
 N my-PL three yellow-PL boat-PL/boat-PL&DEF
 'my three yellow boats'

(The possessive determiner in (4)–(6) could be replaced with an *s*-genitive (e.g. *mannens* 'the man's' or a *sin*-genitive (e.g. *kvinna sin* 'the woman's'), the latter with agreement inflection of *sin* as in the determiner; cf. Torp (1973) and Kinn (1994: 28–47).) The syntactic structure of possessive-definite (and singly definite, cf. below) nominals is assumed to be as illustrated in figure 3.8.

A more intricate phenomenon is the distinction between single and double definiteness. In singly definite nominals, there is a demonstrative (normally the definite article), and the noun is indefinite. (There cannot be a postnominal possessive (cf. below) in such nominals.) Single definiteness is less used in Nynorsk than in Bokmål, where extensive use of it is typical of a conservative and formal style, but it is more widely used in certain contexts most of which I shall not go into here (but cf. Lundeby 1965, Dyvik 1979, Faarlund et al. 1997). One usage is relevant for the discussion in chapter 7, though: Single definiteness is common in Bokmål in nominals with a restrictive relative clause like the one illustrated in (7); the noun can also be definite (double definiteness, cf. below), and this is more common in Nynorsk.

- (7) de mange katter (/kattene) som er hjemløse
 B the-PL many-PL cat-PL (cat-PL&DEF) that be-PRES homeless-PL
 'the many cats that are homeless'

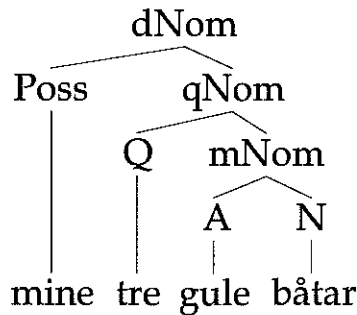


Figure 3.8. A possessive-definite nominal, *mine tre gule båtar* 'my three yellow boats'

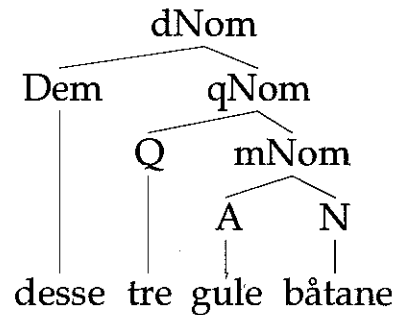


Figure 3.9. A doubly definite nominal, *desse tre gule båtane* 'these three yellow boats'

In doubly definite nominals, there is a demonstrative (which may be the definite article), and the noun is definite. Such nominals can have a postnominal possessive. Examples are given in (8)–(10).

- (8) denne eine gule båten min / *båt min
 N this-M/F one-DEF yellow-DEF boat(M)-DEF my-M / boat(M) my-M
 'this one yellow boat of mine'
- (9) dette eine gule huset mitt / *hus mitt
 N this-N one-DEF yellow-DEF house(N)-DEF my-N / house(N) my-N
 'this one yellow house of mine'
- (10) desse tre gule båtane mine / *båtar mine
 N this-PL three yellow-PL boat-PL&DEF my-PL / boat-PL my-PL
 'these three yellow boats of mine'

(The postnominal possessive can also be a prepositional phrase with *til* 'to' or *åt* 'to'; the possessive determiner in (8)–(10) can be replaced with for instance *til kvinna* or *åt kvinna* 'of the woman'.) A definite nominal can consist of just a definite noun or a definite noun followed by a possessive. But in order for there to be a quantifier or adjective, there normally has to be a preposed demonstrative. The syntactic structure of a doubly definite nominal is assumed to be as represented in figure 3.9. The syntactic position of postnominal possessives is a rather intricate question which I shall not discuss here. In addition, there is a sense in which not only what is here called dNom, but also the layers qNom and mNom are determined in doubly definite nominals, because of the definiteness of the noun. I shall not deal with that issue here, either.

4

Numerals

This chapter deals with Norwegian nominals with numeral quantifying expressions, that is, nominals like *tre kattar* 'three cats' and *tre millionar kattar* 'three million cats'. The sequence of numbers is infinite, while the inventory of morphemes with a numeral meaning must be finite. Most numbers must therefore be named with a numeral with more than one morpheme. As we shall see, the naming of numbers in Norwegian involves addition and multiplication, using coordination and pluralization and partly relying on metaphor.

The resulting complexity and variability of numeral expressions present the analyzing linguist with problems: Numerals are not one kind of expression, but variously involve quantifiers, nouns, coordination, compounding, etc.

In section 4.1, I provide a fairly theory-neutral sketch of the Norwegian numeral system. Section 4.2 presents cognitive-grammar analyses of simple numerals, numerals involving addition, and numerals making use of multiplication. Section 4.3 is devoted to the issue of how numerals are used in indefinite and definite nominals, while section 4.4 addresses some types of expressions where numerals are used outside the numeral system.

4.1 The numeral system

The numeral system of a language is the set of numeral expressions for positive integers which are used in counting and to modify a noun by specifying the cardinality of the replicate mass that the noun designates (or, in the limiting case of words for 1, the individual designated).

This definition is based on Greenberg (1978) and excludes various kinds of numeral expressions, like ordinals, negative numerals, fractions, etc. I also exclude from the discussion numerals used about the purely abstract mathematical entity, i.e. as the name of a number rather than as a quantifier (cf. Langacker 1991b: 85). I

further limit my treatment to numbers up to $10^{12} - 1$, assuming that most Norwegian language users know the meaning of *milliard* (10^9), but probably not of the next lexical item, *billion* (10^{12}).

For the general theory of numbers, numerals and numeral systems, the reader is referred to Menninger (1969), Hurford (1975, 1987), Stampe (1976), and Greenberg (1978). Olsson (1997) analyzes Swedish numerals and related words.

4.1.1 From 1 to 99

The Norwegian system for numbers up to 99 ($= 10^2 - 1$) is shown in table 4.2 and is explained in the following paragraphs.

The numeral for 1, *ein*, has gender and definiteness inflection, cf. table 4.1 and section 3.3. *Ein* is also used as the indefinite article. Traditionally, the stressed version has been called a numeral, while the indefinite article is unstressed. The two are to some extent kept distinct orthographically, as in the table. Examples (1)–(4) illustrate the use of *ein*; (1)–(3) show the gender inflection of indefinite forms, while (4) shows the definite form. The greater complexity of *ein* is typical of words meaning 1. It is the least-marked numeral of all and hence can be expected to realize more morphosyntactic categories than the rest (cf. Croft 1990a).

- (1) Éin mann bar skulda for 60 døde i tysk fangenskap.
 N-BT one-M man(M) ...
 ‘One man carried the guilt for 60 dead in German captivity.’
- (2) Etter påske vil det ikkje vere ei einaste norskproduisert potet å oppdrive ...
 N-BT ... one-F single Norwegian-produced potato(F) ...
 ‘After Easter, there will not be a single potato produced in Norway to be had.’
- (3) Vi vil fremheve ett viktig fellestrekk ...
 B-BT ... one-N important common-feature(N)
 ‘We want to emphasize one important common feature.’

	masculine	feminine	neuter
indef. (unstressed)	ein en	ei	eit et
indef. (stressed)	éin én	éi	eitt ett
definite	eine ene		

Table 4.1. The inflection of *ein* ‘a, one’ (Nynorsk | Bokmål)

NUMERALS

(4) Disse menneskene møttes bare den ene gangen om året.

B-FK ... only that-M/F one-DEF time(M)-DEF ...

'These people met only that one time every year.'

Numbers from 2 to 10 are expressed with morphologically simple and uninflected quantifiers. Examples are given in (5) and (6), with an indefinite and a definite nominal, respectively.

(5) Kampene her varte i ni døgn.

B-BT ... nine day.and.night-(PL)

'The fights here lasted for nine days (and nights).'

(6) Måndag samlast ordførarane frå dei sju kommunane på Stord ...

N-BT ... the-PL seven municipality-PL&DEF ...

'On Monday, the council chairmen from the seven municipalities gather at Stord.'

The words for 11 and 12, *elleve* and *tolv*, are historically complex; *e-* corresponds to *ein* '1' and *to-* to *to* '2'. That is, they originally imply the additions '1 + 10' and '2 + 10'. (Cf. Ross and Berns 1992.) The similarity to *ein* and *to* (/e-/~ /ein/ and /to-/~ /tu:/) is synchronically recognizable, but far from evident. And the endings *-lleve* and *-lv* (phonologically, /l(e)ve/ and just /l/) are hardly recognized by the users of Norwegian as being related or having any meaning at all. I therefore take *elleve* and *tolv* to be morphologically unanalyzable. But since they are firmly integrated into a decimal system (rather than a duodecimal (12-based) system), it is natural to assume that they have the additive meanings referred to above. That is, they are portmanteau numerals in the sense of Greenberg (1978: 264).

Morphological complexity of the numeral stem enters the system with *tretten* '13'. Numbers from 13 to 19 are expressed with words whose first parts are etymologically the same as the numerals from 3 to 9, and whose second part is *-(t)ten*. Examples are given in (7) and (8), with an indefinite and a definite nominal, respectively.

(7) [G]uten fall og sklei femten meter ned langs fjellet.

N-BT ... fifteen metre-(PL) ...

'The boy slid and fell fifteen metres down the mountain.'

(8) De femten maleriene gjenspeiler kjærligheten til den hjemlige geografi ...

B-BT the-PL fifteen painting-PL&DEF ...

'The fifteen paintings reflect the love to the geography of home.'

	$n = x$	$n = x + 10$	$n = x \times 10$	$n = x + 50$ (new)	$n = x + 50$ (old)
$x = 1$	1: ein ¹	11: elleve	10: ti	51: femti-ein	51: ein-og-femti
$x = 2$	2: to	12: tolv	20: tjue ²	52: femti-to	52: to-og-femti
$x = 3$	3: tre ³	13: tre-tten	30: tre-tti ⁴	53: femti-tre	53: tre-og-femti
$x = 4$	4: fire	14: fjor-ten	40: før-ti ⁵	54: femti-fire	54: fire-og-femti
$x = 5$	5: fem	15: fem-ten	50: fem-ti	55: femti-fem	55: fem-og-femti
$x = 6$	6: seks	16: seks-ten	60: seks-ti	56: femti-seks	56: seks-og-femti
$x = 7$	7: sju ⁶	17: sy-tten	70: sy-tti	57: femti-sju	57: sju-og-femti
$x = 8$	8: åtte	18: at-ten	80: åt-ti	58: femti-åtte	58: åtte-og-femti
$x = 9$	9: ni	19: ni-tten	90: ni-tti	59: femti-ni	59: ni-og-femti

Table 4.2. Norwegian numerals for numbers from 1 to 99 (Nynorsk forms).

Hyphenation is added here to exhibit relevant morphological structure; it is not used in the orthography.

The relation of the first parts of these numerals to simple quantifiers is still recognizable. But for some of them there is a considerable allomorphic distance to the independent numeral, e.g. *fire* ~ *fjor-*. The morph *-(t)ten* has the meaning '10', which is recognizable more from the position of these numerals in the counting sequence than from formal similarity to the independent *ti* '10'. It is best considered a suppletive allomorph of *ti* (cf. Greenberg 1978: 263–264). We see, then, that these words are additive; *tretten* '13' is '3 + 10'.

Rather than treating two summands (or addends) as equals which together produce a sum, the numeral system distinguishes paradigmatically between an augend and an addend (cf. Greenberg 1978: 261–262). An augend is a value to which some other value is added, and an addend is a value which is added to some other value. In the case of *tretten*, 10 is the augend, 3 the addend. Evidence for this is that 10 is serialized (cf. Greenberg 1978: 265–266): The expressions for the numbers 13–19 are 3 + 10, 4 + 10, 5 + 10, etc., rather than 3 + 10, 3 + 11, 3 + 12 etc. 10 is a serialized

¹Bokmål: *en*, also in complex numerals. Cf. table 4.1.

²Conservative Bokmål: also *tyve* (not part of the official orthography).

³Conservative Nynorsk: also *tri* (uncommon).

⁴In the old counting system (cf. below) usually *tredve*.

⁵In the old counting system (cf. below) also *førr*.

⁶Conservative Bokmål: also *syv* (not part of the official orthography).

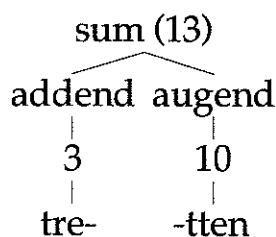


Figure 4.1. The arithmetical composition of *tretten* '13'

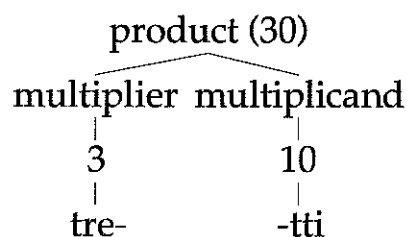


Figure 4.2. The arithmetical composition of *tretti* '30'

augend. Universally, augends have been found always to be larger than addends in additive numerals (Stampe 1976: 605–606, Greenberg 1978: 266). The arithmetical composition of *tretten* is illustrated in figure 4.1. Note that the order of the summands is smaller–before–larger.

The word for 20, *tjue*, is morphologically unanalyzable. Its history is debated and too complicated to be given here (but cf. Ross and Berns 1992). In the system, it can be regarded as a portmanteau expression with the meaning '2 × 10', since it is firmly positioned as a multiple of ten, between *ti* '10' itself and the larger multiples, which are overtly multiplicative (cf. below).

Numerals for multiples of 10 from 30 to 90 are morphologically complex. Their first parts are etymologically the same as the numerals from 3 to 9 and are recognizable as such. They exhibit about the same amount of allomorphy with respect to the independent numerals as do the words in *-(t)ten*. The second part is *-(t)ti*, which is formally the same as the independent *ti* and has the same meaning, '10'. Examples are given in (9) and (10), with an indefinite and a definite nominal, respectively.

(9) I dag er det vel førti tilsette på Ågotnes.

N-BT ... well forty employed-PL ...

'Today there are a little more than forty employees at Ågotnes.'

(10) Etter talene hadde de femti mennene kastet PH'ene sine på et bål ...

B-BG ... the-PL fifty man-PL&DEF ...

'After the speeches, the fifty men had thrown their "penis supporters" on a bonfire.' [*PH* is moulded on *BH*, 'bra'.]

These words have a multiplicative meaning; *tretti* '30' is '3 × 10', as illustrated in figure 4.2. Since 10 is serialized here, too (3 × 10, 4 × 10, 5 × 10, etc), we may conclude that it is the multiplicand (cf. Greenberg 1978: 269). The multiplier precedes the

multiplicand, which also means that the order is smaller–before–larger. Further, the multiplication is not formally overt; there is no morph meaning ‘times’ or the like.

The morph *-(t)ti* historically derives from a numeral noun, Old Norse *tigr* ‘ten’, whose nominative plural was *tigir*. For instance, 50 was *fimm tigr* (> *femti*), literally ‘five tens’. That is, these numeral quantifiers come from numeral nominals (cf. section 4.1.2).

In the variant *tredøve* ‘30’, which is used in the old counting system (cf. below), the first part, *tre-*, is recognizable as a variant of the independent *tre* ‘3’, and *-døve* can be seen as a suppletive allomorph of *ti* ‘10’. Thus, *tredøve* like *tretti* is ‘3 × 10’. Regarding the history of the *-døve* part, cf. Ross and Berns (1992).

Expressions for the numbers between the multiples of 10 exist in two variants, belonging to the new and the old counting system, respectively (cf. the far-right columns of table 4.2). In the new counting system, which is of the same type as in English, there are forms like *femtitre* ‘fifty-three’, that is, ‘(5 × 10) + 3’. In the old counting system, which is of the same type as in German, there are forms like *treogfemti* ‘three-and-fifty’, that is, ‘3 + (5 × 10)’. (It is possible that the numerals of the old counting system should rather be analysed as coordinate phrases (*tre og femti*), but they are usually written as one word. An argument in favour of a phrasal structure is the possibility of putting full stress on both numeral components: ‘*tre og femti*. The question is not important to the issues discussed in this work.) Examples with the new and the old counting system are given in (11)–(14), with both indefinite and definite nominals.

(11) Trettifem passasjerar var det i bussen.

N-SH thirty-five passenger-PL ...

‘Thirty-five passengers there were in the bus.’

(12) De trettito første årene av livet sitt brukte han til å rive seg i håret.

B-BT the-PL thirty-two first-PL year-PL&DEF ...

‘The thirty-two first years of his life he spent tearing his hair.’

(13) Det var minst einogtjue par.

N-HR ... at.least one-and-twenty couple-(PL)

‘It was at least twenty-one couples.’

(14) Dagen etter stod de toogtyve ungene oppstilt som de pleide ...

B-JG ... the-PL two-and-twenty kid-PL&DEF ...

‘The next day, the twenty-two kids had lined up as they used to.’

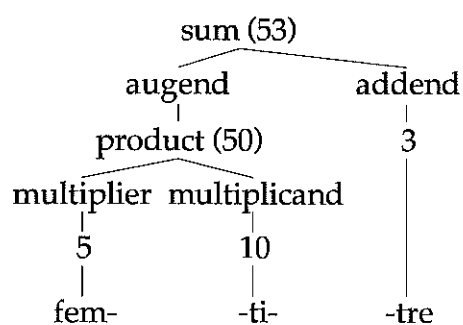


Figure 4.3. The arithmetical composition of *femtitre* '53' (new counting system)

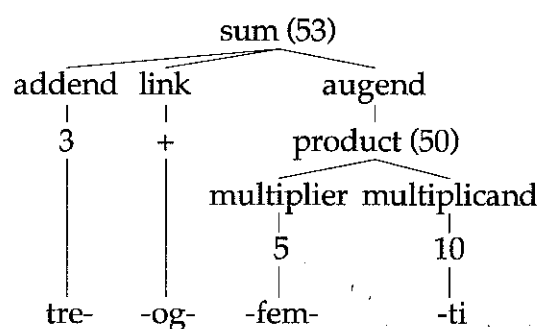


Figure 4.4. The arithmetical composition of *treogfemti* '53' (old counting system)

The two types differ in two ways: a) In the old counting system, there is a coordinative link showing the addition (*og* 'and'; cf. Greenberg 1978: 264); the new counting system has no such link. b) The new counting system has the order larger-before-smaller for the additive operation, while the old counting system has the order smaller-before-larger. The multiples of ten are augends. These alternative expressions are illustrated with tree structures in figures 4.3 and 4.4.

In both systems, the element *ein* '1' is invariable (*trettiein*, *einogtredve* '31'), and the complex numeral is used with a noun in the plural (cf. (13)).

In Old Norse, the numerals between the multiples of ten could have both orders: 21 was *tuttugu ok einn* or *einn ok tuttugu*. The order smaller-before-larger (= the old counting system) gradually came to be dominant, but the opposite order existed at least as late as around 1600 (cf. Iversen 1932: 43). The new counting system, with the tens before the units (and sometimes with the coordinative link *og* 'and'), is known to have been used in certain limited contexts since the second half of the nineteenth century. In 1951, it became the official system of counting. The decision was controversial, despite overwhelming support beforehand. Both systems are commonly used in spoken Norwegian today, and the usage is very complex. For details about the history and modern use of the systems, cf. Kvifte (1978) and Lauritsen (1995).

4.1.2 Beyond 99

When we reach 100 (10^2), syntactic constructions are introduced (given that the old counting numerals are single words). 10^2 is expressed with the numeral noun *hundre* 'hundred'. Other numeral nouns include *tusen* 'thousand' (10^3), *million* 'million' (10^6),

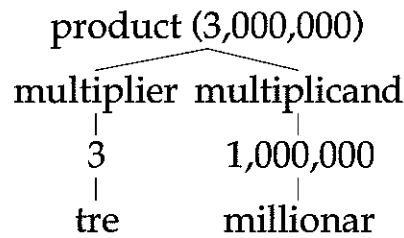


Figure 4.5. The arithmetical composition of *tre millionar* '3,000,000'

and *milliard* 'billion' (10^9). (All the numeral nouns are etymologically complex, but I shall treat them as synchronically unanalyzable.) Such nouns are used as multiplicands in multiplicative numerals, e.g. *tre millionar* '3,000,000', ' $3 \times 1,000,000$ ', as illustrated in figure 4.5. Examples are given in (15) and (16), with an indefinite and a definite nominal, respectively. Note that in the definite nominal, the numeral noun is indefinite,⁷ while the substance noun is definite.

(15) I 1924 skal organisasjonen ha hatt tre millionar medlemmer ...

N-BT ... three million-PL member-PL

'In 1924, the organization is said to have had three million members.'

(16) [Han] hadde ment å skyte [de seksti tusen kronene] inn i sildoljefabrikken.

B-FK ... the-PL sixty thousand-(PL) *krone*-PL&DEF ...

'He had meant to invest the sixty thousand *kroner* in the herring-oil factory.'

These numeral expressions are formally nominals; I shall call them numeral nominals (a kind of quantifying nominals). The evidence that numeral nouns are indeed nouns (and not quantifiers, like the other numerals) pertains to three kinds of properties: gender, morphology, and syntax. Numeral nouns have inherent gender, quantifiers do not. *Hundre* and *tusen* are neuter, while *million* and *milliard* are masculine, which is illustrated in (17) with the numeral for '1,001,001,100'. Note that the two first nouns are combined with the masculine form *ein*, the two last with the neuter form *eitt*.

(17) ein milliard ein million eitt tusen eitt hundre

N one-M billion(M) one-M million(M) one-N thousand(N) one-N hundred(N)

'1,001,001,100'

⁷The noun *tusen* hardly has any commonly used definite forms, but the point carries over to other numeral nouns that do have definite forms.

Numeral nouns further have an inflection that is characteristic of nouns; quantifiers exhibit adjectival agreement inflection (among the numerals, only *ein* exhibits any inflection at all). *Milliard* and *million* are inflected like other masculine nouns. *Tusen* and *hundre* have defective paradigms, however. This is shown in table 4.3. The suffix-less indefinite plural forms of *tusen* and *hundre* are used in the numeral system, while the forms with the plural suffix are used in phrases of the type *tusener av katter* 'thousands of cats' (cf. section 4.4.2); these forms are not normally used in Nynorsk.

Finally, numeral nouns exhibit some of the same syntactic properties as other nouns. In particular, they can be preceded by quantifiers; quantifiers themselves cannot. Compare, for instance *tre/fleire millionar* 'three/several million(s)' with *tre/fleire kattar* 'three/several cats'. However, *hundre* and *tusen* can only be combined with the stressed version of *ein*, and not the unstressed: *eitt/*eit hundre* 'one/a hundred', *eitt/*eit tusen* 'one/a thousand'; compare this to *eitt/eit hus* 'one/a house'. Instead, they are used without any quantifier, as just *hundre* 'a hundred' and *tusen* 'a thousand'. Note the difference here between Norwegian and English.

To continue the numeral sequence, one combines addition and multiplication in fairly intricate ways. Numeral nominals are combined with each other and with numerals for numbers below 100, beginning with the numeral nominal with the largest numeral noun, proceeding through numeral nominals with successively smaller numeral nouns and ending with a numeral for a number below 100. Each numeral noun (multiplicand) is preceded by a numeral (multiplier) which may itself be complex. The multiplicand slots and the ranges of the multipliers⁸ are shown in table 4.4; the last slot, of course, is an addend.

No part of these complex numerals has to be present, except, of course, that there has to be at least one of them to make a numeral. If, and only if, the numeral contains at least one numeral nominal and ends with a numeral for a number below 100, then the conjunction *og* 'and' is used in front of the latter numeral. Examples (18)–(21) illustrate this. Note that *og* is present in (18) and (20), but absent in (19) and (21).

(18) *Ifølge byingeniøren skulle det være tre hundre og to bygninger ...*

B-BL ... three hundred-(PL) and two building-PL

'According to the city engineer, there should be three hundred and two buildings.'

⁸*Hundre* is sometimes combined with numerals for the numbers from 11 to 19, e.g. *tretten hundre* '1300'. This will not be discussed any further in this dissertation.

sg. indef.	million	hundre
sg. def.	millionen	*? hundret
pl. indef.	millioner	hundre, hundrer
pl. def.	millionene	*?hundrene, *?hundra ⁹

Table 4.3. The inflection of numeral nouns (Bokmål forms)

multiplier	1-999	1-999	1-999	1-9	og	1-99
multiplicand	<i>milliardar</i>	<i>millionar</i>	<i>tusen</i>	<i>hundre</i>		

Table 4.4. Slots in the Norwegian numeral system (Nynorsk forms)

(19) [Lommeboka] inneholdt [fem tusen fem hundre] kroner i kontanter ...

B-BT ... five thousand-(PL) five hundred-(PL) *krone*-PL ...

'The wallet contained 5500 *kroner* in cash.'

(20) Hun gav ham de hundre og femti kronene ...

B-BJ ... the-PL hundred and fifty *krone*-PL&DEF

'She gave him the hundred and fifty *kroner*.'

(21) Og de [fire tusen fem hundre] kronene ... vil være dobbelt oppgjør ...

B-BT the-PL four thousand-(PL) five hundred-(PL) *krone*-PL&DEF ...

'And the 4500 *kroner* will be a double settlement.'

The construction with *og* indicates addition by means of coordination. When *og* is not present, addition is achieved by simple juxtaposition. Inside a numeral nominal, the multiplier precedes the multiplicand; the order is smaller-before-larger. But in the sequence of summands, the augends precede the addends; the order is larger-before-smaller.

When used alone in the slot for numbers below 100, *ein* '1' may be inflected for gender, in which case the numeral is used with a singular noun. Or it may have the invariable form *ein*, in which case the numeral is used with a plural noun. This is illustrated in examples (22) and (23).

⁹I have heard at least the definite plural of *tusen* (*tusenene*), but in general the definite forms are as good as non-existent, except in compounds like Bokmål *århundre* 'century', which has the inflection *århundre* - *århundret* - *århundrer* - *århundrene* / *århundra*.

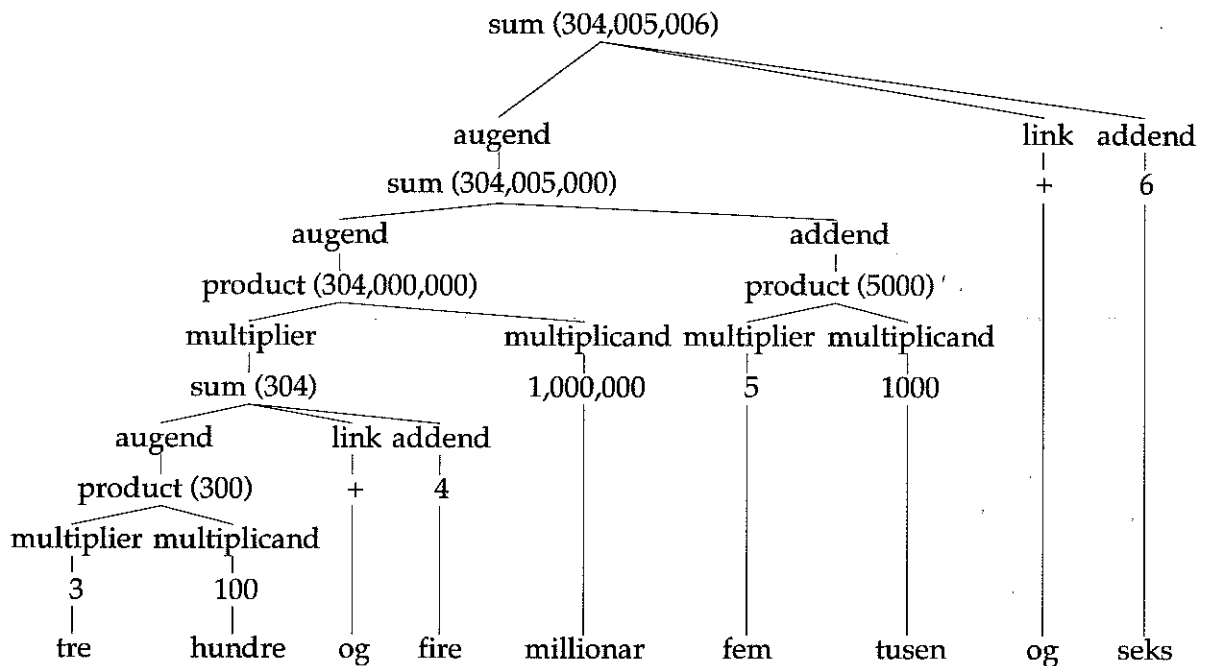


Figure 4.6. The arithmetical composition of a rather complex numeral

- (22) tre hundre og ei bok
 three hundred-(PL) and one-F book(F)
 '301 books'
- (23) tre hundre og ein bøker
 N three hundred-(PL) and one book-PL
 '301 books'

For more complete analyses of numeral systems, see Hurford (1975, 1987). The tree in figure 4.6 illustrates the calculations involved in the expression for 304,005,006, a numeral which is complex, but not extremely so. (The more zeros in writing, the fewer the calculations.)

4.1.3 Relations to the universals of numeral systems

The Norwegian situation with the two counting systems conforms with universals of numeral systems. The order of summands for 13–19 is smaller–before–larger, for 21–99 it is either smaller–before–larger (old counting system) or larger–before–smaller (new counting system), and for larger numbers it is larger–before–smaller. This concurs with the universals 26 and 27 of Greenberg (1978: 273): "If in a language, in

any sum the smaller addend precedes the larger, then the same order holds for all smaller numbers expressed by addition" and "If in a language, in any sum the larger addend precedes the smaller, then the same order holds for all larger numbers expressed by addition". Note in particular that this allows for a free variation interval in the middle, which is exactly the Norwegian situation with the old and the new counting system.

The use and non-use of the coordinative link *og* is also congruent with Greenberg's (1978: 277) universal 33: "When there is word order variation in addition between larger and smaller, and one order has an overt link and the other has not, it is always the order smaller + larger which has the link." This is in agreement with the Norwegian situation, except that (at least for the new counting system) we are not dealing with word order, but rather word-internal morph order. Greenberg interprets this universal as evidence that the order larger-before-smaller has primacy; the opposite order has a stronger tendency to make the additive relation explicit because the order is less natural and more in need of overt marking.

An interesting universal irregularity is illustrated in so-called 1-deletion (cf. Hurford 1987): 10 is expressed just as 10 (*ti*), not as 1×10 ; 100 is expressed as either just 100 (*hundre*) or 1×100 (*eitt hundre*) and the same goes for 1000; but 1,000,000 is always expressed as $1 \times 1,000,000$ (*ein/én million*) and the same goes for 1,000,000,000. This is in accordance with universal 35 of Greenberg (1978: 278): "If 1 is expressed as a multiplier with a particular base, it is expressed with all higher bases." For our purposes, the term *base* can be thought of as synonymous with *multiplicand*.

4.1.4 Concluding remarks

Although the Norwegian numeral system is complex (as indeed any developed numeral system has to be) and there is some amount of variation and irregularity, it is a relatively simple system compared to some other systems.

The Norwegian numeral system as a whole is structured around two characteristics. Firstly, it applies two mathematical operations: addition and multiplication. This is a quite common limitation in the world's languages. But some numeral systems make use of subtraction (cf. Latin *duodeviginti* '18', literally 'two-from-twenty'), division (cf. Danish), or an even more exotic operation like protraction. (About protraction, cf. Honti (1993: 55); Greenberg (1978: 258) calls the phenomenon the going-on operation, while Hurford (1975) calls it overcounting. See also Olsson (1997).)

Secondly, it is a decimal system. All multiplicands and augends are 10 or else have 10 as a factor. The limitation of multiplicands and augends to 10 and 10-based numbers is also quite common in the world's languages. But some languages employ other numeral values, especially 5 and 20 (cf. French *quatre-vingts* '80', literally 'four-twenties'). Of course, it is no coincidence that 5, 10 and 20 are so central to numeral systems: A hand has five fingers, a person has ten fingers, and twenty fingers and toes.

The internal structure of numerals will be analyzed further in section 4.2. But not only are the arithmetical aspects of the system simple; so is the syntactic integration in the nominal. Some languages have more than one construction for nominals with numerals; in particular, some numerals may be adjectival and subordinate to the noun, while others are nouns and take the substance nominal as a subordinate constituent (often with genitival or partitive marking). All Norwegian numerals belong to the subordinate type, although some are formally nominal. (Exceptions are found only when we leave the numeral system in the strict sense; cf. section 4.4.) The syntactic integration of numerals is discussed further in section 4.3.

4.2 The structure of numerals

In this section I analyze Norwegian numerals using the concepts of cognitive grammar. I start in section 4.2.1 with a brief discussion of the number concept and metaphors that are employed in the domain of arithmetic. Simple numeral quantifiers where no arithmetical operations are involved are then analyzed in section 4.2.2. Section 4.2.3 deals with additive numerals, and multiplicative numerals are the subject of section 4.2.4.

4.2.1 The number concept and metaphors for number

What is a number? This is not the place for a philosophical or mathematical discussion. It will be sufficient for my purposes to assume that a replicate mass has as one of its properties a cardinality, i.e. it is related to a specific number (which may or may not be known and made explicit by means of numerals). Individuals, of course, all have the number 1. Note that the application of a number presupposes a replicate mass or an individual, which are structures imposed on a perceived reality with many different possible ways of individuation and construction of individuals and replicate masses (cf. Hurford 1987). For instance, a certain time stretch may call for the use of the number 2 if one categorizes it as a replicate mass of weeks, while

the number 14 is appropriate if it is seen as days-and-nights. In other words, there is more than one way of categorizing something.

Lakoff and Núñez (1997: 34–38) show that we understand and talk about numbers in terms of (at least) three different metaphorical systems. In the first metaphor, arithmetic is object collection, and numbers are collections of physical objects. In the second, arithmetic is object construction, and numbers are physical objects. These two metaphors are seen as instances of a more general metaphor, where arithmetic is object manipulation. This system is illustrated by Lakoff and Núñez with sentences like *A trillion is a big number* – in the literal sense, size is a property of physical objects. Another example is *How many times does 2 go into 10?* – literally, only physical objects can go into other objects; 10 is here a collection of 2s (physical objects). In the third metaphor, arithmetic is motion, and numbers are locations on a path. This is illustrated by a sentence like *37 is far away from 189,712* – literally, only (physical objects at) locations can be far away from one another. And expressions for numeral approximations provide plenty of evidence of this metaphor: *Over/About/Close to three hundred people came to the party* (my example).

Langacker (1991b: 84ff) analyzes numbers as points on the counting scale. The counting scale is an abstract domain of quantity and is related to the act of counting. On this scale, the positive integers are points arranged in a fixed sequence. For any particular numeral relation, one specific point is the landmark, and the trajector is the mass designated by the noun. Starting with 1, each successive point (positive integer) is matched with an individual in the trajector mass, until all individuals are matched with a number. The numeral states what that number is; that is, it provides the cardinality of the replicate mass – gives us the result of an actual or presupposed counting of the mass. The individuals in the replicate mass are schematic, their type being provided by the noun that the numeral is combined with.

The domain of numbers is conceptually structured. The counting scale in Langacker's analysis is one of the structuring elements – a path where numbers are situated at a sequence of locations; cf. the arithmetics-is-motion metaphor of Lakoff and Núñez. An important difference between Langacker (1991b) and Lakoff and Núñez (1997) is that the former work deals primarily with numerals that are used with nouns, while the latter only deals with numerals in isolation, that is, referring to numbers as such. Hurford (1987) has argued convincingly that the latter use is built upon the former. The concept of '10', for instance, has emerged from uses where the numeral describes the cardinality of particular collections of things: ten men, ten cats, ten stones, etc. The meaning structure evidenced by the sentence *How many times does 2 go into 10*, then, is parasitic upon structures that could be expressed for instance as

follows: How many collections of two stones go into a collection of ten stones? That is, the arithmetic-is-object-manipulation metaphor is a conceptual transfer of structure from the actual things manipulated to their numerical values.

We shall see that Norwegian partly treats numbers as properties, i.e., non-metaphorically, but partly as objects, instances of the arithmetic-is-object-manipulation metaphor.

4.2.2 Simple numerals

Following Langacker (1991b), I assume that numerals profile a numeral relation – a relation between a schematic replicate mass (the trajector) and a number (the landmark). Langacker does not discuss complex numerals, but all Norwegian numerals will be analyzed in this way here, except the limiting case of *ein* ‘1’ (cf. below).

The semantic structure of simple numerals will be represented as illustrated for *tre* ‘3’ in figure 4.7. This is parallel to Langacker’s analysis, except that I do not represent the details of the domain of numbers; the number is a simple entity.

Ein ‘1’ is the only numeral quantifier that is used with singular nouns. Langacker writes (1991b: 84) that a “quantifier must [...] incorporate the conception of a mass (degenerate in the case of *one*)”. It appears from this formulation that he assumes that *one* and equivalent words in other languages are like higher numerals in involving a replicate mass as their trajector. This makes it necessary to posit a “degenerate” replicate mass with only one individual in it. I think this is an unnecessary

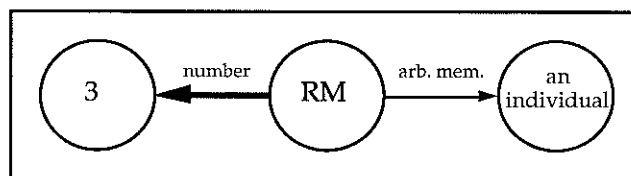


Figure 4.7. The semantic structure of the numeral *tre* ‘3’

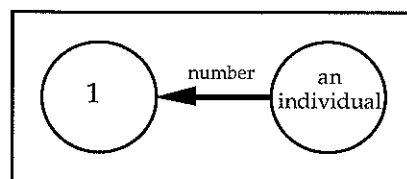


Figure 4.8. The semantic structure of the numeral *ein* ‘1’

complication. It is more natural to assume that the trajector is simply a schematic individual. This means that *ein* is different from other numerals with respect to the kind of trajector it incorporates, but we avoid the concept of a degenerate replicate mass. I shall assume that the concept of degenerate masses is not needed, at least not for my present purposes. Hurford (1987) takes a similar approach in his theory of collections. His collections are comparable to the replicate masses of cognitive grammar, and he assumes the following principle (Hurford 1987: 207): "Every collection has at least two members. There are no one-member collections." As he points out, this is at odds with classical set theory, where a distinction is drawn between an element and a unit set (a set with only one element member).

The meaning of *ein* '1' can then be represented as in figure 4.8. This is a somewhat redundant meaning, since it attributes little to the meaning of the trajector (designated by the noun). Indeed, the concept of an individual cannot be separated from the concept of the number 1 (cf. Hurford 1987: 139). The basic function of this numeral is to relate the trajector to the landmark number 1, which is a more useful piece of information when used in additive numerals.

4.2.3 Additive numerals

As we saw in section 4.1, addition enters into the Norwegian numeral system structurally in five ways:

- 1) in numerals in *-(t)ten*, e.g. *tretten* '13': 3 + 10
- 2) in numerals of the new counting system like *femtitre* '53': 50 + 3
- 3) in juxtapositional numerals like *tre tusen fem hundre* '3500': 3000 + 500
- 4) in numerals of the old counting system like *treogfemti* '53': 3 + 50
- 5) in coordinate numerals like *tre hundre og fem* '305': 300 + 5

(Addition is involved in *elleve* '11' and *tolv* '12', too (cf. section 4.1.1), but only at the semantic level.) Some of the types above involve morphological constructions (types 1, 2, and 4), while others involve syntactic constructions (types 3 and 5). More important to the analysis to follow, however, will be the presence or absence of the conjunction *og* 'and', a link which in the context of numerals explicitly marks addition. Coordination with *and*-like conjunctions and juxtaposition are among the principal universal strategies of coordination (in a wide sense); cf. Payne (1985: 25–29), and the analysis in this section builds upon the assumption that both kinds of additive numerals that are found in Norwegian are coordinate structures.

Additive numerals without *og* (types 1–3) will be called juxtapositional additive numerals (where juxtaposition is either adjacency of numeral nominals or

compounding) and are discussed in section 4.2.3.1. Additive numerals with *og* (types 4 and 5) will be called conjunctive additive numerals and are dealt with in section 4.2.3.2.

4.2.3.1 Juxtapositional additive numerals

The arithmetical operations involved in the three types of juxtapositional additive numerals are illustrated in figures 4.9–4.11, where the internal complexity of several summands is ignored.

I propose to analyze the meaning of juxtapositional additive numerals as illustrated for *tre tusen fem hundre* ‘3500’ in figure 4.12. This exemplifies the first type, with juxtaposed numeral nominals; the other types are quite parallel at the semantic level.

This numeral has two constituents, *tre tusen* ‘3000’ and *fem hundre* ‘500’. Their semantic structures are shown in the bottom boxes of the figure; the internal complexity of both has been left out. Both component structures profile a numeral relation holding between a trajector schematic replicate mass and a landmark number. The composite structure must have the same kind of profile, not identical with that of either component structure, but a separate one holding between a schematic replicate mass and the number 3500. All of these entities, three numeral relations and their trajectors and landmarks, are parts of the meaning of the additive numeral. In addition, there must be some relations holding them together.

Now, the trajector mass of *tre tusen fem hundre* ‘3500’ is the result of putting the trajector masses of *tre tusen* ‘3000’ and *fem hundre* ‘500’ together. That is, the former is the combination of the latter. (I discuss the concept of ‘combination’ below.) This is represented with the branched arrow (labelled “combination”) from the replicate

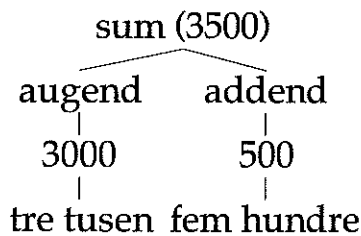


Figure 4.9. The additive operation in *tre tusen fem hundre* ‘3500’ (juxtaposed numeral nominals)

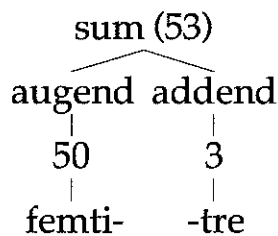


Figure 4.10. The additive operation in *femtitre* ‘53’ (new counting system)

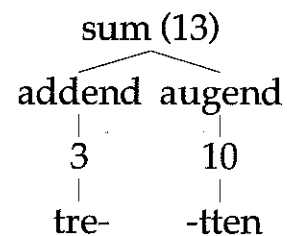


Figure 4.11. The additive operation in *tretten* ‘13’

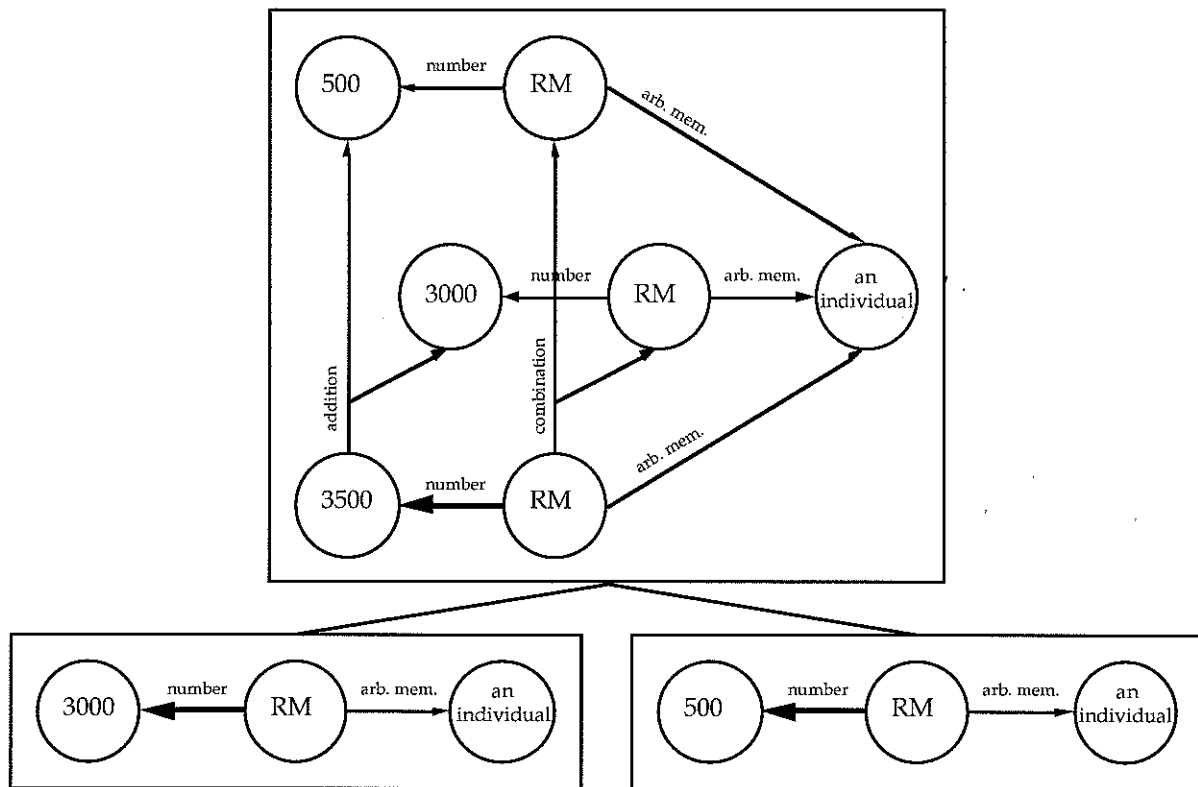


Figure 4.12. The semantic composition of *tre tusen fem hundre* '3500', a numeral with juxtaposed numeral nominals

mass of 3500 to the other replicate masses. Further, the landmark number of the composite structure is the result of adding the landmark numbers of the component structures: $3500 = 3000 + 500$. That is, the former is the sum of the latter. This is represented with the branched arrow (labelled "addition") from 3500 to the summand numbers. Addition must be considered to emergent property, parasitic upon combination: You find the cardinality of the new mass only when the mass has been constructed.

Note that combination and addition are regarded as ternary relations, both involving three participants. Note further that, as indicated by the direction of the arrows, there is an asymmetry in both, which I have interpreted in terms of a trajector-landmark asymmetry. The extension of a combination mass is understood on the basis of those of the combined entities; hence, the combination mass is the trajector, and the combined masses are landmarks. Similarly, a sum is calculated on the basis of summands; hence, the sum is the trajector, and the summands are landmarks. I assume that there is no further asymmetry between the landmarks; I return to this below.

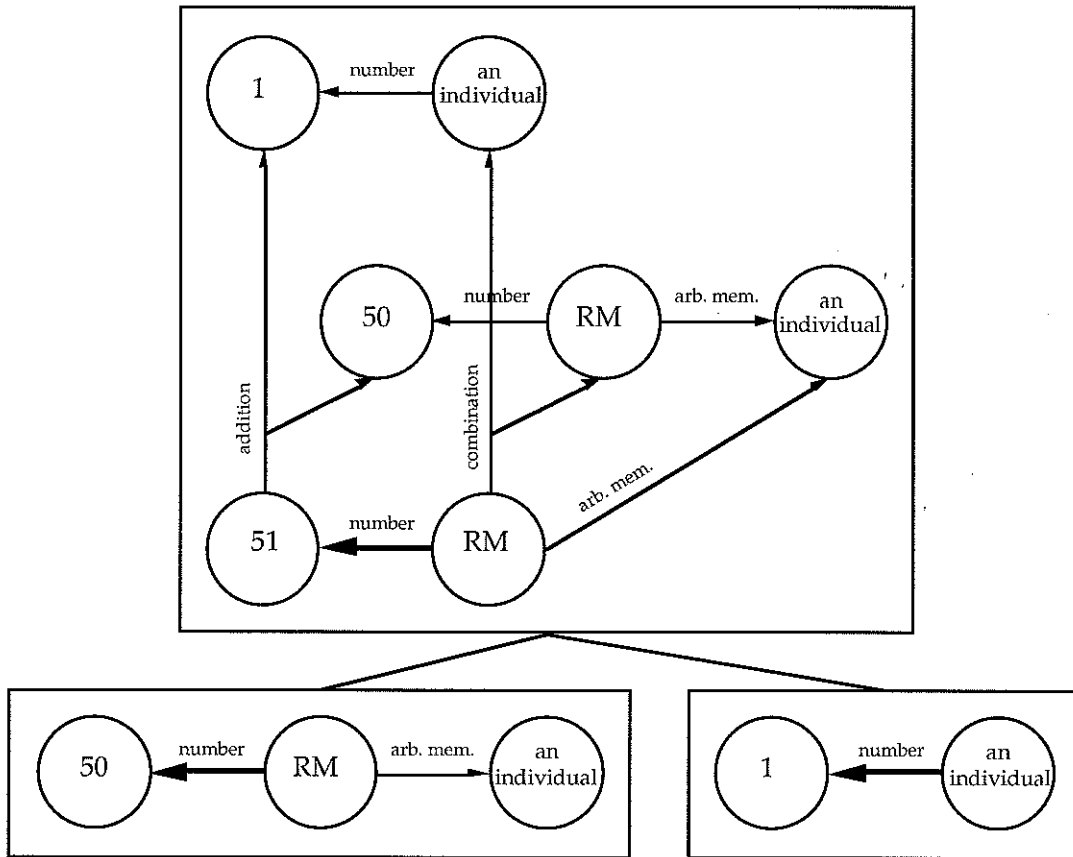


Figure 4.13. The semantic composition of *femtiein* '51', a numeral of the new counting system and with *ein* '1' as a component

The numeral in figure 4.12 is compositionally rather extraordinary. (For compositionality and the relation to constructional schemas, see section 2.1.1.3.) It is non-headed, since none of the component structures has the same profile as the composite structure. Further, there are no correspondences between the component structures, only correspondences between each component structure and the composite structure; hence, we cannot talk about modification or complementation, either. The combination of replicate masses is implicit and the addition of numbers emergent. All that resembles correspondence is that the replicate masses are of the same type; hence, it is sufficient to represent the arbitrary-member entity only once. (Of course, a member of one of the combined masses is not also a member of the other; this is just a convenient way to represent that the masses are of the same type.)

The concept of 'combination' (which resembles, but is not identical with, set-theoretic 'union') requires a comment. The trajector of this relation is a coordinate entity, which is the combined landmark entities conceived as a higher-order unit. The

character of the trajector depends on what the landmarks are. In the context of numerals, the landmarks are either two replicate masses or a replicate mass and an individual, while the trajector is a replicate mass. There is no overlap between the landmarks. The combination of a replicate mass and an individual is illustrated in figure 4.13, which represents the semantic composition of *femtiein* '51'.

I have analyzed the summands as co-equal landmarks of the additive relation. This may appear to contradict my analysis of the numeral system, where a distinction is made between augends and addends. But there is no contradiction. The distinction between augends and addends is primarily relevant in a paradigmatic analysis. The status of *-(t)ten*, for instance, as an augend is observable because of its serialization in the counting sequence: *tretten* (3 + 10), *fjorten* (4 + 10), *femten* (5 + 10), etc. But it is not explicit in individual numerals. There is no explicit mention of one number being added to another – apart from the necessity of one numeral preceding the other. There are, however, languages which make the distinction explicit. For instance, in traditional Welsh the preposition *ar* 'on' is used between an augend and an addend, as in *deg ar hugain* '30', literally 'ten on twenty' (Jones 1977). It will not be assumed, though, that the Norwegian conjunction *og* 'and' distinguishes between augends and addends. I turn to this issue in the next section.

4.2.3.2 Conjunctive additive numerals

The arithmetical operations involved in the two types of conjunctive additive numerals are illustrated in figures 4.14 and 4.15, where the internal complexity of some summands is ignored.

I propose to analyze the meaning of conjunctive additive numerals as illustrated for *tre hundre og fem* '305' in figure 4.16. This exemplifies the type with a numeral nominal and a quantifier, but numerals of the old counting system are quite parallel.

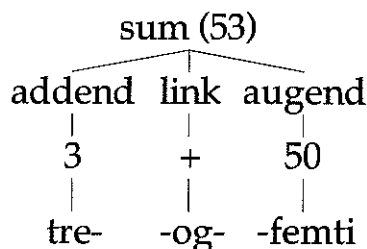


Figure 4.14. The additive operation in *treogfemti* '53' (old counting system)

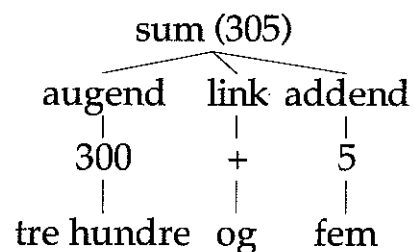


Figure 4.15. The additive operation in *tre hundre og fem* '305'

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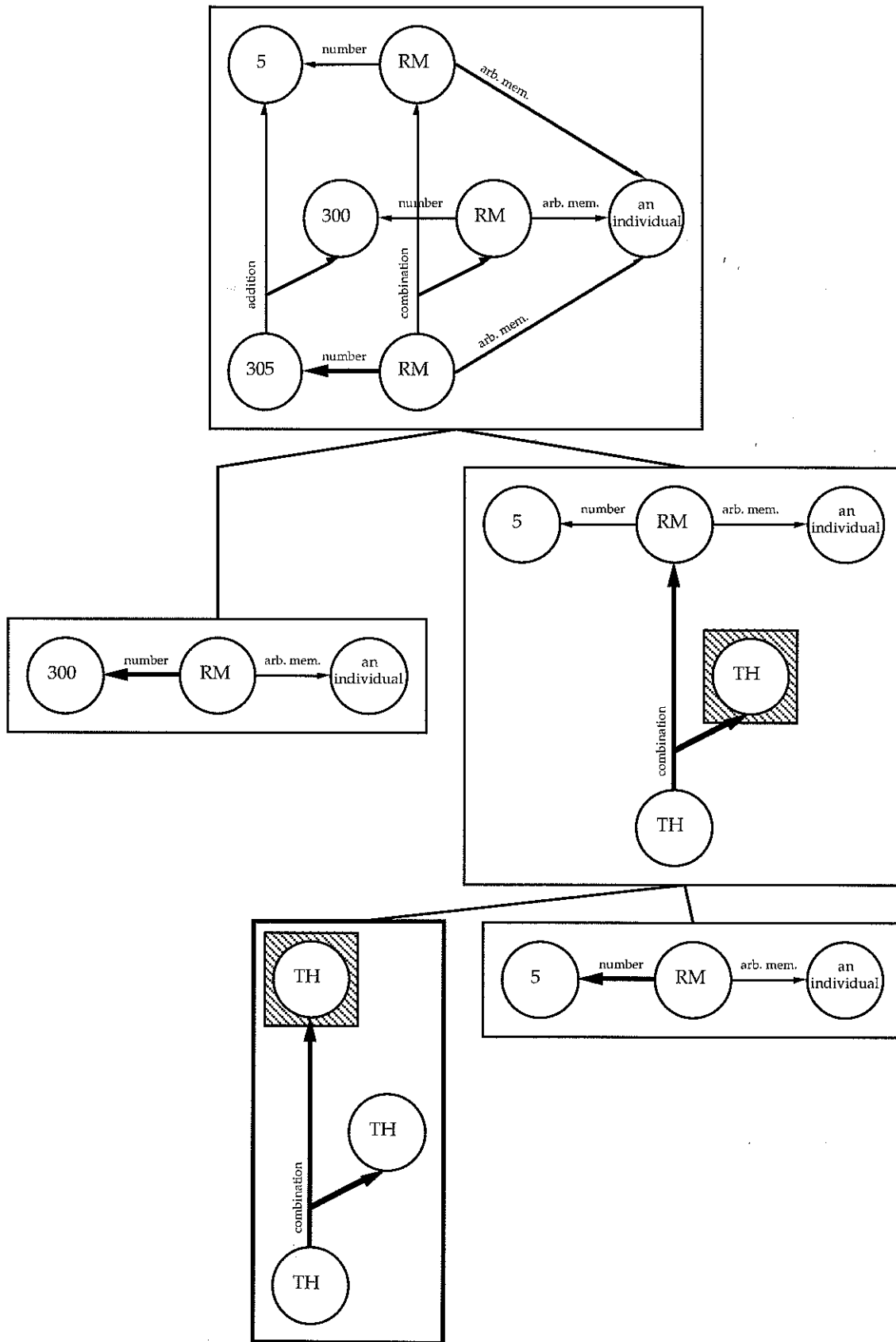


Figure 4.16. The semantic composition of the additive numeral *tre hundre og fem* '305'

The relations of addition and combination in the (top) composite structure are exactly the same as for juxtapositional additive numerals (cf. figure 4.12) and need no further explanation. The contribution of the conjunctive link *og* 'and', however, is a complex matter.

In my approach, *og* is analyzed as a relational element. An analysis of all its uses would probably show that it has several distinct, but related, senses. The sense that is relevant in the context of nominals is the relation of combination, which is implicit in juxtapositional additive numerals, cf. section 4.2.3.1. It is represented in the figure as profiling a ternary relation of combination, with a nominal trajector and two nominal landmarks (bottom left-hand box).

This is combined with the second conjunct, the summand *fem* (bottom right-hand box), which profiles a numeral relation. The trajector of the numeral relation corresponds to one of the landmarks of the combination relation. I assume that the resulting structure (middle right-hand box), too, profiles the combination relation, which means that the conjunction is the head of what we may call a conjunction phrase.

The conjunction phrase is combined with the first conjunct, the summand *tre hundre* (middle left-hand box), which profiles another numeral relation. The trajector of the numeral relation corresponds to the other landmark of the combination relation. The result is that a coordinate entity can be built, the trajector of the relation.

Given that there is no indication that the combined replicate masses are of different types, they can be taken to be of the same schematic type, and combination can build a third replicate mass of that same type. Since the cardinalities of the combined replicate masses are known, the cardinality of the constructed mass can be calculated, and a new numeral relation emerges. The composite structure profiles that relation. This profile is different from both component-structure profiles; hence, the construction of first conjunct and conjunction phrase is head-less.

A discussion of certain aspects of coordination is necessary at this point. (For a broader discussion, cf. van Oirsouw (1987).) Coordination has traditionally been seen as representing a deviation from typical phrase structure. A typical analysis has been as illustrated in figure 4.17 (cf. Fabb 1994, Faarlund et al. 1997). What this figure represents is that the conjunction (Co) coordinates two constituents of the same type in a larger constituent of that same type. There is no syntactic head, and the overall structure is of a different type than the conjunction. There is no asymmetry between the conjuncts.

In Chomskyan syntax, one has aimed since the 1970s at showing that all kinds of phrases fit into the X' schema. But for some time, coordination resisted being handled

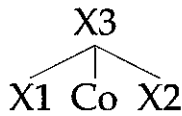


Figure 4.17.
Coordination as an
exocentric
construction

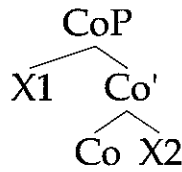


Figure 4.18.
Coordination as an
endocentric
construction

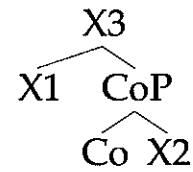


Figure 4.19.
Coordination as a
combined exo- and
endocentric
construction

in terms of X' theory; for instance, Jackendoff (1977) posits a special rule for coordination. In some of the later Chomskyan syntax, however, conjunction phrases (CoP) have been treated in the same way as other categories, with the first conjunct in specifier position and the second in complement position (cf. Johannessen 1993). This means that the structure is taken to be as shown (in a much simplified form) in figure 4.18.

Langacker (1991b: 472–484) has analyzed coordination in the framework of cognitive grammar. Langacker looks at many aspects of coordination with English *and*, including coordination of nominals and several domains which fall outside my present scope, but he does not discuss additive numerals. His approach is illustrated for the conjunctive nominal *John and Mary* in figure 4.20, using my representational format. Briefly, Langacker assumes that the profile of the conjunction is not a relation, but the two entities that the conjuncts profile (bottom left-hand box). These are profiled co-equally, with no trajector–landmark asymmetry. The profile parts are elaborated in turn, one of them at the inner level by the profile of the second conjunct (bottom right-hand box), and the other at the outer level by the profile of the first conjunct (middle left-hand box). Both of the composite structures, too, profile those two entities (middle right-hand box and top box). This means that the conjunction is the head at both levels of construction. Thus, Langacker's analysis resembles Johannessen's and can be illustrated with the same tree structure. Langacker acknowledges that coordination involves a third entity: the coordinate entity. He notes that this may be more or less salient, but he does not discuss it in connection with profiling or as a participant. I have not included it in the figure.

My proposal, with the constituent structure shown in figure 4.19, is markedly different from Langacker's. My analysis of *John and Mary* is shown in figure 4.21. The

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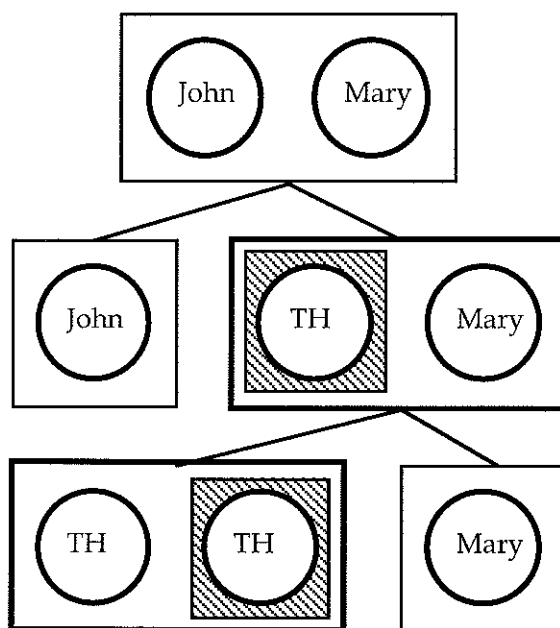


Figure 4.20. Langacker's (1991b) approach to coordination

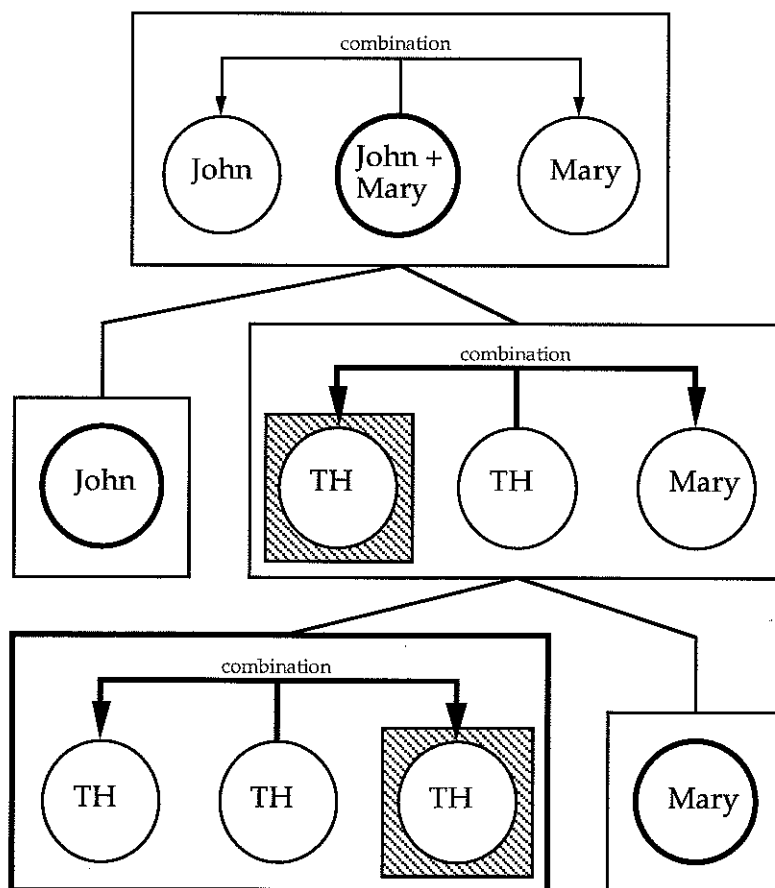


Figure 4.21. My approach to coordination

two analyses are different on two points: the status of the coordinate entity and the profile of the conjunction. I propose to incorporate the coordinate entity fully as a participant (in analogy with the sum of addition). This introduces a trajector-landmark asymmetry between the coordinate entity and the coordinated entities, but the coordinated entities are still co-equal. Further, I propose to regard the conjunction as relational, profiling the relation between the coordinate entity and the coordinated entities.

When the composite structure is assumed to profile the coordinate entity, as in my approach, an advantageous parallelism between coordination and pluralization is the result. This is not the case with Langacker's analysis. For the most part, he relates the relative salience of the coordinate entity and the individual coordinated entities to "the extent to which the entities profiled by conjuncts are conceived as being clearly differentiated and as participating individually in relationships with other clausal elements" (Langacker 1991b: 479). For instance, *Harry and Sally arrived in Chicago* can mean that Harry and Sally arrived together, that is, in one process, or it can mean that they arrived separately, that is, in two processes. Compare this to what he writes about plurals and replicate masses (Langacker 1987: 302):

The plural predicate [...] designates a replicate mass, i.e. one that consists of indefinitely many instances [...] of a particular nominal category. These discrete entities [...] taken individually [...] can be considered unprofiled (their profiling is only collective, and no single instance has any particular salience vis-à-vis the others).

This is remarkably different from his treatment of coordinate structures. Compare two pairs of English sentences. In (24) and (25), the subject is a plural, which is said to profile the replicate mass of girls, and not the individual girls. In (26) and (27), the subject is a coordinate nominal, which would presumably be said to profile the individual girls, and not the coordinate entity of them.

- (24) The girls are students.
- (25) The girls are a team.
- (26) Anne and Jill are students.
- (27) Anne and Jill are a team.

It is true that the individuals are more salient in coordination than in plurals, simply because they are mentioned individually. But both coordinate nominals and plural nominals can refer both collectively and distributively. Note that the predicates in (25) and (27) are not true of the individuals, only of the collective. It is part of the

nature of plurals that they can be used about the individuals in a replicate mass although they profile one entity, the mass. To me it seems most consistent to look at a coordinate nominal in an analogous way: It profiles one coordinate mass, but can be used distributively.

4.2.3.3 Some remarks about the history of additive numerals

Hurford (1987: 232–233) suggests that additive numerals have come about as a result of reanalysis. The origin is assumed to be a coordinate structure of two noun phrases, both containing a numeral, but the noun of the first being omitted (ellipsis), as illustrated in figure 4.22 (Hurford’s syntactic structure (with some node labels abbreviated) supplied by me with a Norwegian example, *hundre og tre kattar* ‘103 cats’). Since both of the numerals thus came to be adjacent to the conjunction and applied semantically to the same noun, they were reinterpreted as forming a coordinate numeral structure within a single noun phrase. This new structure is illustrated in figure 4.23.

One piece of evidence for Hurford’s suggestion comes from Old Norse, where the noun of the second conjunct could be omitted. This is illustrated in (28).

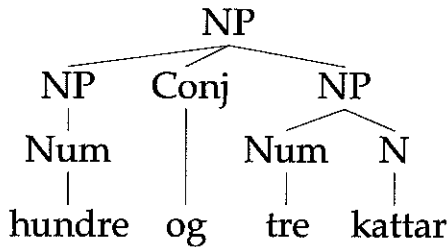


Figure 4.22. Coordinate additive numerals, before reanalysis (cf. Hurford 1987)

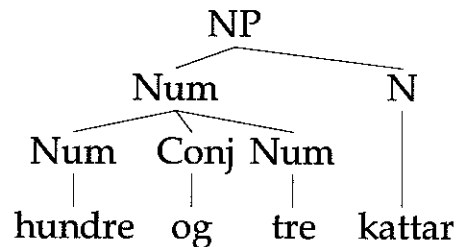


Figure 4.23. Coordinate additive numerals, after reanalysis (cf. Hurford 1987)

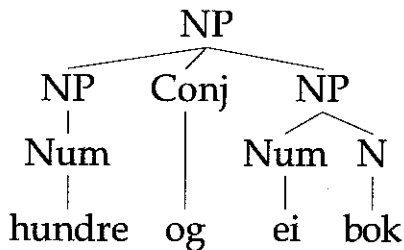


Figure 4.24. An example of the source structure

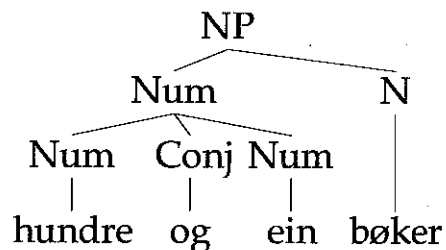


Figure 4.25. An example of the reanalyzed structure

- (28) þrír kattar ok tuttugu
 ○ three-M&NOM cat(M)-PL&NOM and twenty
 '23 cats'

Modern Norwegian provides another piece of evidence in favour of Hurford's analysis: There is variation between expressions like *hundre og ei bok* and *hundre og ein bøker*, both '101 books' (cf. section 4.1.2). In the first version, *ein* is inflected for gender in agreement with the noun, and the noun is in the singular. In the second (and more common) version, *ein* is invariably in the masculine (which may be seen as the uninflected form), and the noun is in the plural. These two can be taken to represent a source structure and a reanalyzed structure, respectively, as illustrated in figures 4.24 and 4.25.

In addition, the scenario where the coordination of numerals is historically derived from the coordination of nominals fits very well with my semantic analysis, where addition emerges from combination.

I suggest that the structure seen in juxtapositional numerals like *tre tusen fem hundre* '3500' has developed from a conjunctive structure. A prototypical Norwegian conjunctive structure with *og* has the pattern $X^* \text{ og } X$; that is, there may be as many conjuncts (Xs) as needed, and only the last conjunct is usually preceded by *og*. This pattern is the only possible one for numerals larger than 100 where the slot for 1–99 is filled. Further, the order of the conjuncts is fixed, which is not generally the case for coordination, but which follows from the preference for the order larger–before–smaller in addition. This is found also in other similar expressions; we say *fire kroner og femti øre* 'four kroner and fifty øre' rather than ??*femti øre og fire kroner*. These two combined tendencies (first, the use of the conjunction only before the last conjunct and, second, the order larger–before–smaller) probably gave rise to a situation where the conjunction was only used before the smallest conjunct, which means that it was most often used before numerals smaller than 100. And ultimately this tendency must have developed into the norm: The conjunction *og* is used only if the last conjunct is a numeral smaller than 100. This produced numerals where the last addend is not preceded by *og*, and where addition is only signalled by juxtaposition. This remains a speculation, however; I have not tried to find historical evidence that it is correct.

4.2.4 Multiplicative numerals

We saw in section 4.1 that Norwegian has two kinds of multiplicative numerals. First, there are the multiples of ten, most of which end in *-(t)ti*. For instance, *tretti* '30'

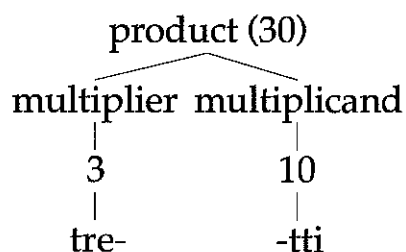


Figure 4.26. The multiplicative operation in *tretti* '30'

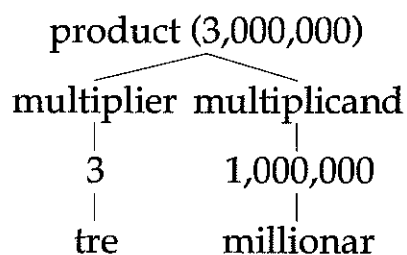


Figure 4.27. The multiplicative operation in *tre millioner* '3,000,000'

is 3×10 . Second, there are syntactic constructions involving the numeral nouns *hundre*, *tusen*, *million*, and *milliard*. For instance, *tre millioner* '3,000,000' is $3 \times 1,000,000$. These two types are illustrated in figures 4.26 and 4.27. While some additive numerals mark the additive relation explicitly with *og* 'and', there is no such expression for multiplication.

I analyze numeral quantifiers as designating a numeral relation, that is, a relation between a trajector replicate mass and a landmark number. Count nouns, however, are analyzed as designating individuals (singular nouns) or replicate masses (plural nouns). What do numeral nouns designate, then?

Numeral nouns are a class of quantifying nouns closely related to group nouns (cf. section 5.2); compare *ein million kattar* 'a million cats' and *ein flokk kattar* 'a flock of cats'. All quantifying nouns have in common that they make it possible to categorize masses as individuals – individuation. The individual profiled by a singular quantifying noun individuates the mass profiled by the substance nominal, and the individual members of a replicate mass profiled by a plural quantifying noun individuate submasses of the mass profiled by the substance nominal.

It is a defining characteristic of pseudopartitives that the quantifying nominal and the substance nominal designate entities referring to real-world objects that are coextensive. The entities designated are different conceptualizations of the same factual object. They are represented separately in semantic structures, since they are conceptually distinct; for instance, they have different cardinalities (or other measures).

Recall that the use of a numeral presupposes that one categorizes something as an individual or a replicate mass of a particular type – that one has imposed some structure on perceived reality. When we use a pseudopartitive, we impose two different structures on one object at the same time. The two features of individuation

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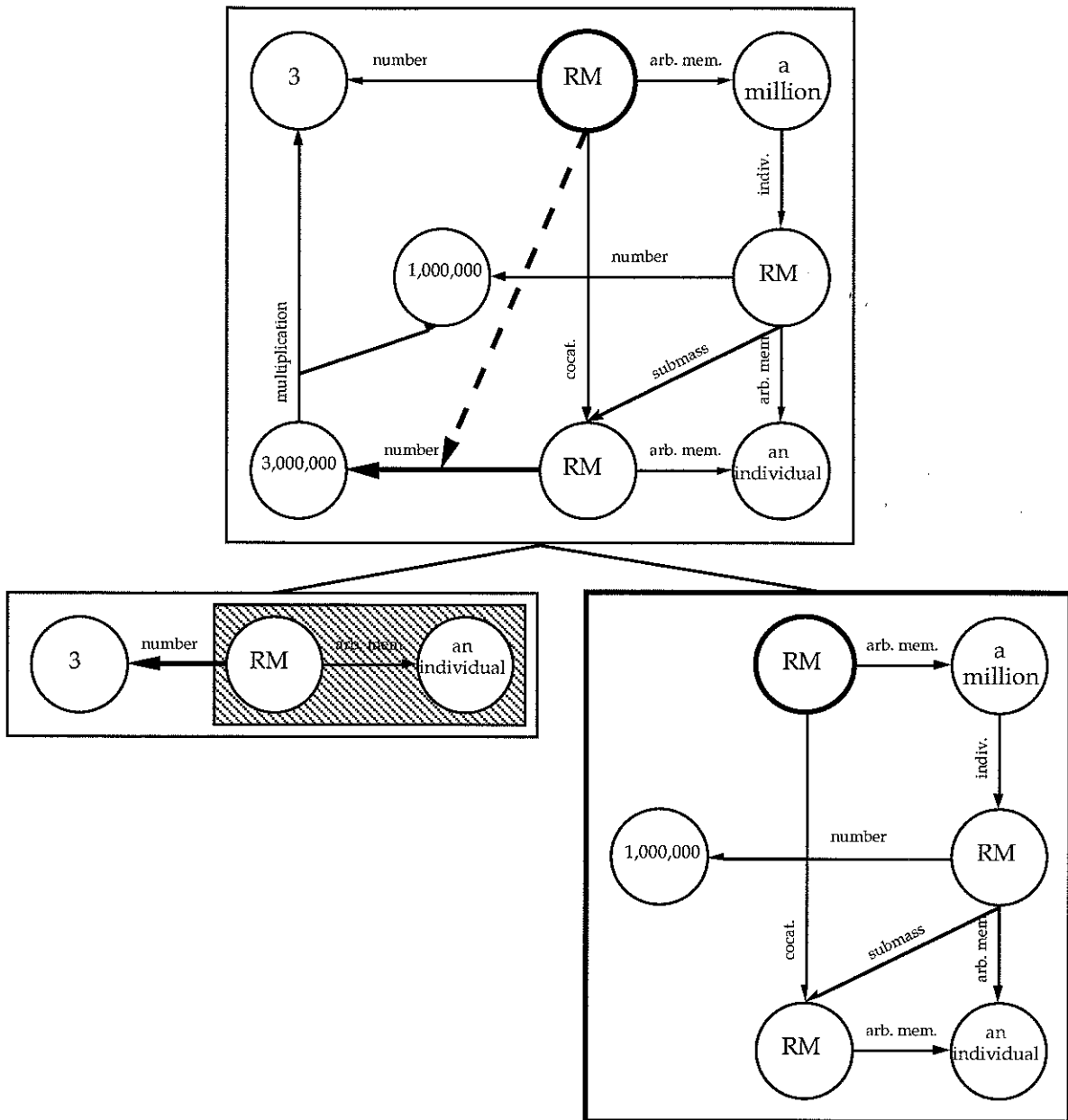


Figure 4.28. The semantic composition of the numeral nominal *tre millionar* 'three million(s)'

and cocategorization are the essential semantic properties that set quantifying nouns apart from typical nouns.

Consider the representations of plural *millionar* and singular *million* in the bottom right-hand boxes of figure 4.28 and 4.29, respectively. The plural noun profiles a replicate mass of millions. This kind of semantic entity will be called a quantifying mass; its members will be called quantifying individuals. The quantifying mass is

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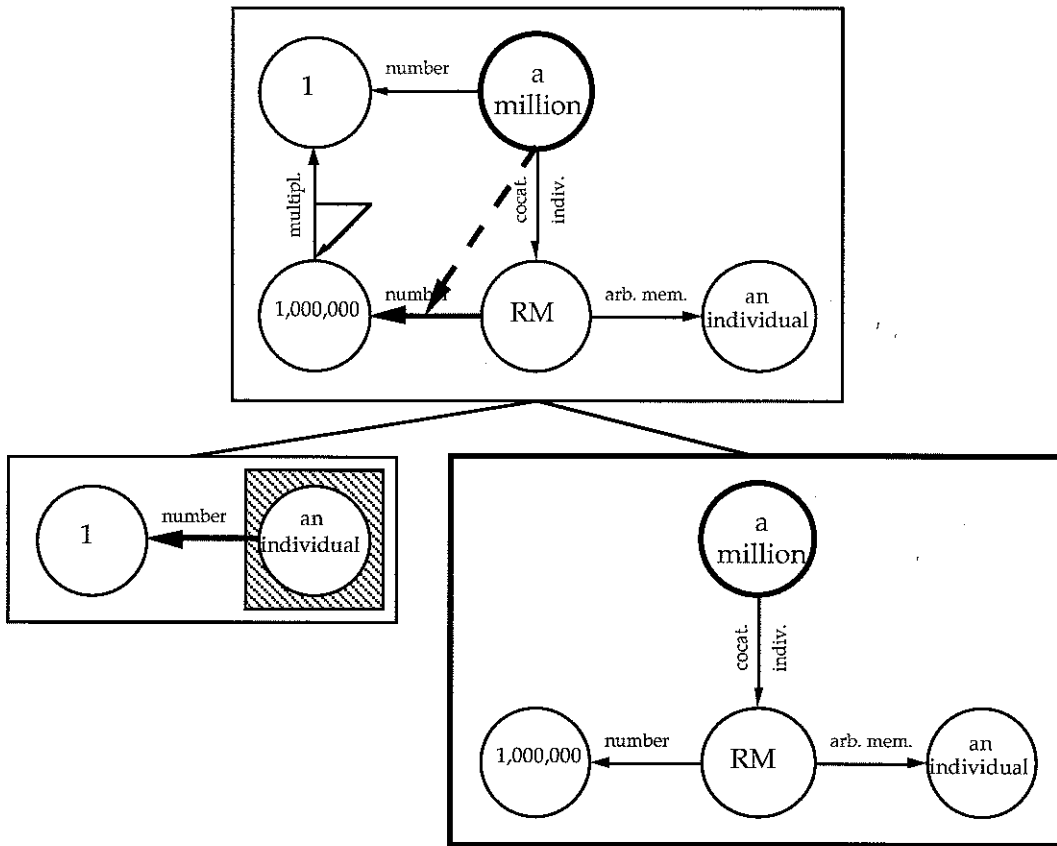


Figure 4.29. The semantic composition of the numeral nominal *ein million* 'one million'

related to a schematic replicate mass (of individuals of some type), to be elaborated by the substance nominal. A mass of the latter kind will be called a substance mass. The relation between the quantifying and the substance mass is one of cocategorization (cf. the label "cocat."); they categorize the same factual object in different ways. Each quantifying individual individuates a replicate mass. This kind of entity will be called an individuated mass. Only one individuated mass is represented, and this should, like the arbitrary member of a replicate mass, be thought of as an arbitrary representative of a number of identical entities. The relation between quantifying individuals and individuated masses is labelled "indiv.". The individuated masses are non-overlapping submasses of the substance mass; cf. the label "submass". Each of them has the cardinality 1,000,000. The substance mass has no additional parts beyond the individuated submasses; there is a complete partition (which is not part of the meaning of the substance nominal).

For instance, imagine that we are talking about three million cats. The referent of the quantifying mass (3 millions) is coextensive with that of the substance mass

(3,000,000 cats). Each quantifying individual (1 million) corresponds to an individuated mass (1,000,000 cats) that is a submass of the substance mass.

The singular noun profiles an individual million. This quantifying individual individuates ("indiv.") a schematic replicate mass (of individuals of some type), to be elaborated by the substance nominal. The cardinality of the individuated mass is 1,000,000. The label "cocat." has also been put on the relation between these two. The reason is that the individuated mass is also the substance mass; the two are the same in the case of singular quantifying nouns.

Now consider how numeral nominals are constructed. The nominal structure of the numeral noun is combined with the relational structure of the numeral quantifier. In the case of the plural *tre millionar* 'three million(s)' (cf. figure 4.28), the profiled replicate mass of the noun (the quantifying mass) corresponds to the schematic trajector replicate mass of the numeral. Since the quantifying mass now receives a number, a multiplicative relation emerges. The number of the individuated masses (1,000,000) is multiplied by the number of the quantifying mass (3), yielding the number of the substance mass (3,000,000). This last numeral relation is an emergent property of the construction. I assume that multiplication is parallel to addition in terms of trajector-landmark asymmetry: Just as addition is a relation between a trajector sum and two co-equal landmark summands, multiplication is a relation between a trajector product and two co-equal landmark numbers, the multiplier and the multiplicand.

In the case of the singular *ein million* 'one million' (cf. figure 4.29), the profiled individual of the noun (the quantifying individual) corresponds to the schematic trajector individual of the quantifier. This is a redundant elaboration, since an individual is given the number 1. This is also reflected in the emerging multiplicative relation: The number of the individuated mass (1,000,000) is multiplied by the number of the million (1) to give the number of the substance mass (1,000,000). The same number is both multiplicand and product because the individuated mass and the substance mass are one and the same entity.

Now we need to consider the question of the profiles of numeral nominals. In the figures, I have given the structures of the nouns a bold frame, indicating that the nouns are profile determinants, as is the normal situation in a nominal composed of a quantifier and a noun (cf. section 4.3). But that means that the singular numeral nominal will profile the quantifying individual, while the plural numeral nominal will profile the quantifying mass. These are both nominal profiles. But we need numeral nominals to be relational, profiling the relation between the substance mass and its number.

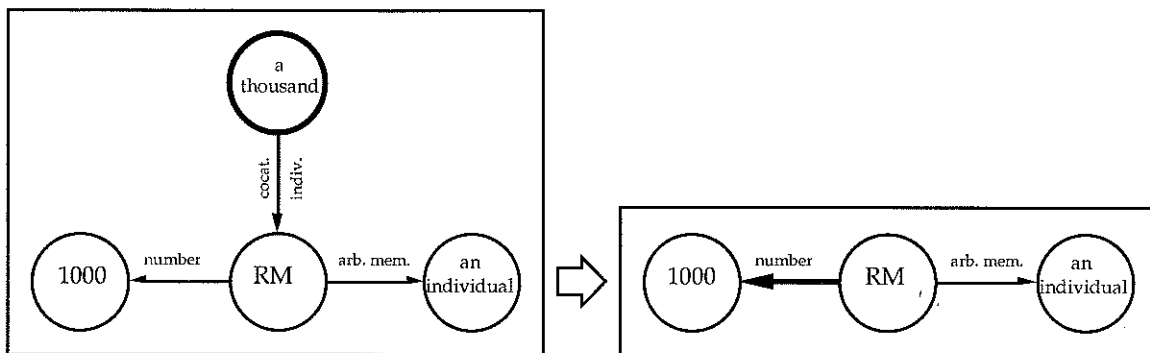


Figure 4.30. The development of a numeral quantifier from a singular numeral noun

I suggest that numeral nominals undergo a profile shift when they are used in a quantifier function (which they normally are, but cf. section 4.4). A numeral nominal like *tre millionar* 'three million(s)' does not usually profile a replicate mass of millions, as it would if it were a typical nominal. Rather, it profiles the numeral relation whose trajector is the substance mass; this is the kind of profile that characterizes quantifiers. The profile shift is indicated in the figures with a bold dashed-line arrow from the nominal profile to the relational profile. Given the new profile, none of the component structures are profile determinants; the profile-shifted construction is head-less.

Thus, numeral nominals are emergent quantifiers in my semantic analysis. This parallels the historical development of numeral nominals, which we shall look at more closely in section 7.4.5: Numeral nouns were originally heads of pseudopartitives, but have come to be part of subordinate numeral nominals with a quantifier function. Quantifiers for multiples of ten (e.g. *femti* '50') represent the most advanced stage in this development, but are otherwise semantically just like numeral nominals. The semantic structure of *-(t)ti* '-ty' is parallel to that of the plural *millionar* 'millions' in figure 4.28.

The numeral nouns *hundre* 'hundred' and *tusen* 'thousand' can be used without *ein* 'one' (1-deletion; cf. sections 4.1.2 and 4.1.3). I assume that this means that they have developed pure quantifier meanings in addition to nominal meanings. This is illustrated for *tusen* in figure 4.30.

4.2.5 Concluding remarks

A cardinality is a property of a replicate mass, and one-ness is a property of individuals. Simple numeral quantifiers are non-metaphorical expressions

designating such properties as relations between a mass (an individual) and a number.

Additive numerals involve coordination (or coordination-like compounding) of simpler numerals, with or without a conjunction, and appear to be derived from coordination of nominals. Consider the Old Norse expression from example (28), *þrír kattar ok tuttugu* '23 cats', literally '3 cats and 20 (cats)'. The structure suggests that the replicate mass of cats is made up of two other replicate masses. Coordination of nominals corresponds to the action of putting two objects together to make a larger object (cf. Hurford 1987: 237). If you know the size of the two former, you can calculate the size of the latter by addition. This is part of the basis of the metaphor that arithmetic is object construction (cf. Lakoff and Núñez 1997).

Multiplicative numerals are obviously derived from nominal pluralization and quantification (cf. Hurford 1987: 211). They are moulded in the pattern of prototypical nominals with a noun preceded by a quantifier (which is why multipliers precede multiplicands in Norwegian). In any combination of numeral and plural noun (*tre millionar, tre kattar*, etc.), the plural morpheme effects pluralization, and the numeral specifies the cardinality of the replicate mass. Consider the nominal *tre millionar kattar* 'three million cats'. The structure suggests that the replicate mass of cats is made up of three other entities. The construction of numeral nominals corresponds to the action of putting several equal-sized objects together to make a larger object. If you know the size and number of the former objects, you can calculate the size of the latter by multiplication. This is another part of the basis for the metaphor that arithmetic is object construction.

The nominal profiles of numeral nouns are themselves evidence of the metaphor that arithmetic is object collection. The individuation of a replicate mass on the basis of its cardinality involves a reification of the cardinality. The structure *ein million kattar* 'one million cats' suggests that a million is an individual, namely an individuation of a replicate mass. The property of cardinality is treated as an object. The metaphor that a number is an object is an instance of a more general metaphor with several more specific varieties: A quantity is an object. This is a metonymy-based metaphor; cf. section 5.4.

4.3 The external syntax of numerals

While section 4.2 focussed on the internal structure of numerals, this section deals with the integration of numerals into the larger context of nominals. In section 4.3.1, I present syntactic and semantic analyses of indefinite and definite nominals that

include a numeral. In section 4.3.2, I argue that numerals are subordinate constituents, not heads, of nominals.

4.3.1 Syntactic integration

Preliminary syntactic analyses of indefinite and definite nominals were sketched in section 3.3. In this section, I provide more detailed analyses of nominals containing a numeral. I first look at indefinite nominals with various numerals, and then I proceed to definite nominals.

The indefinite nominal *ein katt* 'a, one cat', with the numeral (or indefinite article) *ein* in front of a singular noun, is analyzed in figure 4.31. The numeral profiles the relation between a schematic individual (trajector) and the number 1 (landmark).

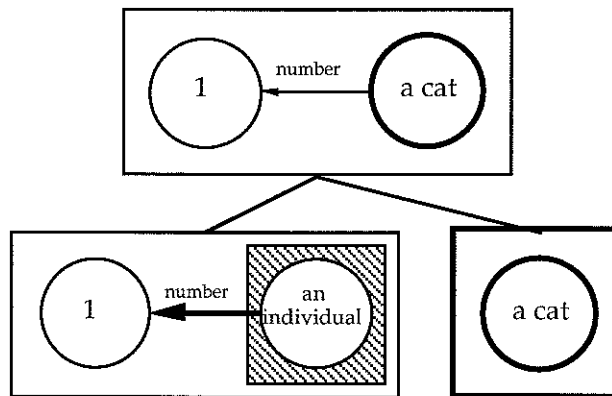


Figure 4.31. The semantic composition of a singular indefinite nominal with a numeral, *ein katt* 'a, one cat'

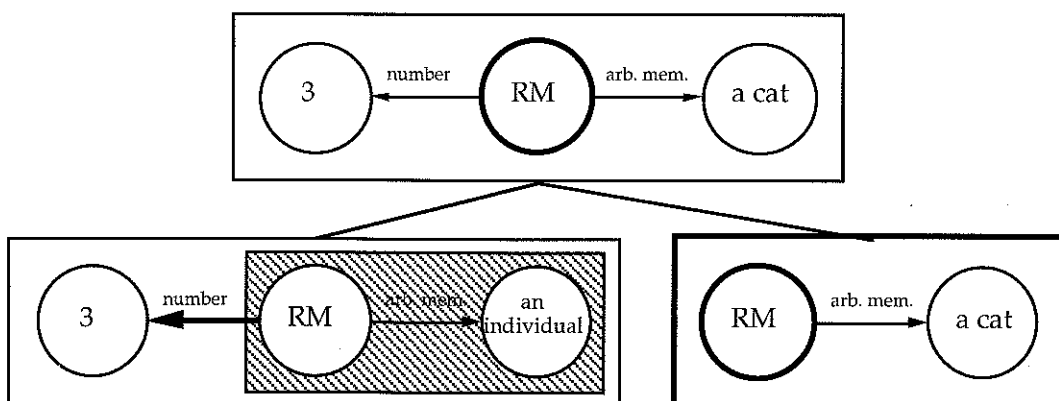


Figure 4.32. The semantic composition of a plural indefinite nominal with a simple numeral, *tre kattar* 'three cats'

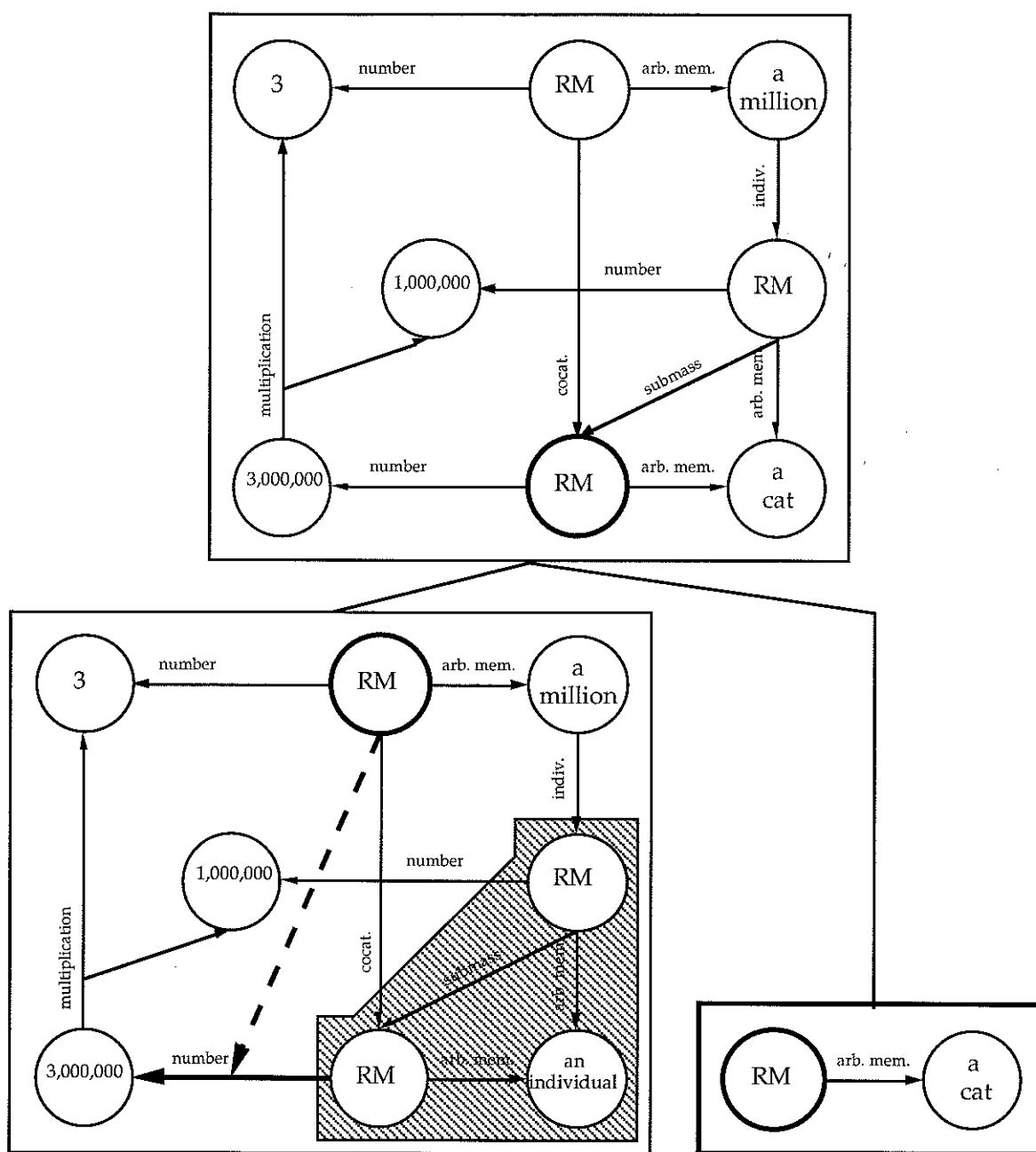


Figure 4.33. The semantic composition of a plural indefinite nominal with a multiplicative numeral, *tre millionar kattar* '3,000,000 cats'

The individual is elaborated by the profile of the singular noun. The composite structure profiles the same individual as the noun, with the additional redundant information that it has the number 1. Since the composite structure has the same

profile as that of the noun, the noun is the head of the construction. The structure of the numeral is elaborated by that of the noun; hence, the numeral is a modifier.

The analysis of plural nominals is only slightly more complex than the analysis of singulars. A representation of *tre kattar* 'three cats', with a simple numeral, is given in figure 4.32. In such a structure, the trajector replicate mass of the numeral is elaborated by the profiled replicate mass of the noun. In practice, this means that it is specified what kind of individuals it is whose number is provided. The profiling and head vs. modifier relations are the same as for singular nominals.

The structure of complex numerals can become rather elaborate. But the combination of a complex numeral and a plural noun is exactly parallel to what we have just seen for simple numerals. This is illustrated for the multiplicative numeral in *tre millionar kattar* 'three million cats' in figure 4.33.

The profile of the noun elaborates the mass whose numeral relation the numeral profiles; the semantic relations are exactly parallel to those of simpler constructions. The difference, of course, is that the profile of the nominal is part of a far more complex structure than in the case of simple numerals. An example of an additive numeral is given in figure 4.40.

The central syntactic aspect of this analysis is that complex numerals occupy the same slot within the quantified nominals as do simple numerals. It is not surprising that coordinate numerals may have the same function as simple numerals. What is more noteworthy is that expressions that are formally nominals appear in the quantifier position of larger nominals. That is, in addition to the "normal" structure in figure 4.34 we have the special structure in figure 4.36. As we have seen, numerals may become very complex, and all of that complexity goes into the quantifier slot of nominals. Slightly more complex, but still relatively simple, examples are given in figures 4.35 and 4.37. (I have labelled the nodes of the numeral nominals "qNom/Q" to emphasize their double character.)

Definite nominals with numerals, like possessive-definite *min eine katt* 'my one cat' and *mine tre kattar* 'my three cats', and doubly definite *den eine katten* 'the one cat' and *dei tre kattane* 'the three cats' were discussed in section 3.3.3. Regardless of the head or non-head status of the determiner, the numeral is a subordinate constituent. This is illustrated in figures 4.38 and 4.39.

Note that *ein* '1' has the definite form *eine* in definite nominals, while other numerals have the same form as in indefinite nominals. Specifically, numeral nominals have an indefinite noun, and complex numerals containing *ein* have it in the indefinite form.

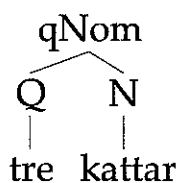


Figure 4.34. An indefinite nominal with a simple numeral quantifier

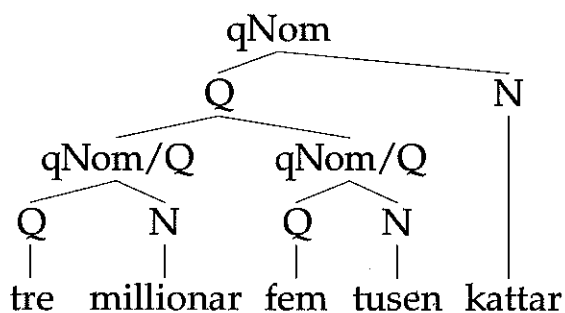


Figure 4.35. An indefinite nominal with a quantifier in the form of a juxtapositional additive numeral

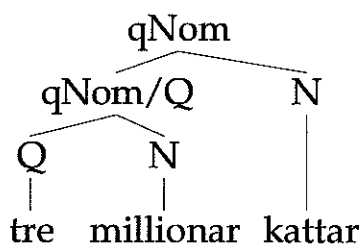


Figure 4.36. An indefinite nominal with a quantifier in the form of a numeral nominal

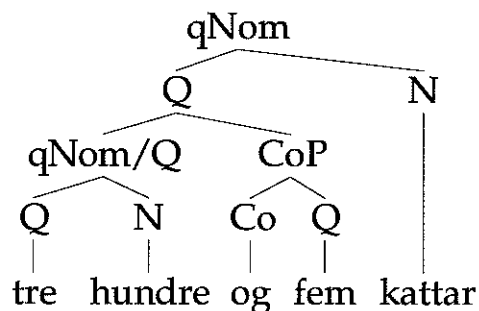


Figure 4.37. An indefinite nominal with a quantifier in the form of a conjunctive additive numeral

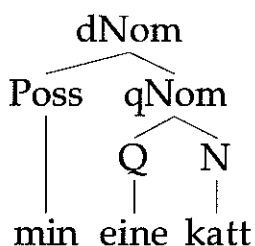


Figure 4.38. A possessive-definite nominal

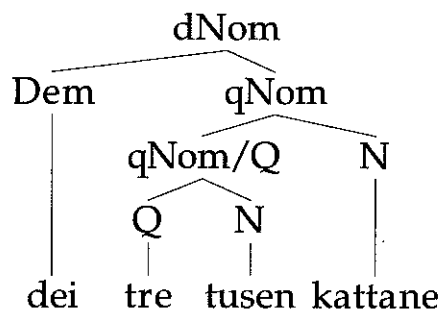


Figure 4.39. A doubly definite nominal

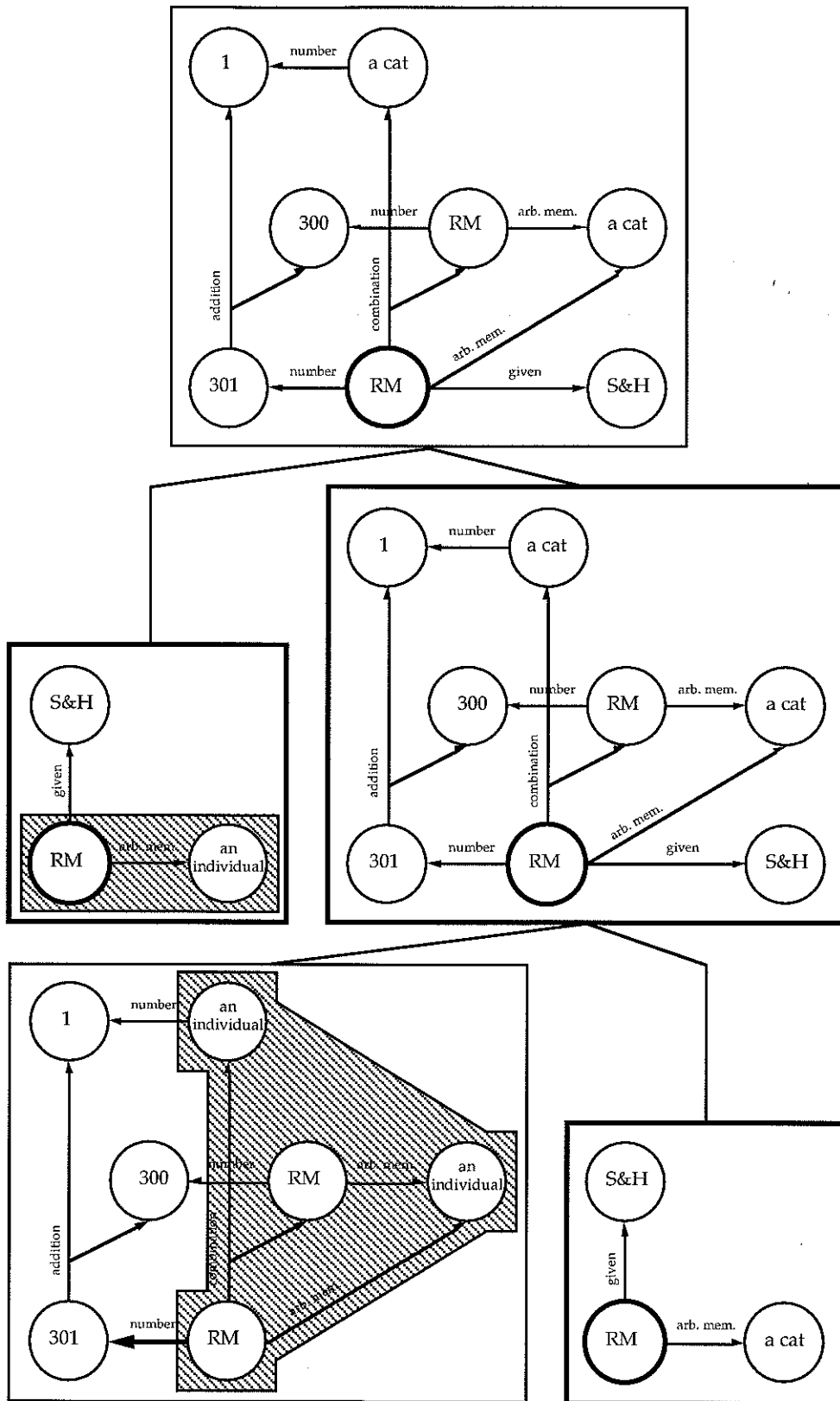


Figure 4.40. The semantic composition of a definite nominal with an additive numeral, *dei tre hundre og ein kattane* 'the 301 cats'

Why do not all quantifiers agree? I suggest that the reason that we do not have **mine tre hundre og eine kattar* 'my 301 cats' (or something similar, with definite *eine*) is simple: It is the replicate mass of 301 cats that is indicated as uniquely identifiable by the definiteness, while the use of the definite form *eine* would imply that there is one particular cat that is uniquely identifiable. Similarly, we do not have *?*dei tre tusena kattar* 'the 3000 cats' because the object referred to is uniquely identified as cats, not as thousands. In *min eine katt* 'my one cat', however, the definiteness expressed by the numeral relates to the same individual as does that of the nominal.

The semantic composition of the doubly definite nominal *dei tre hundre og ein kattane* 'the 301 cats' (disregarding the composition of the complex numeral) is represented in figure 4.40. The coordinate numeral profiles a relation whose trajector is a schematic replicate mass. This structure is combined with that of the noun, which profiles a replicate mass of cats. This mass is presupposed to be uniquely identifiable to the speaker and the hearer (the entity labelled "S&H"). This is represented with the relation labelled "given". The quantified nominal profiles the same entity as its head noun.

This structure is combined with the structure of the article, which profiles a schematic replicate mass which is presupposed to be uniquely identifiable to the speaker and the hearer. The profiles of the two component structures correspond and are the same as that of the composite structure. The noun, being the primary information-bearing unit, is the head.

4.3.2 Numerals as non-heads

I have assumed that numerals are non-heads in the various nominal constructions of Norwegian. In the light of traditional grammar and structural linguistics, this is not controversial; it is the good old approach. But in much of the modern literature, especially generative syntax, it has become usual to assume that the numeral heads the phrase and takes a noun phrase as its complement. In this section I argue for the noun-as-head approach.

In Greenberg (1978), a distinction is drawn between two main types of integration of numeral and noun. In the first, the noun is head, and the numeral takes the form of a quantifier (an adjectival constituent). In the second, the numeral is head, and the noun is a subordinate constituent with some kind of genitival or partitive marking (case or adposition).

I have analyzed all constructions thus far as belonging to the first type. If Norwegian were to have a partitive-marked expression for *tre kattar* 'three cats', for

instance, it would be **tre av kattar* [three of cats], *ein trio av kattar* 'a trio of cats' or something similar. The latter is a possible Norwegian expression, but *trio* is not part of the numeral system. (As we shall see in section 4.4, *million* 'million' and *milliard* 'billion' can be used as heads, but the constructions are not partitive; neither are they fully integrated in the numeral system.)

In most traditional grammars, the noun-as-head analysis is usually assumed. For some examples, see Western (1921), Jespersen (1924), Diderichsen (1957), Næs (1972), and Faarlund et al. (1997). Examples of generative works where the numeral is seen as subordinate include Jackendoff (1977), Lødrup (1989), and Payne (1993). But in generative works like Jackendoff (1968), Delsing (1993), Wiese (1997), Vangsnes (1999), and Vos (1999) – just to mention a few – the numeral takes the noun phrase as its complement.

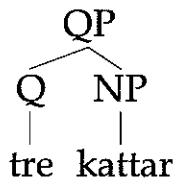
I shall not go into modern Chomskyan approaches in great detail. In general, the considerable abstractness of their syntactic structures is so remote from the content requirement of cognitive grammar (see section 2.1.1.1) that a comparison is almost impossible. The view that quantifiers are heads is part of the theory of so-called functional projections, which (at least in the nominal domain) originated in the DP-hypothesis of Hellan (1986) and Abney (1987). To put it as simply as possible in terms of phrase structure, while I assume that *tre kattar* 'three cats' is [_{qNom} Q N], a typical generative analysis will assume that the structure is [_{QP} Q NP]. And while I assume that *dei tre kattane* is [_{dNom} Dem [_{qNom} Q N]], a typical generative analysis will assume a structure like [_{DP} D [_{QP} Q NP]].

A central argument for regarding quantifiers as heads taking nominal complements is selection properties: Some quantifiers are assumed to select singular count nominals, others select plural count nominals, etc. In cognitive grammar, it would perhaps be more natural to speak of co-occurrence rather than selection. But even if one assumes that the quantifier selects the nominal, this is not an argument for its head status in cognitive grammar. The cognitive-grammar version of selection is A/D asymmetry (cf. section 2.1.1.3): If the quantifier selects the nominal, the former is dependent on the latter. But A/D asymmetry is not assumed to be intimately related to head status. Rather, the head status of a constituent depends on profile determinacy.

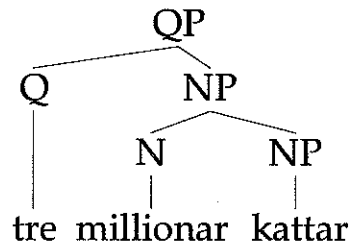
There are some very peculiar results of the assumption that numerals are heads taking noun phrase complements. Given that articles and numeral quantifiers are complement-taking heads, we would have the two typical phrase structures shown in (a) and (c) of figure 4.41. Given this general approach, it is natural to assume that

NUMERALS

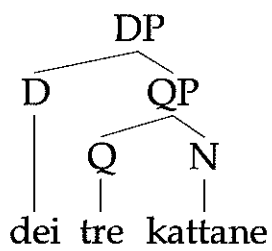
(a)



(b)



(c)



(d)

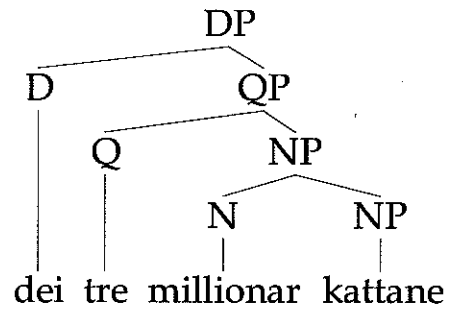
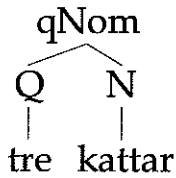
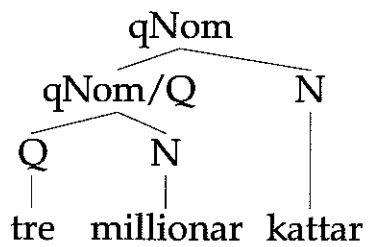


Figure 4.41. Numerals as heads

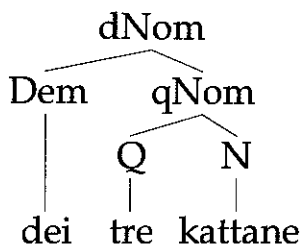
(a)



(b)



(c)



(d)

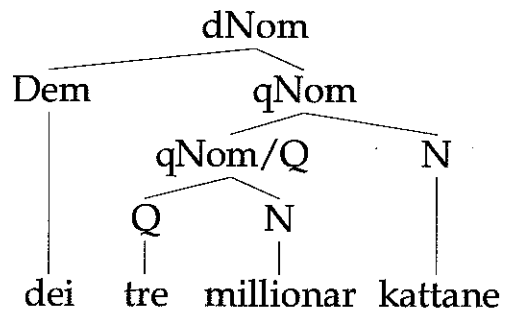


Figure 4.42. Numerals as non-heads

numeral nouns, too, are complement-taking heads, which gives us the structures in (b) and (d) of the figure.

What is most peculiar on such an analysis is the distribution of definiteness. The definiteness of the article *dei* and the noun *kattane* are arguably the same: They are definite for the same reason. Yet there does not seem to be any fixed syntactic relation between them. If the whole phrase *dei tre millionar kattane* is definite, why is *millionar* indefinite? And if *dei tre kattane* and *dei tre millionar* (in *dei tre millionar kattane*) have the same structure, why is the noun *kattane* definite and not indefinite like *millionar*?

Note that I do not attribute this kind of analysis to anyone in particular; I am not aware of any numeral-as-head analysis of complex numerals. Wiese (1997), a formal semantic work based on a minimalist Chomskyan syntax, assumes that complex numerals are syntactically unanalyzed elements under Q. The plural of German *Millionen* 'millions', for instance, is said to be an idiosyncrasy that it would not be very meaningful to represent syntactically (Wiese 1997: 299, footnote). Similarly, *und* 'and' in additive numerals has no syntactic status. The whole problem area of the syntax of complex numerals is thus avoided.

Represented in terms of phrase structure, my analysis would be as in figure 4.42. The problems with the numeral-as-head assumption and definiteness do not occur in this approach. The relation between the definite article and the definite noun is stable. The sequences *dei tre kattane* in (c) and *dei tre millionar* in (d) are assumed to have quite different structures; the difference in definiteness is thus less surprising than it is on an analysis where the syntactic structures are the same. I have explained the indefinite form of such numerals in section 4.3.1. Thus, the definiteness patterns of nominals provide good evidence that the noun is not a complement of the numeral in Norwegian.

4.4 Numeral nouns outside the numeral system

I have given an analysis of the integration of numerals into the various kinds of nominals where the noun is head and the numeral a subordinate constituent. Numeral nominals like *tre millionar* 'three million' have been analyzed as integrated into the same quantifier slot as simple numerals like *tre* 'three'. That is, the numeral noun is not the head in relation to the substance noun. But numeral nouns are used outside what I have defined as the numeral system. That is the subject of this section. In section 4.4.1, I discuss definite nominals where the numeral noun and the

substance noun are juxtaposed and the numeral noun is definite. In section 4.4.2, I present constructions where numeral nouns are followed by a preposition.

4.4.1 Numeral nouns as heads of pseudopartitives

There do exist expression types where the numeral noun must be considered to head a nominal. These may appear at first sight to be a problem for my analysis. Such structures are found for *million* and the larger numeral nouns. Besides the kind of nominal illustrated in (29), which is central to the argument that numerals are non-heads, there are nominals like the one in (30), where the numeral noun does indeed look like a head taking a nominal complement.

(29) *dei tre millionar kattane*
 N the-PL three million-PL cat-PL&DEF
 'the three million cats'

(30) *dei tre millionane kattar*
 N the-PL three million-PL&DEF cat-PL
 'the three million cats'

In (30), it is the numeral noun which agrees in definiteness with the definite article, while the substance noun is indefinite. Teleman (1969: 35) observes the same two possibilities for Swedish definite nominals with *miljon* 'million' and *miljard* 'billion'. He does not explain the semantic or pragmatic difference between the constructions, and I know of no other treatments of this variation.

Authentic examples with a subordinate numeral nominal and a head numeral noun are given in (31) and (32), respectively.

(31) *Kommunen skal låne de [tolv] millioner kronene husene koster ...*
 B-BT ... the-PL twelve million-PL *kroner*-PL&DEF ...
 'The municipality is going to borrow the 12 million *kroner* that the houses cost.'

(32) *Blant de [femtisju] millionene italienerne finnes det [femtisju] millioner skuespillere ...*
 B-BT ... the-PL fifty-seven million-PL&DEF Italian-PL ...
 'Among the 57 million Italians, there are 57 million actors.'

In (31), *tolv millioner* occupies the quantifier slot, and the nominal has a structure parallel to the one shown in figure 4.43, where *kattane* is the head noun. But in (32), *millionene* 'the millions' is arguably in the position of the head noun. In addition to

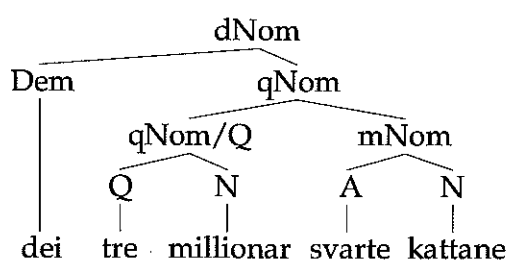


Figure 4.43. A definite nominal with a subordinate numeral nominal

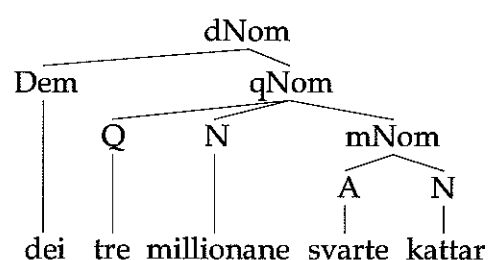


Figure 4.44. A definite nominal with a head numeral noun

the noun *italienere* there could have been prenominal adjectives and various postnominal modifiers, but no quantifiers or determiners; i.e., we have a modified nominal. A constituent structure for an example of this construction is shown in figure 4.44, where *millionane* is the head noun.

The two constructions seem to reflect different images, different ways of conceptualizing these great masses. In the latter type of structure it is as if the millions, rather than the cats or Italians, are foregrounded. Two categorizations are present in both cases, but the two kinds of structure have different choices of profile.

Rather than undermining my claim that Norwegian numerals are non-heads, the existence of the kind of expression exemplified in (30) and (32) strengthens my analysis. They provide direct evidence of what structures headed by numeral nouns look like, and they indirectly show the correctness of the assumption that numeral quantifiers are subordinate, because the subordination of numeral nouns must be seen as an extension of the construction with subordinate numeral quantifiers.

It should be noted that the structures headed by the numeral noun have a very limited application in the numeral system; they can only contain one simple numeral nominal and no other numerals. One does not find additive numerals with definite numeral nouns, as illustrated in (33) and (35); the grammatical expressions are given in (34) and (36).

(33) * dei fem milliardane tre millionane kroner
 N the-PL five billion-PL&DEF three million-PL&DEF *krone*-PL
 'the 5,003,000,000 *kroner*'

(34) dei fem milliardar tre millionar kronene
 N the-PL five billion-PL three million-PL *krone*-PL&DEF
 'the 5,003,000,000 *kroner*'

(35) * dei fem millionane og femti kroner
 N the-PL five million-PL&DEF and fifty *krone*-PL
 'the 5,000,050 *kroner*'

(36) dei fem millionar og femti kronene
 N the-PL five million-PL and fifty *krone*-PL&DEF
 'the 5,000,050 *kroner*'

The smaller numeral nouns cannot be used as heads; that is, they only appear in subordinate numeral nominals. This is illustrated in (37) and (38).

(37) dei tre hundre/tusen kattane
 N the-PL three hundred-(PL)/thousand-(PL) cat-PL&DEF
 'the 300/3000 cats'

(38) *(?) dei tre hundra/tusena kattar¹⁰
 N the-PL three hundred-PL&DEF/thousand-PL&DEF cat-PL
 'the 300/3000 cats'

However, the numeral noun *dusin* 'dozen' behaves like *million*. On the other hand, *sneis* 'score' sounds bad in the quantifier slot of definite nominals. This is illustrated in (39) and (40).

(39) dei tre dusin/??sneis rosene
 N the-PL three dozen-(PL)/score-(PL) rose-PL&DEF
 'the three dozen/score roses'

(40) dei tre dusina/sneisa roser
 N the-PL three dozen-PL&DEF/score-PL&DEF rose-PL
 'the three dozens/scores of roses'

We may also note that if the quantified noun is left out, the smaller numeral nouns appear in the indefinite form (subordinate), while the larger (as well as *dusin* and *sneis*) appear in the definite form (heads). (The indefinite form is possible as an instance of single definiteness.) This is illustrated in (41)–(44).

(41) dei tre hundre/tusen
 N the-PL three hundred-(PL)/thousand-(PL)
 'the three hundred/thousand'

¹⁰*?*Tusena* (Bokmål also potentially *?*tusenene*) does not sound quite as bad as **hundra* (Bokmål also **hundrene*).

- (42) *(?) *dei tre hundra/tusena*
 N the-PL three hundred-PL&DEF/thousand-PL&DEF
 'the three hundreds/thousands'
- (43) *dei tre millionar/milliardar* [single definiteness]
 N the-PL three million-PL/billion-PL
 'the three millions/billions'
- (44) *dei tre millionane/milliardane*
 N the-PL three million-PL&DEF/billion-PL&DEF
 'the three millions/billions'

I discuss in a diachronic perspective the relation between nominals with subordinate numeral nominals and head numeral nouns, respectively, in section 7.4.

4.4.2 Numerals nouns in prepositional pseudopartitives

In addition to the juxtapositional expressions discussed in section 4.4.1, there are uses where a numeral noun is followed by a preposition. When a numeral noun is used as the head of a definite nominal, it is possible to use the preposition *med* 'with' in front of the substance nominal. An example is given in (45).

- (45) [D]e siste fem millionene med aksjer ble anskaffet for en høy pris.
 B-X the-PL last-PL five million-PL&DEF with share-PL ...
 'The last five million shares were obtained at a high price.'

In addition, indefinite plurals of the larger numeral nouns can be used as unbounding quantifiers with a following *av* 'of' (cf. section 5.1). In Bokmål one also finds the smaller numeral nouns as well as the forms *titusener* 'tens of thousands' and *hundretusener* 'hundreds of thousands' used in this way. This use is exemplified in (46). (*Dusin* 'dozen' and *sneis* 'score' are not used like this.)

- (46) [F]olk brukar millionar av kroner på å auke velstanden sin.
 N-BT ... million-PL of *kroner*-PL ...
 'People spend millions of *kroner* to increase their prosperity.'

The syntax of constructions involving prepositions is discussed in chapters 6 and 7. The use of *med* 'with' illustrates a specialized version of the metaphorical conception of numbers as objects, namely that numbers are containers. The use of *av* 'of' illustrates another, namely that numbers are objects constituted of a material.

4.5 Conclusion

In this chapter, we have seen that numerals have quite a complex grammar. The Norwegian decimal numeral system employs the arithmetical operations of addition and multiplication, and grammatically it involves simple as well as compounded quantifiers, coordination with and without a conjunction, and numeral nouns and nominals – singular and plural. While addition emerges from coordination, multiplication emerges from pluralization. Both are conceptually related to actions of constructing objects from smaller objects. Further, the nominal character of numeral nouns is direct evidence of the metaphor that arithmetic is object collection.

It has been shown that numerals are not heads of nominals, but subordinate constituents. Certain numeral nouns may nevertheless be used as heads of pseudopartitives. Further, numeral nouns are sometimes even followed by one of the prepositions *med* 'with' and *av* 'of'. In this they resemble other quantifying nouns.

5

Quantifying nouns and quantifiers in *-vis*

The class of quantifying nouns includes such differing members as *tusen* 'thousand', *fåtal* 'low number', *bunt* 'bunch', *meter* 'metre', *mengd* 'quantity', *drope* 'drop', and *sekk* 'sack'. In addition, Norwegian has a class of quantifiers ending in *-vis*, like *millionvis* 'millions', *tønnevis* 'barrels', and *dagevis* 'days', which are semantically and grammatically closely related to indefinite plurals like *millionar* 'millions'. It is vital to the analysis of the grammar of pseudopartitives that the semantics of quantifying nouns and quantifiers in *-vis* be understood. When quantities are expressed by means of nominals, this implies reification – the metaphorical treatment of the quantitative properties of masses as objects. The metaphor that a quantity is an object can be found in several specialized varieties, and which one is most naturally reflected in grammar is to a large extent determined by the meaning of the quantifying expression.

In section 5.1, I propose two cross-cutting taxonomies of quantifying expressions, the first based on the meaning of the noun (or the nominal stem of the quantifier), the second based on the quantifying function of the nominal (or quantifier). Section 5.2 is a presentation of the seven proposed classes of quantifying nouns. Section 5.3 introduces the quantifiers in *-vis*. This class has not traditionally been distinguished from adverbs and adjectives in *-vis*. Therefore, I discuss the relations between the classes of words in *-vis* in considerable detail in order to demonstrate that they are in fact distinct. Finally, section 5.4 is a discussion of how concrete concepts may come to serve as source concepts for the abstract notion of quantity, and of how the classes of quantifying expressions relate to the specific versions of the metaphor that a quantity is an object.

5.1 Taxonomies of meanings and functions

In this section I present two ways of classifying quantifying expressions. First, I propose a taxonomy based on the meaning of quantifying-noun stems using three semantic dichotomies (section 5.1.1). Second, a function-based taxonomy is proposed (section 5.1.2). This is based on the ways quantifying nominals and quantifiers in *-vis* are used; not all instances of quantification have the same function.

5.1.1 A meaning-based taxonomy

There exist a number of taxonomies of quantifying nouns in the literature; cf. Angelo (1987), Buvet (1994), Croft (1990b), Daugaard (1994), Delsing (1993), Eschenbach (1995), Holenstein (1982), Katz (1982), Löbel (1986), Seiler (1986), Svensson (1998), Teleman (1969). The following owes a great deal to these works. All taxonomies are partly arbitrary, since it is not obvious which distinctions are most important. And what is important to a large extent depends on one's objectives. Moreover, regardless of what categories of quantifying nouns one establishes, the borders between them tend to be fuzzy, as do the borders towards nouns that are not regarded as quantifying nouns.

My taxonomy is based on three dichotomies: 1) collective vs. non-collective quantifying nouns, 2) good vs. bad unit counters, and 3) primary vs. secondary quantifying nouns. The classification is applied at the level of the noun stem; this means that all forms of one quantifying noun belong in one class. In addition, it provides a way to classify quantifiers in *-vis* on the basis of the stems that they are derived from. Examples in this section will only include nouns, however.

The difference between collective and non-collective quantifying nouns is that the former are normally used only with (count) plural substance nominals, i.e. they individuate replicate masses, while the latter are typically used with substance nominals that are either mass (singular) or (count) plural, i.e. they individuate masses that may be homogeneous or replicate. Similar dichotomies are commonly found in the literature; cf. for instance Delsing (1993) and Löbel (1986). Examples (1) and (2) illustrate collective quantifying nouns (*millionar, flokk*), while (3) and (4) illustrate non-collective quantifying nouns (*kilo, mengd*).

- (1) tre millionar kattar/*vin
 N three million-PL cat-PL/wine
 'three million cats', *'three million wine'

- (2) ein flokk kattar/*vin
 N a-M flock(M) cat-PL/wine
 'a flock of cats', *'a flock of wine'
- (3) tre kilo sukker/appelsinar
 N three kilo-(PL) sugar/orange-PL
 'three kilos of sugar/oranges'
- (4) ei stor mengd sukker/appelsinar
 N a-F large-M/F quantity(F) sugar/orange-PL
 'a large quantity of sugar/oranges'

Some collective quantifying nouns may alternatively be combined with collective nouns like *kveg* 'cattle'. And certain non-collective quantifying nouns, notably some portion nouns (cf. section 5.2.6), are normally used only with mass nouns, not with count nouns.

The distinction between good and bad unit counters should not be regarded as a clear-cut dividing line; rather, we are dealing with a continuum. Good unit counters individuate masses with a fixed, well-defined quantity (cardinality or measure), while bad unit counters individuate masses whose quantity is only very vaguely specified, with meanings approaching 'many'/'much', 'some', or 'few'/'little'. Good unit counters are well suited for pluralization; the quantity of the substance mass can be calculated by means of multiplication of the quantity of the individuated masses. Bad unit counters either cannot be pluralized, or the semantic difference between singular and plural is unclear; multiplication is not feasible. Among the quantifying nouns in examples (1)–(4), *millionar* and *kilo* illustrate good unit counters, while *mengd* illustrates a bad unit counter; *flokk* is intermediate; example (5) illustrates the plural. Example (6) includes the bad unit counter *utal*, which cannot be pluralized, while example (7) shows the plural of the bad unit counter *mengd* (cf. (4)), which is almost synonymous with the singular; these two illustrate the two possibilities (no plural and lack of singular–plural meaning difference).

- (5) tre flokkar kattar
 N three flock-PL cat-PL
 'three flocks of cats'
- (6) eit utal kattar
 N a-N un-number(N) cat-PL
 'an uncountable number of cats'

- (7) store mengder vatn
 N large-PL quantity-PL water
 'large quantities of water'

The distinction between primary and secondary quantifying nouns is found for instance in Faarlund et al. (1997), where similar terms are used, and in Delsing (1993), where they are called genuine quantifiers and pseudoquantifiers. Another closely related distinction is found in Katz (1982) and Löbel (1986), based on the feature \pm *Gegenstandscharakter*, i.e. object character; secondary quantifying nouns approach typical nouns in denoting "good" objects, typically in having a specific shape, size, function, etc., while primary quantifying nouns do not denote "good" objects. Examples of primary quantifying nouns are *millionar* in (1), *kilo* in (3), *mengd* in (4) and *utal* in (6). Things like kilograms and uncountable numbers are quite untypical objects, without any specific shape, configuration, or function. Such nouns only describe the quantity, not the quality, of possible referents. On the other hand, *flokk(-ar)* in (2) and (5) is a secondary quantifying noun; a flock is a collective with a relatively clear configuration. The same goes for *haug* in (8), and *skiver* in (9) denotes a kind of object with a clear shape. Such nouns have a qualitative as well as a quantitative meaning, and when they are used in pseudopartitives, the latter is more important.

- (8) ein haug sand
 N a-M heap(M) sand
 'a heap/mound of sand'
- (9) tre skiver brød
 three slice-PL bread
 'three slices of bread'
- (10) tre flasker vin
 three bottle-PL wine
 'three bottles of wine'

Container nouns, like *flasker* in (10), primarily denote "good" objects. It is a characteristic of their use in pseudopartitives however, that they are typically used metonymically; cf. section 5.2.7.

The relations between the taxonomy presented in this section and the classes of quantifying nouns to be discussed in section 5.2 are shown in figure 5.1. The rectangle at the centre contains the names of the seven classes. The arrows pointing into the centre of the figure and from the absolute centre out to the flanks of the

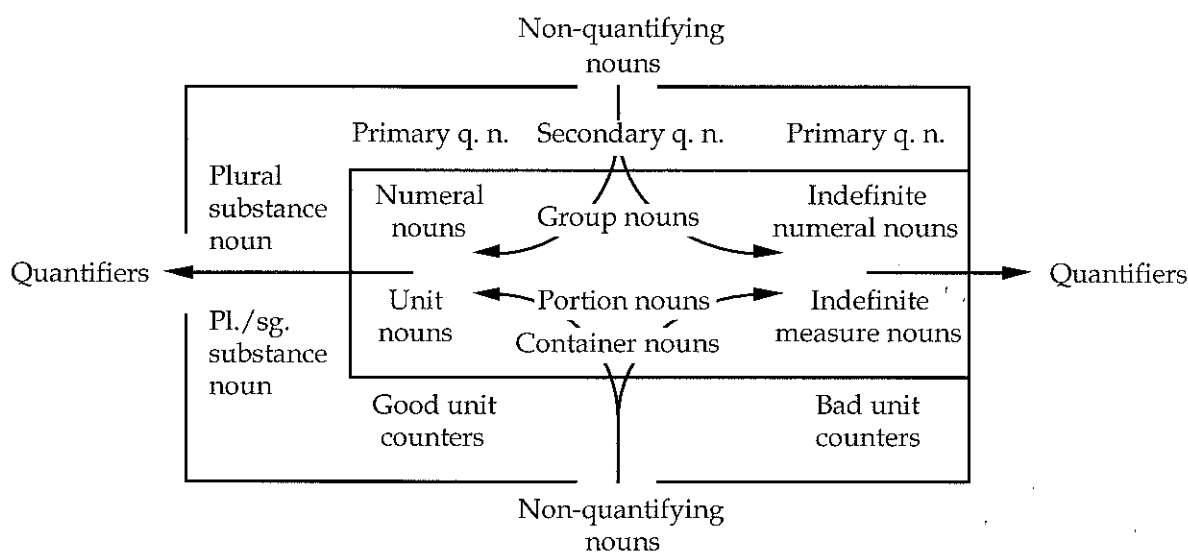


Figure 5.1 Classes of quantifying nouns

centre are meant to illustrate that non-quantifying nouns may be put into use as quantifying nouns, and that secondary quantifying nouns may develop into primary quantifying nouns. Some examples will be discussed in section 5.2 and later chapters. The arrows pointing out of the centre illustrate that primary quantifying nouns (or nominals) may develop into quantifiers. This is discussed in chapter 7. (The arrows are not intended to exhaust the set of possible developments.)

5.1.2 A function-based taxonomy

The functions of quantifying nominals are to a large extent related to the semantic classes of quantifying nouns. I propose to recognize three main functions of quantifying nominals: 1) unit counting, 2) mass construction, and 3) unbounding. (*Bounding* will be used as a common term for unit counting and mass construction.)

In typical unit counting, the individuated masses have a specific quantity; therefore, the quantity of the substance mass can be calculated by multiplication if there is a numeral in front of the quantifying noun. Good unit counters are typically used in this way; several examples can be found in section 5.1.1.

In typical mass construction, the individuated mass does not have a specific quantity. It may have a particular shape, configuration, or function, but this may also be lacking, so that there is only a vague quantitative meaning. Pluralization and multiplication work badly or not at all. Bad unit counters are typically used in this way; examples of this, too, are given in section 5.1.1.

In unbounding, the quantity of the substance mass is (subjectively) excessive; a lack of bounding is central. The individuated masses usually have a specific quantity, like in unit counting. But no numeral or other quantifying expression is present; rather, the impossibility or irrelevance of counting the individuated masses is underlined. Norwegian has two main types of unbounding expressions: quantifying nominals consisting of only an indefinite plural quantifying noun – this is familiar from other languages, including English – and the class of quantifiers ending in *-vis*. Examples with quantifying nouns are given in (11) and (12).

(11) millionar av kattar
 N million-PL of cat-PL
 'millions of cats'

(12) massar av vin
 N mass-PL of wine
 'quantities of wine'

As illustrated, both good unit counters like *millionar* in (11) and bad unit counters like *massar* in (12) can be found in unbounding, although the former are more common. Bad unit counters in the plural lack a clear plural meaning. Quantifying nouns used in this way will be referred to as bare plurals. Examples with quantifiers in *-vis* are given in (13) and (14).

(13) millionvis av kattar
 N million-*vis* of cat-PL
 'millions of cats'

(14) massevis av vin
 mass-*vis* of wine
 'quantities of wine'

The observations on good and bad unit counters apply to quantifiers in *-vis* as well.

Some quantifying nouns can be used in more than one function, then. However, bare plurals and quantifiers in *-vis* are only used in unbounding, and unbounding involves the use of a bare plural or a quantifier in *-vis*. Bare plurals are sometimes not quite bare, but are preceded by the definite article, in which case the substance noun is typically followed by a restrictive relative clause, as in (15). Quantifiers in *-vis* are used in the same way.

- (15) dei millionar av menneske som svelt
 N the-PL million-PL of human.being-(PL) that starve-PRES
 'the millions of people who are starving'

As I have delimited unbounding, certain uses of the singular of (primarily) bad unit counters with (normal to emphatic) stress are excluded. But it should be noted that they come very close to unbounding. An example is given in (16).

- (16) ein haug med bøker
 N a-M heap(M) with book-PL
 'a (whole) heap of books'

5.2 Quantifying nouns

In this section, I present the various classes of quantifying nouns: numeral nouns (section 5.2.1), indefinite numeral nouns (section 5.2.2), group nouns (section 5.2.3), unit nouns (section 5.2.4), indefinite measure nouns (section 5.2.5), portion nouns (section 5.2.6), and container nouns (section 5.2.7). Each class is related to the taxonomies of section 5.1, and some typical members are listed and illustrated.

5.2.1 Numeral nouns

Numeral nouns are primary, collective quantifying nouns and good unit counters. They individuate replicate masses with a specific cardinality, and are primarily used in unit counting, as illustrated in (17), but also in unbounding, as illustrated in (18).

- (17) Det har en kapital på [to] milliarder kroner ...
 B-BA ... two billion-PL *krone*-PL
 'It has a capital of two billion *kroner*.'
- (18) [Han] er dømt til å betale millionar av kroner.
 N-BT ... million-PL of *krone*-PL
 'He has been sentenced to pay millions of *kroner*.'

(Apart from the numeral nouns discussed in chapter 4, there is a whole class of compound nouns in *-tal* (Bokmål: *-tall*) 'number'. Examples are *tusental* (literally: 'thousand-number') and *trettital* (literally: 'thirty-number'). They are partly used with the suffix *-s*, partly without it: *eit trettital(s) bøker* 'about thirty books'. (This ending is historically a genitive case affix.) They all have the illustrated

approximative meaning, and those with a first part that designates a power of ten can also be used with an indefinite multiplicative meaning (*dei tusentals bøkene* means either 'the about one thousand books' or 'the several thousand books'). I have found it necessary to exclude these from further analysis because of the extensive discussion that their special formal and semantic properties would have required.)

The ultimate origin of most numeral nouns is obscure, but it seems probable that they most frequently stem from group nouns (cf. section 5.2.3). Masses individuated by group nouns do not usually have a specific cardinality, but such a meaning may develop. *Sneis* 'score' appears to have such an origin (cf. Jansson 1936: 37–38).

5.2.2 Indefinite numeral nouns

Indefinite numeral nouns are primary collective quantifying nouns and bad unit counters. They are used primarily in mass construction and individuate masses that are large, small, or of indeterminate size, as illustrated in (19), (20), and (21), respectively.

- (19) I tillegg har et utall skip vært inne til modernisering og overhaling på verftet.
 B-BT ... a-N un-number(N) ship-(PL) ...
 'In addition, an uncountable number of ships have been in for modernization and overhaul at the shipyard.'
- (20) Det er kome berre eit fåtal klager direkte frå abonnentane til oss.
 N-BT ... only a-N few-number(N) complaint-PL ...
 'There have come only a small number of complaints directly from the subscribers to us.'
- (21) ... Brenden vil starte i et antall verdenscuprenn denne vinteren ...
 B-BT ... a-N number(N) world-cup-race-(PL) ...
 'Brenden will start in a number of world-cup races this winter.'

The three nouns ending in *-tal* (Bokmål *-tall*) 'number' illustrated in the examples are the core members of this class. (*Antall* is a Bokmål word of Danish and ultimately German origin; Nynorsk *antal* tends to be avoided for purist reasons.) *Antall* 'number' has a second meaning that falls outside the domain of pseudopartitives, namely 'cardinality (of a group)'; this is illustrated in (22).

- (22) Økningen i antall anmeldelser er altså på 4,7 prosent.
 B-BT increase-DEF in number report-PL ...
 'The increase in the number of reports, then, is 4.7 per cent.'

One source of indefinite numeral nouns is group nouns. An example is *rekkje* (Bokmål: *rekke*) 'row', an original group noun that is now partly an indefinite numeral noun. In (23), the sequential configuration of doors is clear, although the meaning 'rather large number' is also evident. In (24), there is probably a sequence of crimes, but that is almost irrelevant. And in (25), there is clearly no sequence; *rekkje* is here an indefinite numeral noun.

(23) En gang løp gjennom huset med en rekke like dører på hver side.

B-BL ... a-M/F row(M/F) identical-PL door-PL ...

'A corridor ran through the house with a row (number) of identical doors on each side.'

(24) Dei gjorde seg skuldige i ei rekkje valdshandlingar ...

N-BT ... a-F row(F) violence-act-PL

'They committed a number/series of violent crimes.'

(25) Denne utviklinga truar ei rekkje dyreartar.

N-BT ... a-F row(F) animal-species-PL

'This development is threatening a number of animal species.'

Other indefinite numeral nouns that exhibit a history as secondary quantifying nouns are the informal *drøss* and *brote* (Bokmål: *bråte*), both meaning 'large number, multitude. *Drøss* is a variant of *dryss* 'sprinkling', and a *brote* is really a heap of waste forest-plant materials. (In their original meaning they can be followed by mass nouns, but in their new senses they are used with plural count nouns.) Examples of indefinite-numeral use are given in (26) and (27).

(26) [Lou Reed] fortsatte med en drøss låter om hvor trist og fælt livet ... er ...

B-BT ... a-M multitude(M) sound-PL ...

'Lou Reed continued with a large number of songs about how sad and awful life is.'

(27) [De] tar imot en bråte mennesker fra fjern og nær ...

B-BT ... a-M multitude(M) human.being-PL ...

'They receive a large number of people from far and near.'

5.2.3 Group nouns

Group nouns are secondary collective quantifying nouns, and most are rather bad unit counters. They are primarily used in mass construction, as illustrated in (28) and (29), but unit counting and unbounding can also be found.

(28) Dei helste på ein flokk soldatar ...

N-UR ... a-M flock(M) soldier-PL

'They greeted a flock of soldiers.'

(29) Han stopper bilen [og] hopper ut med en bunke aviser i nevene ...

B-BT ... a-M stack(M) newspaper-PL ...

'He stops the car and jumps out with a stack of newspapers in his hands.'

The class of group nouns is large, varied, and open-ended. Most group nouns individuate masses with a fairly clear object character, in that they tell how the individuals are grouped. There is often a clear correlation between the group noun and the range of substance nouns. In addition, group nouns usually say something either about the purpose of the grouping or the spatial organization of the group. Animals occur in more or less natural groupings: *stim* 'shoal' (primarily about fish), *sverm* 'swarm' (primarily about flying insects), *flokk* 'flock (etc.)' (about birds and many mammals), but also in culture-based groupings like a *bøling* 'flock, herd' (about sheep and cattle) or a *koppel* (Bokmål: *kobbel*) 'leash' (about dogs). Some vegetable food stuffs (and the like) come in natural groupings, for instance *klase* 'bunch' (primarily about grapes and bananas), and some in conventional groupings, like *bukett* 'bouquet, bunch' (primarily about flowers) and *bunt* 'bunch' (for instance about carrots). Man-made objects may be organized in groups: *bunke* 'stack' (about sheets of paper etc.), *stabel* 'pile'. A number of events can be referred to as a *serie* 'series' or a *rekkje* (Bokmål: *rekke*) 'row' (cf. section 5.2.2). And finally, people are grouped in many more or less organized ways. In addition to very general words like *gruppe* 'group', there are words like *bande* 'gang' and *kompani* '(military) company'.

Group nouns are not exclusively used with plural substance nominals; sometimes there is a (singular) mass substance nominal. Examples are *ein flokk kveg* 'a herd of cattle' and *ein bunt persille* 'a bunch of parsley'. Here, the group nouns promote a plural-like interpretation of the substance nouns: There are usually several sprigs of parsley in a bunch, and when the cattle is referred to as a herd, the backgrounded individuation of *kveg* is made more salient.

5.2.4 Unit nouns

The term *unit noun* can be regarded as a shorter version of *noun for unit of measurement*. Unit nouns are primary non-collective quantifying nouns and good unit counters. An exception is time nouns (cf. section 5.2.4.3), which are secondary quantifying nouns. Unit nouns individuate masses with a specific measure on some scale of quantity other than cardinality. They are primarily used in unit counting, but unbounding can be found, too.

Since there are many dimensions along which something can be measured, unit nouns fall into a number of discrete subclasses. There are measures of length, area, volume/capacity, weight, and duration. The three first are based on the physical extension of masses (one, two, and three physical dimensions, respectively), the fourth is a result of their mass (in the physicist's meaning of that word), while the last is based on persistence through time.

Of course, there are more ways to measure things, but they are not normally fitted into pseudopartitive constructions. Instead of *There are three thousand watts of electric heaters in this room*, one may say *The electric heaters in this room have a power of three thousand watts*. Compare this to *There are three kilograms of oranges in this box* versus *The oranges in this box weigh (have a weight of) three kilograms*. I shall limit my attention to the five central types of measuring.

In most cases, old Norwegian measures have been replaced with the modern measures from the International System of Units (the SI). The most important exception is time, which is based on natural time cycles and traditional groupings and subdivisions of these. My main sources for old measures are Steinnes (1936) and Fladby et al. (1974), in addition to general encyclopedias and dictionaries.

5.2.4.1 Units of length and area

An example of length quantification is given in (30).

(30) Var det fire hundre meter vassrøyr du snakka om ...?

N-HE ... four hundred-(PL) metre-(PL) water-pipe ...

'Was it four hundred metres of water-pipe you were talking about?'

Norwegian length nouns in common use include *meter*, *kilometer*, *centimeter*, *millimeter*, and *mil* 'ten kilometres'. The metre is an abstract unit; the origin of the word is French *mètre*, ultimately Greek *metron* 'measure'. But many older length

measures have a bodily origin: *tomme* 'inch' (2.6 cm),¹ meaning '(breadth of a thumb)', *fet* 'foot' (31.4 cm), and *famn* (Bokmål: *favn*) 'fathom, out-stretched arms' (188.2 cm). These three are still used, but only in special contexts. Another type of word were those that primarily denoted tools used in measuring, e.g. *stikke* 'stick'.

The important point to notice is that many of the measure terms originally designated things (body parts, measuring tools) of a certain length. The natural way to measure length is to put the measuring object and the measured object next to one another, to bring them together in order to compare their lengths. Thus, lengths are easily seen as being next to the quantified entity.

An example of area quantification is given in (31).

- (31) På Hornnes ... skal arkeologar finkjemme [åtte tusen] kvadratmeter matjord.
 N-BT ... eight thousand-(PL) square-metre-(PL) food-soil
 'At Hornnes, archaeologists are going to comb 8000 square metres of garden mould.'

Norwegian nouns of area measure that are relatively frequent include *kvadratmeter* 'square metre' and *kvadratkilometer* 'square kilometre', and the synonymous *mål* and *dekar* 'ten ares (a thousand square metres)'. Before the metric system was introduced, one used units derived from body-based length measures, like *kvadratalen* 'square ell' (cf. *elbow*).

5.2.4.2 Units of volume, capacity, and weight

Volume and capacity quantification are exemplified in (32) and (33), respectively.

- (32) [Dei har] konsesjon for uttak av [tretti] millionar kubikkmeter vatn i året ...
 N-BT ... thirty million-PL cubic-metre-(PL) water ...
 'They have a licence to take out 30 million cubic metres of water a year.'

- (33) To liter vann er en god dagsdose ...
 B-BT two litre-(PL) water ...
 'Two litres of water is a good daily dose.'

Volume measures are based on the metre, and there are such nouns as *kubikkmeter* and *kubikkcentimeter*. Current capacity measures are based on the litre, with nouns like *liter*, *hektoliter*, and *desiliter*. Volume units are based on cubes whose sides are measured in metre-based units, while capacity relates to contained amount,

¹Modern equivalents are given for the units that were current in Norway in 1875, when the metre, litre and gram were introduced.

measured in litres or derived units. Volume and capacity are two ways of approaching the same matter, and in modern times a litre is by SI definition the same as a cubic decimetre. In everyday life, litre measures are much more common than cubic measures, and this follows a historical predominance of capacity measures.

Most older terms for capacity measures were originally names of containers, e.g. *kanne* 'can' (1.9 l) and *skjeppe* 'bushel' (17.4 l).² (But there are exceptions; for instance, *pel* (2.4 dl) is a term that originally referred to a dividing mark in a container.) Even today, *skjeppe* (20 l) is used in fishing, and crude oil is measured by the *fat* 'barrel' (≈ 159 l). It makes little sense to ask if these are capacity nouns or container nouns (cf. section 5.2.7); they are both.

An example of weight quantification is given in (34).

(34) En forenhet tilsvarer næringsverdien av et kilo bygg.

B-BT ... a-N kilo(N) barley

'One fodder unit corresponds to the nutritional value of a kilo of barley.'

Common Norwegian weight nouns include *gram* and the short forms *kilo* and *hekto*, which tend to replace the long forms *kilogram* and *hektogram*. In addition there is *tonn* '(metric) ton'.

The word *gram* comes through French from Greek and originally meant 'small weight', and most of the units that were used in 1875 had names with similar meanings. For instance, *pund* 'pound' (498.1 g)³ stems from a Latin word meaning 'weight'. Such words refer primarily to the actual bodies used to balance the scales or other weighing devices. However, *tonn* is borrowed from English *ton* and is historically the same as *tønne* 'barrel'. In the old days, many weight units were like *tonn* in having names that originally referred to containers. Such systems must, at least originally, have been used only with a few types of commodities with about the same density; otherwise capacity cannot substitute for weight. An example of such a unit is *spann* 'pail' (15–16 kg and other sizes), which was primarily a butter weight.

The latter class of weight nouns point to a certain similarity between capacity and weight. And measuring the volume/capacity and weight of a mass are alternative ways of finding out how much there is of something three-dimensional. Weight, like volume/capacity, relates to the entire extension of something, while length and area take into account only one and two dimensions, respectively.

²See footnote 1.

³See footnote 1.

5.2.4.3 Units of time

Nominals with time quantification are infrequent, but they do exist (*pace* Lødrup 1989: 86), as shown in (35). Time nouns are more often used in unbounding than other unit nouns; an example is given in (36).

(35) [Det er] mulig å lagre [tjue] minutter musikk på hver side.

B-BT ... twenty minute-PL music ...

'It is possible to store 20 minutes of music on each side.'

(36) Måneder med hærverk har gjort det umulig å drive stedet.

B-BT month-PL with vandalism ...

'Months of vandalism have made it impossible to run the place.'

The class of time nouns includes *år* 'year', *månad* (Bokmål: *måned*) 'month', *veke* (Bokmål: *uke*) 'week', *dag* 'day', and *time* 'hour', as well as *minutt* and *sekund*. While years, months, and days are based on cycles that occur naturally and are directly experienced, weeks, hours, and the shorter units are conventional.

Sometimes the time nominal is embedded in an *s*-genitive, as in (37).⁴ (Compare this to numeral nouns in *-tal* 'number', section 5.2.1.) Such constructions will not be analyzed in this work.

(37) Retten dømmer han til sju måneders fengsel ...

N-BT ... seven month-PL-'s prison

'The court sentences him to seven months of imprisonment.'

5.2.4.4 Irregular morphology of unit nouns

Some Norwegian nouns used for SI-units have an anomalous morphology, with the indefinite plural form identical with the indefinite singular form. Recall that this is also a characteristic of the numeral nouns *hundre* 'hundred' and *tusen* 'thousand' (at least when used in the numeral system).

Such syncretism is typical of all neuter nouns in Nynorsk and most of those that do not end in an unstressed *-e* in Bokmål (cf. section 3.3.1). Thus, the fact that the neuter noun *gram* has the form *gram* in both the singular and the plural indefinite form is no surprise. The same goes for the area nouns *mål* and *dekar*, the capacity noun *fat*, and the weight noun *tonn*. But syncretism is untypical of masculine and

⁴Alternative possessive constructions cannot be used: **sju måneder sitt fengsel* [seven month-PL REFL.POSS-N prison(N)], **fengsel (-et) til sju måneder* [prison (-DEF) to seven month-PL].

	Regular noun		Irregular unit noun	
Sg. indef.	finger	'finger'	<i>liter</i>	'litre'
Sg. def.	fingeren	'the finger'	literen	'the litre'
Pl. indef.	fingrar	'fingers'	<i>liter</i>	'litres'
Pl. def.	fingrane	'the fingers'	lit(e)rane	'the litres'

Table 5.1. Irregular morphology of unit nouns (Nynorsk forms)

feminine nouns. The difference is illustrated in the paradigms in table 5.1, for the irregular *liter* and the regular *finger*, both masculines.

This special characteristic concerns words ending in *-meter* and *-liter*. It also applies to the old length units *fet* and *mil*. However, two other old length units, *tomme* and *famn*, have the normal indefinite plural forms *tommar* and *famnar*. And the old capacity unit *skjeppe* has the normal plural *skjeeper*. Time nouns have normal inflection.

A similar situation is found in Swedish (cf. Delsing 1993: 204) and Danish, and also in German, where even many container nouns have plurals with a "singular" form when used in quantification: *drei Glas Wein* 'three glasses of wine' (*Glas* has the plural *Gläser*, which is used in other contexts) (cf. Eschenbach 1995: 85–87). For similar data on Dutch, cf. Vos (1999).

5.2.5 Indefinite measure nouns

Indefinite measure nouns are primary non-collective quantifying nouns and bad unit counters. They are mostly used in mass construction, as exemplified in (38) and (39), but are also found in unbounding, as shown in (40).

(38) Til min store glede har jeg funnet en masse viktig materiale ...

B-BT ... a-M mass(M) important material

'To my great delight, I've found a lot of important material.'

(39) [M]en etter ein del strev fekk han meg over akslene ...

N-FL ... a-M deal(M) struggling ...

'But after some struggling, he had me over his shoulders.'

(40) Mengder av flyktingar redda seg til Sverige.

N-BT quantity-PL of refugee-PL ...

'Lots of refugees escaped to safety in Sweden.'

The class includes words like *mengd* (Bokmål: *mengde*) 'quantity, lot', *masse* 'mass, lot', and *del* 'deal, certain quantity' (primary meaning: 'part').

Since indefinite measure nouns, like indefinite numeral nouns, individuate masses of indeterminate size, the singular-plural distinction is semantically almost vacuous. This does not mean, however, that none of them can be pluralized. For instance, one can say both *ei stor mengd vatn* [a-F large-M/F quantity(F) water] 'a large quantity of water' and *store mengder vatn* [large-PL quantity-PL water] 'large quantities of water'.

5.2.6 Portion nouns

Portion nouns are secondary non-collective quantifying nouns. Some are good unit counters, while others are bad unit counters. The former are typically used in unit counting, as exemplified in (41) and (42), while the latter tend to appear in mass construction, as in (43), and unbounding, as in (44).

(41) [H]a fem dråper eukalyptusolje ... i vannet ...

B-BT ... five drop-PL eucalyptus-oil ...

'Put five drops of eucalyptus oil into the water.'

(42) Og så [rister jeg] et par skiver loff imens ...

B-VV ... a-N couple(N) slice-PL white.bread ...

'And then I'll toast a couple of slices of white bread in the meantime.'

(43) Når veggene får ein skvett måling og golva ei bytte vatn eller to?

N-SE ... a-M dash(M) paint ...

'When the walls get a dash of paint and the floors a bucket of water or two?'

(44) [De] har hauger med dokumenter og saker det ikke er blitt tid til å undersøke.

B-BT ... heap-PL with document-PL and case-PL ...

'They have heaps of documents and cases that there's been no time to look into.'

The class of portion nouns is large and open-ended, and it is the least homogeneous of the classes of quantifying nouns. The term *portion noun* fits the good unit counters best. Many kinds of substances come in more or less natural portions of a certain shape and size, and others in conventional portions. The natural portions

include *drope* (Bokmål: *dråpe*) 'drop' (used about water and other liquids) and *fedd* 'clove' (about garlic); conventional portions are designated by for instance *skive* 'slice' (about bread etc.), *barre* 'bar' (about gold etc.). Words like *stykke* 'piece' (with a wide range of applications) also belong in this class. Among the bad unit counters are *haug* 'heap', *klatt* 'lump, dollop', and *skvett* 'dash'.

5.2.7 Container nouns

Like portion nouns, container nouns are secondary non-collective quantifying nouns. Most are good unit counters and are used primarily in unit counting, illustrated in (45).

- (45) [Han hadde] drukke kring seks glas pilsnerøl.
 N-BT ... around six glass-(PL) Pilsner-beer
 'He had drunk about six glasses of Pilsner (beer).'

The class of container nouns is large and open-ended. Only typical members of the class will be taken into consideration. These include *kopp* 'cup', *tønne* 'barrel', *kasse* 'case, box', *pakke* 'packet', and *sekk* 'sack'.

As we have seen, most units of capacity (as well as some for weight) have originally been container nouns. Several nouns which are primarily container nouns also have a fixed capacity meaning, often relative to the contained commodity, e.g. *flaske* 'bottle' (70 cl, alcoholic beverages) and *teskei* (Bokmål: *teskje*) 'teaspoon (-ful)' (in recipes: 5 ml). Others may be more or less flexible with respect to capacity.

Container nouns in their primary meanings designate something that is different from what they contain; container nominal and substance nominal are not cocategorizing. But the use of container nouns in pseudopartitives involves a partial shift in meaning from container to content, a very common kind of metonymy (cf. Anttila 1989: 141). It is therefore possible to use container nouns as illustrated in (45). Here the content, not the containers, is designated by the container noun. When container nouns are used with metonymical meanings, the container nominal and the substance nominal come to be cocategorizing. This is best demonstrated with examples where no actual container can be present, such as *There are three cups of sugar in this cake*.

5.3 Quantifiers in *-vis*

Norwegian, like Danish and Swedish, has a large number of words that are derived with the suffix (or suffixes) *-vis*. This is an extremely heterogeneous group of words, which the following examples illustrate: *heldigvis* 'luckily', *vanlegvis* 'usually', *eksempelvis* 'as an example', *forholdsvis* 'relatively', *delvis* 'partial, partly', *tidvis* 'at times', *lagvis* 'in layers', *stegvis* 'stepwise', *hundrevis* '(several) hundreds', *årevis* '(several) years', *tonnevis* '(several) tons'. The origin of the suffix is the noun *vis* 'way, manner'; cf. the archaic English *wise* with the same meaning. It is historically the same as German *-weise*, with which it has a lot in common syntactically; cf. Starke (1973), Paraschkewoff (1976), and Erben (2000). It is also found in Dutch in various forms; cf. Geerts et al. (1984) and de Haas and Trommelen (1993). English *-wise* is also historically the same suffix, but has a rather different range of uses compared to Scandinavian *-vis*.

I shall argue that words in *-vis* fall into three distinct classes: a heterogeneous class of adverbs, a class of adjectives (with two subclasses), and a class of quantifiers. It is the quantifier class that is of interest here. Even this class is large; the derivational pattern involved is arguably productive. Quantifying nouns of all the seven classes discussed in section 5.2 appear as the derivational stem of such words:

numeral noun: *hundrevis* 'hundreds', *dusinvis* 'dozens'

indefinite numeral noun: *drøssevis* 'multitudes'

group noun: *bunkevis* 'stacks', *flokkevis* 'flocks'

unit noun: *metervis* 'metres', *litervis* 'litres', *tonnevis* 'tons', *dagevis* 'days'

indefinite measure noun: *massevis* 'masses'

portion noun: *haugevis* 'heaps'

container noun: *tønnevis* 'barrels', *sekkevis* 'sacks'

We shall look at these classes in some more detail in section 5.3.2. But because the subdivision of derived words in *-vis* into several classes is not traditionally recognized in the Norwegian literature on derivation, I shall begin by demonstrating that quantifiers in *-vis* are distinct from adverbs and adjectives in *-vis* (section 5.3.1). Some of what I write in section 5.3.1 has been presented in Kinn (1998), which also contains certain details that will not be repeated here.

5.3.1 Distinguishing characteristics of quantifiers in *-vis*

All derived words in *-vis* have traditionally been taken to be adverbs.⁵ It is the purpose of this section, however, to demonstrate that there are adjectives and quantifiers in *-vis*, as well as adverbs. Central works on Norwegian grammar (e.g. Næs 1972, Beito 1986, Rønhovd 1993, and Faarlund et al. 1997) have ignored derived words in *-vis* to a surprising degree. Only in Western (1921: 454) and Leira (1992: 187–188) are there indications that there are adjectives in *-vis*, and there is nowhere, as far as I can see, any suggestion that there are words in *-vis* that should be considered to be quantifiers (or anything similar).

The most interesting statement in the literature dates back to Western (1921: 60). He uses the example in (46), here with my gloss and translation.

(46) Ut fra bedehuset strømmet massevis av mennesker.

B ... mass-*vis* of human.being-PL

‘Out of the chapel streamed masses of people.’

Western notes that the subject *massevis av mennesker* is problematic for a grammatical analysis. The problem is, he reasons, that *massevis* is an adverb and *av mennesker* a prepositional phrase. Neither adverbs nor prepositional phrases can normally be (the head of) subjects (or other nominal constituents). Western gives up on the problem and assumes that such a phrase is an unanalyzable unit. The interesting thing is that Western sees that there is a problem. Later writers seem not to have acknowledged this. But Western appears not to have considered the possibility that *massevis* may be regarded as something different from an adverb.

In contrast to the tradition, I argue that words in *-vis* belong to three different categories: Some are adverbs, some are adjectives, and some are quantifiers. The quantifiers are my present interest, and I now turn to the criteria for distinguishing between the different classes of words in *-vis*. I first look at semantics (section 5.3.1.1), then syntax (section 5.3.1.2), and finally various aspects of morphology (sections 5.3.1.3–5.3.1.5). Section 5.2.1.6 discusses homonymous quantifiers and adjectives.

5.3.1.1 Meaning of abundance

Quantifiers in *-vis* have quite a different kind of meaning than do adverbs and adjectives: a meaning of indefinite abundance that resembles what we see in bare plurals (cf. section 5.1.2) quite closely. Consider (47)–(49).

⁵There are compound nouns in *-vis* and also some adjectives in *-vis* that have traditionally been seen as something different from the words that I am examining here. I leave them out of the discussion, since this is uncontroversial.

- (47) Hundrevis av deltidsansatte ... står i fare for å miste jobben ...
 B-BT hundred-*vis* of part-time-employed-PL ...
 'Hundreds of part-time employees are in danger of losing their jobs.'
- (48) Folket kjøper tonnevis med aviser for å holde seg orientert om sannheten.
 B-BK ... ton-*vis* with newspaper-PL ...
 'The people buys tons of newspapers to keep informed about the truth.'
- (49) Vi sat i timevis i bilkø både i Aurland og på Gudvangen onsdag.
 N-BT ... hour-*vis* ...
 'We sat for hours in a car queue both in Aurland and at Gudvangen on Wednesday.'

In general, the suffix *-vis* in quantifiers signals that there are several entities of the kind that the base of the derivation designates. If *X* is the base of a quantifier in *-vis*, then *X-vis* typically means '(many/several) *Xs*'. This is revealed by the translations into English: *hundrevis* means 'hundreds', *litervis* means 'litres' etc. (It is possible that the morphology of certain quantifiers with an extended base exhibits the remains of a plural suffix; cf. section 5.3.1.5.)

The notion of plurality is problematic in relation to *massevis* (cf. (46)) and other words derived from nouns that designate bad unit counters. But this goes for bare plurals as well, as illustrated in example (50).

- (50) Ut fra bedehuset strømmet masser av mennesker.
 B ... mass-PL of human.being-PL
 'Out of the chapel streamed masses of people.'

Like bare plurals, quantifiers in *-vis* all have a fairly clear expressive function: The speaker considers the amount in question to be large in a relative sense: large in the given context, large with respect to the usual amount of the relevant kind of quantified mass.

Adverbs in *-vis* are a very heterogeneous group. First, there is a group of words like *heldigvis* [lucky-*vis*] 'luckily', *sannsynlegvis* [probable-*vis*] 'probably', and *nødvendigvis* [necessary-*vis*] 'necessarily', most of which are used in a sentence adverbial function to signal the speaker's belief, attitude, etc. towards what is being referred to. That is, they express modality. Second, there is a group of words like *avslutningsvis* [conclusion-*vis*] 'as a conclusion, in the end', which place an event in a larger context of events. Third, there are a number of words with idiosyncratic meanings and functions, e.g. *forholdsvís* [relation-*vis*] 'relatively' and *anslagsvis* [estimate-*vis*] 'as an estimate'.

Adjectives in *-vis* form two semantic subgroups. (As is the case for most Norwegian adjectives, they can be used adverbially, and adjectives in *-vis* are more frequent in adverbial than in adnominal use.) The first subgroup of adjectives may be called restrictive. Examples are *delvis* [part-*vis*] 'partial' and *periodevis* [period-*vis*] 'at times'. This group is illustrated in (51).

(51) Det har de delvis klart ved den nye skyssendringen.

B-BT that-N have-PRES they part-*vis* manage-PRT ...

'They have partly managed that by the new change in the conveyance.'

In (51), only some of the goals have been arrived at by the change. If *X* is the base of such derived adjectives, one can say that *X-vis* means 'which concerns some, but not all, *Xs*'. The second group of adjectives in *-vis* may be called distributive. Examples are *gradvis* [degree-*vis*] 'gradual' and *etappevis* [stage-*vis*] 'by stages'. This group is illustrated in (52).

(52) planar som viser korleis ei etappevis utforming kan bli

N-BT ... a-F stage-*vis* shaping(F) ...

'plans that show how a shaping by stages may become'

In (52), something is shaped in several stages, stage by stage. If *X* is the base of these derived adjectives, one can say that *X-vis* means 'one *X* at a time', '*X* by *X*', '(measured/distributed) by the *X*'. Some of these adjectives are homonymous with quantifiers (cf. section 5.3.1.6).

5.3.1.2 Syntax like quantifying nominals

The clear semantic differences between the various classes of words in *-vis* are of course reflected in equally different syntactic properties.

Quantifiers in *-vis* may be used initially in constituents with all the normal nominal functions. Examples (53)–(58) exemplify use in nominals that function as subject, presented nominal, nominal predicate, object, object of preposition, and nominal degree expression, respectively. In most functions, they are typically followed by *av* 'of' or *med* 'with' and a substance nominal, as in (53)–(56).

(53) Milevis med skogsveier frister.

B-BT 10.kilometres-*vis* with forest-road-PL ...

'Miles (Tens of kilometres) of forest roads tempt one.'

- (54) Og der stod det massevis av bøker, hyllene fulle!
 BT ... mass-*vis* of book-PL ...
 'And there, there stood masses of books, the shelves full!'
- (55) Det blir tusenvis av barn og voksne!
 B-BT ... thousand-*vis* of child-(PL) and adult-PL
 'That is (makes) thousands of children and adults!'
- (56) Dei vil ikkje ha tusenvis av bilar som aukar CO-utsleppa ...
 N-BT ... thousand-*vis* of car-PL ...
 'They don't want thousands of cars that increase the discharge of CO.'
- (57) I årevis hadde hun hatt plager i hele kroppen ...
 B-BT ... year-*vis* ...
 'For years, she'd had pains in her whole body.'
- (58) Vi holder oss milevis unna Cecilie!
 B-BT ... 10.kilometres-*vis* ...
 'We stay miles (tens of kilometres) away from Cecilie!'

In all of these examples, the quantifier in *-vis* (along with the preposition) may be replaced with a quantifying noun preceded by *fleire* (Bokmål: *flere*) 'several', for instance, in (57) *årevis* could be replaced by *flere år* 'several years'. This yields expressions that are slightly more precise with respect to quantity and clearly less expressive. Above all, it shows that such words in *-vis* are quantifying expressions.

Quantifiers in *-vis* are unusual quantifiers in that a preposition normally intervenes between the quantifier and the substance nominal. Other quantifiers typically either forbid or only optionally allow such a preposition; cf. *tre (*av/med) kattar* [three of/with cat-PL] 'three cats'. But the use of a preposition is common to quantifiers in *-vis* and bare plurals. Thus, *tusenvis* in (55) could be replaced by *tusener* 'thousands', with little or no change in meaning.

Quantifiers in *-vis* are typically used in indefinite nominals, but do occur in definite nominals, typically preceded by the definite article and with a restrictive relative clause following the substance noun. This is illustrated in (59).

- (59) [De krever] amnesti for de hundrevis av ETA-separatister som sitter fengslet.
 B-BT ... the-PL hundred-*vis* of ETA-separatist-PL that ...
 'They demand amnesty for the hundreds of ETA separatists that are imprisoned.'

This usage is also found with bare plurals; *hundrevis* in (59) could be replaced by *hundrer* 'hundreds'. Definite nominals with quantifiers in *-vis* and bare plurals are discussed in section 7.1.5.

Thus, quantifiers in *-vis* can be seen to have a syntax that is more similar to the syntax of bare plurals than to the syntax of typical quantifiers. One might ask whether it would not be more appropriate to consider the relevant words in *-vis* to be nouns rather than quantifiers. But quantifiers in *-vis* neither have the inherent gender of nouns nor the nominal inflection for number and definiteness.

Adverbs in *-vis* are typically used in sentence adverbial function, as exemplified with *naturlegvis* 'naturally' in (60). Many adverbs in *-vis* have other, highly specialized adverbial functions.

(60) Saka er naturlegvis ...pinleg for dei det gjeld ...

N-BT case-DEF be-PRES natural-*vis* embarrassing ...

'The matter is, naturally, embarrassing for those concerned.'

Adjectives in *-vis* are used adnominally and adverbially, like other adjectives (but only infrequently in predicate function). Most (possibly all) adjectives in *-vis* are used far more frequently as adverbials than in any other function. Adnominal and adverbial use are illustrated for *gradvis* 'gradual' in (61) and (62), respectively.

(61) Men fra 1979 av tilloet kinesiske myndigheter en gradvis liberalisering i Tibet.

B-BT ... a-M/F degree-*vis* liberalization(M/F) ...

'But from 1979 onwards, the Chinese authorities allowed a gradual liberalization in Tibet.'

(62) De siste årene har omsetningen gradvis økt ...

B-BT ... have-PRES turnover-DEF degree-*vis* increase-PRT

'During the last years, the turnover has gradually increased.'

5.3.1.3 No inflection

Quantifiers in *-vis* are not inflected. Neither are the adverbs, but adjectives do exhibit agreement inflection.

Since both quantifiers and adjectives are part of nominal constituents, differing formal properties are a valuable source of evidence for their different category memberships. Quantifiers can be separated from adjectives since they lack the formal properties that adjectives have.

Norwegian adjectives have agreement inflection, distinguishing between three categories: gender, number, and definiteness. Further, many adjectives exhibit

	Singular	Plural
Indefinite	gradvis	gradvise
Definite		

 Table 5.2. The inflection of an adjective in *-vis*

inflection for degree, while many others are used in a periphrastic degree construction using *meir* (Bokmål: *mer*) 'more' and *mest* 'most' (cf. the parallel English construction).

Adjectives in *-vis* exhibit total gender syncretism, with indefinite singular forms without any inflectional suffix.⁶ In the plural and the definite forms they have the normal suffix *-e*. Expression of degree is achieved by periphrasis; that is, there are only positive inflectional forms. The paradigm is illustrated with *gradvis* 'gradual' in table 5.2. Examples of adnominal use of adjectives in *-vis* are given in (63)–(66). (64) illustrates the use of the suffix *-e* in a plural indefinite form, while (65) shows a definite form. (66) illustrates the use of periphrasis to form the comparative.

- (63) [D]et kan skje ei etappevis utbygging ...
 BT ... a-F stage-*vis* expansion(F)
 'There can be an expansion stage by stage.'
- (64) Hos MS-pasienter er det flekkvise områder med betennelsesreaksjon ...
 B-BT ... spot-*vis*-PL area-PL ...
 'In MS patients, there are spots/areas with an inflammatory reaction.'
- (65) [M]en den gradvise nedtrappingen av gruveselskapet har ført til at bare en liten vedlikeholdskontrakt er igjen i dag ...
 B-BT ... the-M/F degree-*vis*-DEF down-stepping(M/F)-DEF ...
 'But the gradual build-down of the mining company has resulted in there being only a small contract of maintenance left today.'
- (66) SV ... har valgt en ... mer trinnvis åpning av årets valgkamp enn de øvrige partiene.
 B-BT ... a-M/F more step-*vis* opening(M/F) ...
 'The SV has opted for a more gradual opening of this year's electoral campaign than the other parties.'

⁶An occasional *-t* suffix in the indefinite neuter singular can be found.

Quantifiers in *-vis* do not exhibit different number or definiteness forms, and they have no kind of degree inflection. The quantifiers in (67) and (68) show that the form is not affected by the number of the substance nominal, which is singular in (67) (*mat* 'food') and plural in (68) (*plater* 'records'). (69) and (70) demonstrate the indifference of quantifiers in *-vis* to the definiteness of the pseudopartitive nominal. In (69) it is indefinite, in (70) there is a definite nominal introduced by the plural definite article *de*, but the form of the quantifier *hundrevis* 'hundreds' is the same in both cases.

- (67) Flere tusen israelere kunne forsyne seg med tonnevis av mat ...
 B-BT ... ton-*vis* of food ...
 'Several thousand Israelis could help themselves to tons of food.'
- (68) [Det er] ingen grunn til å tro at han plutselig skal selge tonnevis av plater ...
 B-BT ... ton-*vis* of record-PL
 'There is no reason to believe that he is suddenly going to sell tons of records.'
- (69) Terrorbomben som eksploderte, drepte hundrevis av uskyldige mennesker.
 B-BT ... hundred-*vis* of innocent-PL human.being-PL
 'The terror bomb that exploded killed hundreds of innocent people.'
- (70) Situasjonen er langt verre for de hundrevis av hjemløse i Madrid.
 B-BT ... the-PL hundred-*vis* of homeless-PL ...
 'The situation is far worse for the hundreds of homeless in Madrid.'

5.3.1.4 Nominal derivational bases

Quantifiers in *-vis* are derived from nouns. So are the adjectives, but many adverbs are derived from adjectives.

Examples of the derivation of a quantifier are *millionvis* < *million*, *litervis* < *liter*, *dagevis* < *dag* 'day', *sekkevis* < *sekk* 'sack', *bunkevis* < *bunke* 'stack', *massevis* < *masse* 'mass'. There are two quantifiers which at first sight might appear to be derived from phrases: *titusenvis* 'tens of thousands' and *hundretusenvis* 'hundreds of thousands'. But I consider these to be derived from the nouns *titusen* and *hundretusen* (cf. the Bokmål plurals *titusener* and *hundretusener*), and not from the phrases *ti tusen* and *hundre tusen*. It is hardly possible to find any conclusive evidence for this analysis, but the question is not vital to the general question of the status of quantifiers in *-vis*.

Adjectives, too, are all derived from nouns. Examples are *delvis* 'partly' < *del* 'part' and *etappevis* 'by stages' < *etappe* 'stage'. (A possible exception is *enkeltvis* 'one at a time' < *enkelt* 'single'.)

Some adverbs are also derived from nouns. Examples are *forholdsvis* 'relatively' < *forhold* 'relation' and *avslutningsvis* 'as a conclusion' < *avslutning* 'conclusion'. But many adverbs are derived from adjectives, all ending in *-leg* (Bokmål: *-lig*) or *-ig*. Examples of this are *heldigvis* 'luckily' < *heldig* 'lucky' and *sannsynlegvis* 'probably' < *sannsynleg* 'probable'.

Thus, if a word in *-vis* is derived from an adjective, it is an adverb. If it is derived from a noun, however, it can belong to any of the three classes adverb, adjective, and quantifier.

5.3.1.5 Extension of monosyllabic derivational bases

Quantifiers in *-vis* exhibit a kind of extension of the base not seen in adjectives (or adverbs) in *-vis*. Such extension is common in Norwegian (cf. Faarlund et al. 1997: 68–74), especially in compounding. For instance, when *barn* 'child' is compounded with *vogn* 'waggon', it adds *-e*: *barnevogn* 'pram', and when *dag* 'day' is compounded with *verk* 'work', it adds *-s*: *dagsverk* 'day's work'. These and similar extensions are variously referred to in the literature as "empty morphs" (Katamba 1993: 38), "linking morphemes" (Krott et al. 2001), "binding elements" (*binde-element*, Faarlund et al. (1997)) "juncture formatives" (*fugeformativ*, Endresen (1988)), etc. They can either be analyzed in terms of allomorphy of the derivational stem or as separate morphemes that are constituents of the compounding and derivational constructions. It is not important for the point to be made in this section that one particular analysis be chosen.

What is exceptional about words in *-vis* is that the presence or absence of an extension with *-e* is systematically related to a semantic opposition between words with different meanings and to a syntactic opposition between different grammatical functions. As far as I know, this is unique in Norwegian word formation.

We may first note that some polysyllabic bases of quantifiers in *-vis* add *-s* (*månadsvi*s 'months' < *månad*) and some remain unchanged (*litervi*s < *liter*). But what interests us here is monosyllabic bases. All monosyllabic bases of quantifiers add *-e*.⁷ We find *lassevi*s < *lass* 'load', *milevi*s < *mil* '10 km', *årevi*s < *år* 'year', etc.

(Some even add *-es*, next to the normal forms in *-e*: *dagevi*s/*dagesvi*s 'days' < *dag*. This variation is found with quantifiers of time, and with disyllabic as well as monosyllabic derivational bases: *åre(s)vi*s 'years' < *år*, *time(s)vi*s 'hours' < *time*, *veke(s)vi*s 'weeks' < *veke* (Bokmål: *uke(s)vi*s < *uke*). I think these forms must have developed in analogy with the normal *s*-addition of the time quantifier *månadsvi*s

⁷In the corpora (cf. section 2.2), the short form *sneisvi*s 'scores' occurs once. I regard this as untypical, and dictionaries have only the long forms *sneisevi*s and *snesevi*s.

Base rhyme	Quantifier	Adjective
[ek]	sekk-e-vis (< sekk 'sack')	flekk-vis (< flekk 'spot')
[a:g]	dag-e-vis (< dag 'day')	lag-vis (< lag 'layer')
[V:g]	dag-e-vis (< dag 'day')	steg-vis (< steg 'step')
[V:l]	mil-e-vis (< mil '10 km')	del-vis (< del 'part')
[Vn]	tonn-e-vis (< tonn 'ton')	trinn-vis (< trinn 'step')
[Vŋ(g)d] / [Vŋ(k)t]	mengd-e-vis (< mengd 'quantity') ⁹	punkt-vis (< punkt 'point')

 Table 5.3 . Extension by *-e* of monosyllabic bases in quantifiers

'months' < *månad* (Bokmål: *månedsvís* < *måned*). A very common pronunciation of *månad*/*måned* is *måne* /²mo:ne/, and *månadsvís*/*månedsvís* is then pronounced *månesvís* /²mo:nes,vi:s/, which gives rise to the pattern of disyllabic bases with *-s* added to an unstressed *-e* as in *timesvís*. The forms with *-es* added to monosyllabic bases must then have been created in analogy with the disyllabic bases.)

Monosyllabic bases in adjectives in *-vis* are not normally extended by *-e*. Thus, we find adjectives such as *delvis* 'partial' < *del* 'part', *gradvis* 'gradual' < *grad* 'degree, stage', and *tidvis* 'at times' < *tid* 'time'. In the corpora, there are examples of many additional adjectives in *-vis* with no *-e*.⁸

I can see no evident phonological difference between the bases of quantifiers and adjectives that could motivate this difference in base extension in the derived forms. Some phonological pairs are presented in table 5.3.

The corpora (cf. section 2.2) include both *flokkvis* and *flokkevis* (one and three tokens, respectively). The instance of *flokkvis* is an adjective used adverbially; this is shown in (71). All three instances of *flokkevis* are quantifiers; one example is (72).

(71) Dei møttes flokkvis og spurte kvarandre.

N-DO they meet-PAST flock-*vis* ...

'They met in flocks and asked each other.'

⁸There are also a couple of examples of adjectives with extension, most notably *rykkevis* alongside *rykkvis* 'in fits and starts' < *rykk* 'jerk' and *bitevis* alongside *bitvis* 'in parts' < *bit* 'piece'. Such examples undermine the otherwise very neat difference between quantifiers and adjectives. On the other hand, I have also found the adjective *brokkvis* 'in fragments', which in dictionaries has the form *brokkevis*, and which is derived from *brokke* 'fragment'. One could speculate whether the tendency for adjectives to have monosyllabic bases has been the pattern for a syncopation.

⁹The base is *mengd* in Nynorsk, *mengde* in Bokmål. What matters is that although the base may be monosyllabic, in the derived form it has an *-e* added.

(72) [Der kan du] treffa flokkevis av mørkhuda personar.

N-BT ...flock-*vis* of dark-skinned person-PL

'There you can meet flocks of dark-skinned persons.'

In (71), there is a description of how people met, not of how many they were. In (72), on the other hand, the meaning is that there are many people (many enough to appear regularly in "flocks"). My own intuition is that there is indeed such a difference between *flokkvis* and *flokkevis*. The same holds for *haugvis* (adjective) and *haugevis* (quantifier). Informants' judgements point in the same direction: In cases where there exist both a form with an *-e* and a form without an *-e*, the extended forms are most acceptable in quantifier contexts, and the *e*-less forms are most acceptable in adjectival contexts. For instance, in a context where one is trying to sort out which events happened which day, one could say that one was trying to sort events *dagvis* (a "new" adjective), but not *dagevis* (the established quantifier).

I do not contend that all monosyllabic bases always have an *-e* added in quantifier derivation, nor that this is never done in adjective derivation. But there is a clear tendency. As I see it, this state of affairs is most fruitfully accounted for if one assumes that the quantifier suffix *-vis* is distinct from the adjective suffix *-vis* (and the adverb suffix(-es), for that matter). When quantifier *-vis* is combined with a monosyllabic base, *-e* is added to the base. When adjective *-vis* is combined with a monosyllabic base, no vowel is added.

The extensions *-s* and *-e* in compounds derive historically from genitive singular and plural suffixes, respectively. Faarlund et al. (1997: 73) propose that in *flokkevis* [flock-*vis*] – possibly with a reflex of the old genitive plural – the base has a meaning of plurality. They do not distinguish between quantifiers, adjectives, and adverbs, but if we assume that *-e* has to do with plurality, then we may speculate a little about the reason for the morphological distinction between quantifiers and adjectives. The quantifier *flokkevis* possibly has *-e* as a marker of its plural meaning, '(several) flocks'. The adjective *flokkvis* lacks the marker, as is appropriate since it has a distributive meaning; this is clearer with words like *kilovis* 'by the kilo, one kilo at a time'. The distinction does not carry over to words with polysyllabic bases, however. For instance, *månadsvi* 'months', in which the base is extended with *-s*, the reflex of the old genitive singular, has just as much a meaning of plurality as quantifiers with an *e*-extension. This complicates the picture, of course, but then again, irregularity is a hallmark of this part of Norwegian morphology.

5.3.1.6 Homonymous quantifiers and adjectives

For some quantifiers in *-vis*, there exists a homonymous adjective. A comparison of such pairs provides a good testing ground for the semantic and syntactic properties of the words. One almost homonymous pair was discussed in section 5.3.1.5: the quantifier *flokkevis* 'flocks' and the adjective *flokkvis* 'in flocks'.

Two examples of homonymy are *månadsvís* 'months' vs. 'monthly' and *kilovís* 'kilos' vs. 'by the kilo'. Consider (73) and (74)

(73) *månadsvís* betaling av husleiga
 N month-*vis* payment of house-rent-DEF
 'monthly payment of the house rent'

(74) *månadsvís* med forhandlingar
 N month-*vis* with negotiation-PL
 'months of negotiations'

The distributive adjective *månadsvís* 'monthly' in (73) does not tell how much payment there is, but rather how often payment takes place – how it is distributed. The quantifier *månadsvís* 'months' in (74), however, tells how much negotiation there has been, rather than how the negotiations have been distributed. Another contrastive pair is given in (75) and (76).

(75) Slaktaren sel pølser kilovís.
 N butcher-DEF sell-PRES sausage-PL kilo-*vis*
 'The butcher sells sausages by the kilo.'

(76) Slaktaren sel pølser i kilovís.
 N butcher-DEF sell-PRES sausage-PL in kilo-*vis*
 'The butcher sells kilos of sausages.'

In (75), the use of the adjective *kilovís* indicates that there are packages of one kilogram or that the price is given for one kilogram; the butcher does not have to sell a single sausage for this sentence to be appropriate. In (76), the use of the quantifier *kilovís* indicates that the butcher sells abundant quantities of sausages.

5.3.2 Classes of quantifiers in *-vis*

Quantifiers in *-vis* can be derived from members of all the main classes of quantifying nouns. The two clearly most frequent types are quantifiers of number (e.g. *hundrevís* 'hundreds') and time (e.g. *dagevís* 'days'), and these two represent opposite poles in

several respects. Other classes, such as quantifiers of weight (e.g. *kilovis* 'kilos'), occupy intermediate positions. We shall look at numeral, time and other quantifiers in *-vis* in turn in sections 5.3.2.1–5.3.2.3.

5.3.2.1 Numeral quantifiers in *-vis*

In the newspaper and novel corpora (cf. section 2.2), the most frequent quantifiers in *-vis* derived from a numeral noun are *tusenvis* 'thousands', *hundrevis* 'hundreds', *titusenvis* 'tens of thousands', *hundretusenvis* 'hundreds of thousands', and *dusinvis* 'dozens'. Also represented are *millionvis* 'millions', *sneisevis* 'scores', and *titalvis* 'tens' (< *tital* 'ten-number'). (The forms listed are Nynorsk.)

Numeral quantifiers in *-vis* are usually followed by a substance nominal, as exemplified in (77). In the corpora, this is the case for 94 % of the tokens of numeral quantifiers in *-vis* (475 tokens (including 9 partitives) out of a total of 503 tokens).

- (77) Alle hadde hundrevis av spørsmål.
 CL ... hundred-*vis* of question-(PL)
 'Everybody had hundreds of questions.'

But it is possible to leave out the substance nominal; in an example like (78) it is understood what the quantified mass is on the basis of world knowledge. One knows that taxes are based on money, and so *tusenvis* is understood to be elliptic for *tusenvis av kroner*.

- (78) Samstundes tener Radøy kommune tusenvis i renovasjonsavgifter ...
 N-BT ... thousand-*vis* ...
 'At the same time, the municipality of Radøy makes thousands [of *kroner*] in refuse taxes.'

However, it is not uncommon for the quantifier to follow the preposition *i* 'in', in which case the quantified mass is expressed elsewhere, either as the head noun of a nominal with *i* + quantifier as a kind of modifier, or in a separate phrase, with *i* + quantifier in an adverbial position. The former possibility is illustrated in (79), where *arbeidsplasser i titusenvis* could be replaced with *titusenvis av arbeidsplasser*. The latter possibility is exemplified in (80), where *I tusenvis ... vi* can be compared to a partitive construction: *tusenvis av oss* 'thousands of us'.

- (79) Arbeidsplasser i titusenvis gikk over ende ...
 B-BT work-place-PL in ten-thousand-*vis* ...
 'Tens of thousands of job positions were lost.'

(80) I tusenvis kommer vi til å glemme å skru av billyset ...

B-BT in thousand-*vis* come-PRES we to to forget-INF ...

'In thousands we shall forget to turn off the car light.'

I shall not go into details of constructions like those illustrated in (79) and (80). But I should like to point out that what we see in (80) is without doubt semantically closely related to quantifier floating.

5.3.2.2 Time quantifiers in *-vis*

In the corpora, the most frequent quantifiers in *-vis* derived from a time noun are *årevis* 'years', *timevis* 'hours', *månadsvis* 'months', *dagevis* 'days', and *vekevis* 'weeks'. Also represented are *øktevis* (< *økt* 'spell of work'), *døgervis* (< *døger* '24 hours'), and *minuttvis* 'minutes'. (The forms listed are Nynorsk.)

Time quantifiers in *-vis* are very different from the numeral ones with respect to the tendency to be used with a following substance nominal. These quantifiers usually have no such following nominal. A typical example of how time quantifiers are used is given in (81).

(81) Han har selv vært ute på tokt i årevis ...

B-BT ... in year-*vis*

'He has himself been out cruising for years.'

But phrases with a following substance nominal are possible. In the corpora, they make up 2 % of the tokens of time quantifiers in *-vis* (7 tokens (including 1 partitive) out of a total of 386 tokens). The example in (82) illustrates this.

(82) Men for Fredrik ... forårsaker planten månedsvis med isolasjon og angst.

B-BT ... month-*vis* with isolation and anxiety

'But for Fredrik the plant causes months of isolation and anxiety.'

5.3.2.3 Other quantifiers in *-vis*

In addition to numeral and time quantifiers in *-vis*, there are several small classes of such quantifiers. The words that occur in the corpora are listed in table 5. 4. There are no examples of area or volume (as opposed to capacity) quantifiers, but one could imagine words like *kvadratmetervis* 'square metres' and *kubikkmetervis* 'cubic metres'.

Some examples with and without a following substance nominal are given in (83)–(86).

Class	Example
Indefinite numeral	drøssevis 'multitudes'
Group	flokkevis 'flocks' hopevis 'crowds' bunkevis 'stacks'
Unit of length	milevis 'tens of kilometres' metervis 'metres' kilometervis 'kilometres'
Unit of capacity	litervis 'litres'
Unit of weight	tonnevis '(metric) tons' kilovis 'kilo(gram)s' hektovis 'hectograms'
Indefinite measure	massevis 'masses' mengdevis 'quantities'
Portion	haugevis 'heaps' dungevis 'heaps' lassevis 'loads'
Container	byttevis 'buckets' kassevis 'cases' sekkevis 'sacks' tønnevis 'barrels'

Table 5.4. The smaller classes of quantifiers in *-vis* (Nynorsk forms). *Drøssevis* could alternatively have been classified as a group quantifier, and *lassevis* as a container quantifier.

(83) Det kan være tonnevis av is utenfor her.

B-BL ... ton.*vis* of ice ...

'There may be tons of ice outside here.'

(84) Jeg er sikker på at det står haugevis med datautstyr og støver ned ...

B-BT ... heap.*vis* with data-equipment ...

'I'm sure that heaps of data equipment stand(s) collecting dust.'

- (85) [V]i ligger milevis foran alle andre land ...
 B-BT ... 10.kilometres-*vis* in.front.of all-PL other-PL country-(PL)
 'We are miles (tens of kilometres) ahead of all other countries.'
- (86) Lagerplass var der i massevis ...
 FK storage-space be-PAST there in mass-*vis*
 'There was a lot of storage space.'

Length quantifiers depart markedly from the rest of these words with respect to the tendency to be followed by a substance nominal. In the corpora, they have such a following nominal in only 29 % of the tokens (10 out of a total of 35 tokens). For the rest category, the share of this usage amounts to 69 % of the tokens (117 out of a total of 169 tokens). That is, length quantifiers approach time quantifiers in their tendency to be used without a following substance nominal, while the rest category approaches numeral quantifiers.

5.3.3 Summary

Although the grammatical tradition has generally held that all derived words in *-vis* are adverbs, it must be concluded that there are several distinct classes of such words. In section 5.3.1, I have focussed on a group of words that I regard as

	Quantifiers	Adjectives	Adverbs
Semantics:	abundance	restriction or distribution	modal etc.
Syntax:			
a) functions	quantifying	adverbial, adjectival, etc.	adverbial etc.
b) substance nominal	yes	no	no
Morphology:			
a) base	noun	noun	adjective or noun
b) extension of monosyllabic base	yes	no	(no)
c) inflection	no	yes	no

Table 5.5. Summary of distinctive properties of derived words in *-vis*

quantifiers, and I have shown that this group can be distinguished from other derived words in *-vis* on the basis of semantic, syntactic, and morphological criteria. These criteria are summarized in table 5.5.

In section 5.3.2, I have looked at different classes of quantifiers in *-vis* and noted a marked difference between them in their tendency to be followed by a substance nominal: Time and length quantifiers are less often used in such a way than are members of the other classes. The reason for this difference, I propose, is that time and length are conceptually more separable from the measured substance than other measures. The various concepts of quantity are the subject of section 5.4.

5.4 Concepts and metaphors of quantity

In pseudopartitives, quantities are referred to with nominals or the nominal-like quantifiers in *-vis*. That is, we refer to quantities as if they were objects – reification. I regard this as a metonymy-based metaphor in the sense of Radden (2000). Traditionally, metonymy and metaphor have been considered to exclude one another. However, Heine et al. (1991) make a very convincing case for the view that at least the metaphors that are employed in grammatical structure are based on metonymy. Radden (2000: 93) defines three related categories as follows:

Metonymy is a mapping within the same conceptual domain. *Metaphor* is a mapping of one conceptual domain onto another. *Metonymy-based metaphor* is a mapping involving two conceptual domains which are grounded in, or can be traced back to, one conceptual domain.

In the following paragraphs, I explain how metonymy and metaphor work in pseudopartitives. I base the exposition on the semantics of unit counting.

Consider a pseudopartitive with a plural quantifying noun, for instance *tre millionar kattar* ‘three million cats’ (cf. figure 4.33 in section 4.3.1). The substance nominal designates a replicate mass of cats. The quantifying nominal designates a replicate mass of millions. Each million is an individuation of a replicate mass of cats with a specific cardinality, 1,000,000. The cardinality is a property of the replicate mass; it is not an object. But the replicate mass is individuated and named on the basis of the cardinality. This is metonymy: A property of an object regarded as a mass is mapped to the same object regarded as an individual. With plural quantifying nouns, this holds at two levels: 1) from the quantity of an individuated mass to the quantifying individual and 2) from the quantity of the substance mass to the quantifying mass.

The result is that one object is categorized twice by the pseudopartitive; in the semantic structure, the replicate mass profiled by the quantifying noun (the quantifying mass) is related by cocategorization to the mass profiled by the substance noun (the substance mass), and the members of the quantifying mass individuate submasses of the substance mass. (For the terminology, cf. section 4.2.4.) The two nominals are cocategorizing (“weakly coreferential”), but the pseudopartitive expression is structured as if there were two objects. The result of metonymy is a metaphor: A quantity is an object.

The fact that quantities are referred to with nominals might appear to be a weak basis for claiming the existence of such a metaphor. But the metaphor is further reflected in the grammar of pseudopartitives, as we shall see in chapter 6. In particular, the metaphor structures the conceptual relation between the involved quantifying and quantified entities. Since quantifying individuals are a heterogeneous class – compare a metre and a drop – and quantifying masses are, too, we may expect the relations between the quantifying and the quantified entities to be conceptualized in more than one way. This is the subject of the remainder of the section.

To get at the natural source concepts for metaphors of quantity, we need to start with secondary quantifying nouns. Specifically, we are interested in the individuals profiled by singular quantifying nouns or the individual members of the replicate masses profiled by plurals – the entities that individuate (submasses of) the substance mass. With secondary quantifying nouns, these entities refer to, at least originally, rather “good” objects, with a size, a shape, a function, etc. And good objects are made of something; they are constituted of a material. For instance, a clove of garlic is an object whose constitutive material is garlic, and a pack of wolves is an object whose constitutive material is wolves. (The clove is a better object than the pack.) When the meaning of the noun is shifted towards greater salience of the quantitative aspect, i.e. development of a pseudopartitive, we may expect the abstract relation between the quantifying individual and the individuated mass to be conceptualized in terms of the more concrete relation between an object and its constitutive material. As the qualitative properties are weakened, this becomes less and less an objective material relation. And if the secondary quantifying noun develops into a primary quantifying noun with only quantitative meaning, the relation will become entirely metaphorical: A quantity cannot consist of a material, since it is not a physical object. If pseudopartitives develop in this way, we would expect them to be structured in the same way as expressions of the type “an object (constituted) of a material”. The quantity is seen as being (made of) the substance.

Another conceptual source is provided by container nouns. Being “good” objects, containers, as well, are made of something. But more importantly, they can contain something. As we have seen (section 5.2.7), container nouns used in pseudopartitives refer by metonymy to the content. The meaning is further shifted to the quantity of the content. We can expect the conceptual structure of the concrete source to be transferred to the abstract quantifying structure. The quantifying individual is conceptualized as a container, the individuated mass as a content. Pseudopartitives developed in this way are expected to be structured like expressions of the type “a container with a content”. The quantity is seen as closely surrounding, supporting and bounding the substance.

A third kind of source is illustrated by non-quantifying nouns that have become length nouns, e.g. *foot* ‘foot’. These originally referred to “good” objects – oblong things that were put next to the objects to be measured. When such nouns become unit nouns, we may expect the source structure to follow: The quantifying individual is conceptualized as an object, and the individuated mass as an accompanying object, a companion. Pseudopartitives of such an origin are expected to be structured like expressions of the type “an object with an (accompanying) object”. The quantity is seen as being next to, but not necessarily in contact with, the substance.

Next, we need to consider plural quantifying nouns, including bare plurals, and quantifiers in *-vis*. If the noun is combined with a quantifier (English example: *three litres of water*) or a size adjective (e.g. *a large quantity of water*), the quantifying nominal will be bounded, and so, in effect, will the substance nominal. This is especially clear if there is a numeral: The measure of the individuated masses can be multiplied with the number of the quantifying mass to give the measure of the substance mass (e.g. *three million cats*: $3 \times 1,000,000 = 3,000,000$). In unbounding (with a bare plural or a quantifier in *-vis*) there is no bounding of the quantifying mass or the substance mass (e.g. *lots of cats*). The only bounding is at the level of the individual units and the masses individuated by them, the level discussed above (e.g. the level of each individual litre in *three litres of water*). Bounding in this context is a quantitative limitation of a mass. The limits of something are easily conceptualized as a container, a surrounding boundary. Therefore, it would be natural to use the source structure of containment to express the abstract relation between a bounded quantifying mass and a substance mass. It would be less natural to use this source structure for the relation between an unbounded quantifying mass and a substance mass. However, a notion of bounding may still be present because of the bounding at the level of quantifying individuals and individuated masses.

Metaphor	Quantity	Substance
Object metaphor (general):	Object	Object
Material metaphor:	Constituted object	Constitutive material
Containment metaphor:	Container	Content
Accompaniment metaphor:	Accompanied object	Accompanying object

Table 5.6. Metaphors for quantity

Thus, the metaphor of Lakoff and Núñez (1997) that numbers are objects may be regarded as part of a metaphorical system: A quantity is an object. In a given context, more specific versions may come into play. I have envisioned three in this section; these are summarized in table 5.6 along with the general metaphor. Note the increasing conceptual distance: constitution – containment – accompaniment. These three metaphors for quantity will be related to the various pseudopartitive constructions and their sources in chapter 6. We now need to consider which classes of quantifying expressions each metaphor can most naturally be applied to.

To start with the accompaniment metaphor, I propose that it will most naturally be reflected in the context of length measures; recall that length nouns are typically derived from words for oblong objects. And since we know that duration is typically conceptualized in terms of physical distance, we may expect time measures to resemble length measures grammatically. As for area, recall that the square units are based on length units, so that the accompaniment metaphor might come into play for these as well. But it is also known (cf. Lakoff and Johnson 1980) that areas are often conceptualized as containers, which may alternatively call for the container metaphor. Notice further that accompaniment is unaffected by bounding; two objects can accompany one another whether they are bounded or not.

The container metaphor is most naturally applied in the context of container nouns. And as we have seen (in section 5.2.4.2), abstract capacity nouns are almost always derived from container nouns, and so are many weight nouns. Further, both capacity and weight are typically measured by filling a container with the substance. It would therefore be quite natural to extend the container metaphor to volume/capacity measures and weight measures. Indeed, it would seem natural to extend the metaphor to bounding quantification in general. Good evidence of the container metaphor is provided in (87).

(87) Med dusinet fullt av ... medaljer fortjener [han] å trekke seg tilbake ...

B-BT with dozen(N)-DEF full-N of medal-PL ...

'With the dozen full of medals (i.e. having won (at least) a dozen medals), he deserves to withdraw.'

The material metaphor is applied most naturally in the context of secondary quantifying nouns other than container nouns: group nouns and portion nouns. Many primary quantifying nouns at both sides (good vs. bad 'unit counters) are related to secondary quantifying nouns with respect to both meaning and origin, and extensions of the material metaphor in either direction would not be surprising. Many weight nouns (cf. section 5.2.4.2) originally designated bodies used for balancing on scales; this comes close to portion nouns, and the material metaphor would therefore seem just as natural for weight as would the container metaphor. In general, it would be natural to employ the material metaphor everywhere that accompaniment and containment are not well motivated, for instance in the absence of bounding.

5.5 Conclusion

In this chapter, we have seen how quantifying expressions can be classified on the basis of their meaning as well as their function. Seven classes of quantifying nouns have been discussed, and it has been argued that Norwegian has a class of quantifiers in *-vis* that is distinct from adverbs and adjectives in *-vis*, a situation that has been ignored in the literature. Quantifiers in *-vis* are derived from most kinds of quantifying nouns. Finally, I have discussed several bases for conceptualizing the abstract domain of quantity in terms of concrete domains. Three source concepts have been outlined, and I have discussed to what extent they are likely to be applied in the context of the various kinds of quantifying expressions. This has been a prelude to chapter 6, where the relations between the various pseudopartitive constructions are analyzed. In particular, the semantic difference between the three source concepts will help to explain the distribution of *med*-pseudopartitives and *av*-pseudopartitives.

6

Pseudopartitive constructions: Juxtaposition, *med*, or *av*?

The field of the various pseudopartitive constructions in Norwegian – juxtapositional pseudopartitives, *med*-pseudopartitives, and *av*-pseudopartitives – is large and complex. To refer to a flock of sheep, one may in Norwegian speak of *ein flokk sauer*, *ein flokk med sauer*, or *ein flokk av sauer*. In other contexts, only one or two options may be available. And in many cases, although two or three options may be available, one of them may be much more frequent than the other(s). In this chapter, I try to account for the factors that determine whether juxtaposition, *med*, or *av* is used. That is, I explore primarily paradigmatic relations.

In section 6.1, I discuss the criteria for the use of juxtapositional versus prepositional pseudopartitives. This is done mainly on the basis of a discussion of the meaning of the juxtapositional construction and the factors that favour and disfavour the application of expressions with such a meaning. In section 6.2, I discuss the factors that determine whether *med* or *av* is chosen in prepositional pseudopartitives. The basis for this is an account of the meanings of the prepositions as used in pseudopartitives and the relations of these to the various concepts and metaphors of quantity.

6.1 Juxtapositional versus prepositional pseudopartitives

In this section, I discuss the relation between juxtaposition and the use of a preposition – *med* ‘with’ or *av* ‘of’ – in pseudopartitives. As we saw in chapter 1, the various constructions have very similar meanings, and one can often be replaced with another; cf. *ein flokk Ø/med/av kattar* ‘a flock of cats’. I try to show in this section that whether the use of juxtaposition is appropriate or not is determined by the presence or absence of conceptual unity.

In section 6.1.1, I analyze juxtaposition in Norwegian as a radial category, while section 6.1.2 introduces the notion of conceptual unity. In sections 6.1.3–6.1.5, I use this as the basis for explanations for phenomena that have been discussed in the existing literature: the role of stress, the language medium (spoken vs. written language), the class of the quantifying noun, and the form of the quantifying expression. Sections 6.1.6 and 6.1.7 are discussions of phenomena that have not previously been noted in the literature: the role of definiteness and of constituents intervening between the quantifying noun and the substance nominal.

6.1.1 Juxtaposition as a radial category

Juxtapositional pseudopartitives derive historically from an Old Norse construction where the substance nominal had genitival case marking. This marking was lost on the way to Modern Norwegian; I discuss this development in chapter 7.

Not only pseudopartitive meanings are expressed by juxtaposition in the modern language. We can represent the category of juxtaposition as a radial structure as in figure 6.1, where double angles (>>) indicate the assumed direction of a semantic extension. (Several types of juxtaposition, especially appositive structures, are not included here.) Pseudopartitives (box 1 in the figure), illustrated in (1) and (2), can safely be regarded as the central, prototypical kind of juxtapositional construction. The quantifying nominal and the substance nominal designate two entities that categorize the same object. The former provides a primarily quantitative categorization, individuating masses of a certain size; the latter provides a qualitative categorization.

(1) Klarer de å fange [tjuefem] kilo ål om dagen, er det nok til å klare seg.

B-BT ... twenty-five kilo-(PL) eel ...

'If they manage to catch 25 kilos of eel a day, it's enough to get by.'

(2) [De voksne lar] dem drikke et glass vin i hjemmet.

B-BT ... a-N glass(N) wine ...

'The adults let them drink a glass of wine at home.'

Example (2) illustrates cocategorization by a container nominal and a substance nominal; *et glass* refers to an amount of liquid rather than an actual container. However, container nouns are also used in expressions like the one in (3), where the container nominal definitely refers to the container, as shown by the adjective (cf. box 2 in the figure). This is not a pseudopartitive in the strict sense.

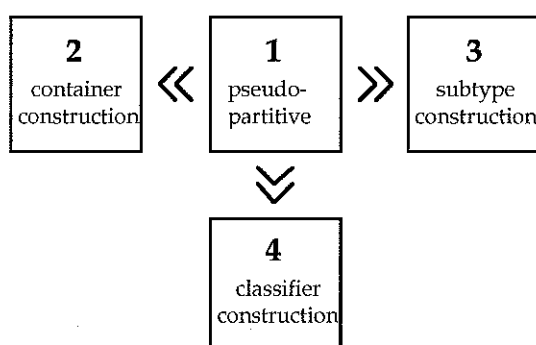


Figure 6.1. Juxtaposition as a radial category

(3) [Han fann] fram ei flatklemd pakke Marlboro ...

N-SH ... a-F flat-squeezed-M/F packet(F) Marlboro

'He produced a flattened packet of Marlboro.'

Another variety (box 3 in the figure) of the juxtapositional construction is illustrated in (4). Here the first noun has the meaning 'kind, type, sort', and it individuates subtypes of a more general type designated by the second noun. I do not regard this as a proper pseudopartitive, either.

(4) Kjærlighetssorg er en type sorg som for mange kan være alvorlig nok ...

B-BT love-grief be-PRES a-M type(M) grief ...

'Having a broken heart is a kind of grief that can be serious enough for many.'

The last kind of construction (box 4 in the figure) that needs to be kept apart from pseudopartitives is the (numeral) classifier construction illustrated in (5).

(5) Denne maskinen har [to] stykk 3GB-disker.

B-X ... two piece-(PL) 3GB-disk-PL ...

'This machine has two 3GB disks.'

Such constructions are known from languages in large parts of the world, but they are not so common in European languages. As far as I can tell, Norwegian has only one word which can possibly be called a classifier, namely *stykk* 'piece, unit'. *Stykk* is optional and can in principle be used for all countable entities, which makes it quite an untypical classifier. In languages with a fully fledged classifier system (cf. Kölver (1982), Grinevald (2000)), there are different classifiers that assign individuals to different classes, not just one single class. The classifier *stykk* is distinguished from

the portion noun *stykke* 'piece' (with which it is historically identical); cf. examples (6) (pseudopartitive construction) and (7) (classifier construction).

- (6) Ho kjøpte tre svære stykke kake.
 N ... three huge-PL piece-(PL) cake
 'She bought three huge pieces of cake.'
- (7) Ho kjøpte tre stykk svære kaker.
 N ... three unit-(PL) huge-PL cake-PL
 'She bought three huge cakes.'

Stykke in (6) individuates masses of cake, while *stykk* in (7) redundantly classifies individuals as countable individuals. Classifiers resemble a central class of quantifying nouns in being good unit counters (cf. Drossard 1982).

6.1.2 Juxtaposition as an icon of conceptual unity

We now need to focus more closely on the meaning of juxtaposition in pseudopartitives. In section 6.2, I discuss prepositional pseudopartitives in relation to the meanings of the markers involved in those constructions, *med* 'with' and *av* 'of'. Pinning down the meaning of juxtaposition is much more difficult, since it is characterized by the absence of a marker. We need to be able to say something about the meaning of "zero", or more correctly, about the meaning of absence. But juxtaposition is not just absence; it involves the presence and adjacency of two nouns in one nominal.

Pseudopartitives involve by definition the designation of two conceptual entities by two nouns. The substance noun provides a qualitative categorization, while the quantifying noun provides a quantitative categorization and, in the case of secondary quantifiers, also a qualitative one. The two nouns categorize the same real-world object, but in different ways.

There is a tendency for juxtapositional pseudopartitives to have an unstressed quantifying noun, while prepositional pseudopartitives usually have a stressed quantifying noun (cf. section 6.1.3). In Iversen (1918: 14), the use of stress is explained conceptually, on the basis of which of the concepts – that of the mass or that of the amount – is the more salient. Diderichsen (1957: 231) writes about various kinds of constructions in Danish where two constituents are brought together and only one of them is stressed, and where this external (syntactic or morphological) coalescence corresponds to an internal (semantic) coalescence. One such construction is juxtapositional pseudopartitives. The special prosody of pseudopartitives is also

commented on by Koptjevskaja-Tamm (forthc.), who regards it as an indication of the expression of conceptual unity. This is an idea that will be developed here.

In juxtapositional pseudopartitives, two nouns are conceptually close by categorizing the same object, and they are adjacent in the linguistic expression. Nothing (except possibly one or more adjectives) intervenes between them (cf. section 6.1.7), and nothing explicitly expresses the relation between the designated entities. Typically, only the substance noun is stressed; that is, the two nouns are stressed as if they were one. This pattern of adjacency and stress reduction functions as an icon of conceptual unity. The lack of stress on the quantifying noun also signals a relative lack of importance of the quantitative (and qualitative) categorization that this noun contributes. Note that this does not necessarily mean that the amount is unimportant. Consider *'tre liter 'vatn* "three litres of water": It may be that the amount of water (3 l) is important, but the specific unit employed (the litre) with its categorization of the mass of water is not given any particular prominence.

Haiman (1985: 105) writes the following about linguistic distance (# = word boundary, + = morpheme boundary):

The linguistic distance between expressions is reflected [...] also in the nature and number of the morphemes that lie between them. [...] The linguistic distance between X and Y diminishes as we proceed downwards along the following scale:

[...] Diminishing linguistic distance between X and Y

- a. X # A # B # Y
- b. X # A # Y
- c. X + A # Y
- d. X # Y
- e. X + Y
- f. Z

[d] represents analysis; [e] agglutination; and [f] synthesis of the morphemes X and Y into a single morph [...].

Juxtapositional pseudopartitives are of type d, while prepositional pseudopartitives are of type b.

One of Haiman's hypotheses is the isomorphism hypothesis: If there are two almost synonymous expressions in a language corresponding to two of the types of the scale above, they will differ semantically in one way or another (Haiman 1985: 105). According to Haiman's stronger motivation hypothesis, the semantic difference between the expressions will correspond in some way to the formal difference between them (Haiman 1985: 106). That is, we can predict that juxtapositional

pseudopartitives, which have a smaller linguistic distance (between the nouns) than do prepositional pseudopartitives, will also have a smaller conceptual distance.

Conceptual closeness is defined by Haiman (1985: 106–107) as follows:

Two ideas are conceptually close to the extent that they

- [...] a. share semantic features, properties, or parts;
- b. affect each other;
- c. are factually inseparable;
- d. are perceived as a unit, whether factually inseparable or not.

The two nouns of pseudopartitives categorize the same object, and the semantics of the quantifying noun is assumed to include schematic parts which correspond to the semantics of the substance noun; their meanings clearly share parts (a). Since the nominals categorize the same object, they are factually inseparable (c) – although often only by metonymy or metaphor, and they can be said to affect one another (b). This leaves part d of the definition as the variable; we expect juxtaposition to signal that we are dealing with one conceptual unit, while the use of a preposition should signal some kind of conceptual separation.

When I propose that juxtaposition is an icon of conceptual unity while the use of a preposition indicates conceptual separation, this is a hypothesis that can be supported in various ways. If juxtaposition is indeed an icon of conceptual unity, we may expect both subjective, objective, and more purely linguistic factors to affect the likelihood that juxtaposition rather than a prepositional construction will be used.

Conceptual unity is to a large extent a subjective matter. The expressions *tre liter vatn* [three litre-(PL) water] and *tre liter med vatn* [three litre-(PL) with water] can be used for the same kind of object; indeed, there is no objective difference between the possible referents of these two expressions. That is, subjective factors must play a central role in determining whether a juxtapositional or a prepositional expression should be used. In the default situation where the quantifying unit does not need to be emphasized, it is incorporated in the conceptual unity where the substance mass is conceptually central. If, however, the quantifying unit needs to be made more salient, conceptual unity is broken: A shift in emphasis gives salience to a different categorization of the object in question. The motivation for juxtaposition is then reduced, and the use of a preposition becomes better motivated. Note that it is primarily focus on the unit of quantification that breaks up conceptual unity; focus on the amount is something else.

But subjective unity is not totally independent of objective factors; after all, the objects referred to are typically objectively real, as are their quantitative properties (given prior individuation and categorization). If the quantifying nominal refers to

something that we tend to conceive of as existing in itself and not only as a quantitative aspect of what the substance nominal refers to, we may predict that juxtaposition is less likely to be used.

Finally, juxtaposition is iconic by virtue of the linguistic fact that the quantifying noun and the substance nominal are adjacent. Any separation of the two eliminates adjacency and will therefore also destroy the iconicity. We may predict this to be disallowed in juxtaposition, and that a prepositional expression will be used instead.

This interpretation of the conceptual status of juxtapositional pseudopartitives is supported by two independent sets of data. First, Koptjevskaja-Tamm (forthc.) shows that pseudopartitives tend cross-linguistically to be expressed by juxtaposition. The use of a marker for the substance nominal (such as the genitive in German or the preposition *of* in English) are less common (though not unusual). This contrasts strongly with the tendency for partitives, which normally have some case or adpositional marking of the substance nominal. While in pseudopartitives the two nominals refer to one object categorized in two ways (“weak coreferentiality”), in partitives the quantifying nominal refers to only a part of the object that the substance nominal refers to, and the relation is clearly one of part to whole, not of conceptual unity. The difference in conceptual distance is reflected cross-linguistically in a difference in linguistic distance.

Second, juxtaposition in pseudopartitives resembles apposition. In parts of the German linguistic literature, it is taken to be a kind of *enge Apposition* (‘narrow/tight apposition’); for discussion, see for instance Löbel (1986) and Lawrenz (1993). In appositional structures like *John the Baptist* and *her husband, the lawyer*, two nominals are juxtaposed, and both are used to refer to the same individual. Here, too, then, linguistic closeness is an icon of conceptual unity. Further, an appositional expression in one language often corresponds to an expression with some kind of relational marker (case or adposition) in another language. Compare for instance Norwegian *byen Roma* [city-DEF Rome] with English *the city of Rome* and Latin *urbs Romae* [city Rome-GEN]. The English and Latin markers of the relation between the nominals are the same as those used in pseudopartitives in these languages, and Norwegian uses juxtaposition in both cases.

6.1.3 Spoken and written Norwegian and the role of stress

Iversen (1918: 14) writes (about the dialect of Tromsø, but his observations are relevant for Norwegian in general) that if the mass is most salient, the quantifying noun is unstressed and juxtaposition is used; if the amount is more prominent,

however, the quantifying noun is stressed and a preposition is used. Beito (1986: 203), too, notes that there is a difference in stress: In juxtaposition the substance noun is stressed, in prepositional constructions the quantifying noun is stressed. Thus, the normal pattern is as shown in (8) and (9).

(8) ein sekk 'gulrøter
 N a-M sack(M) carrot-PL
 'a sack of carrots'

(9) ein 'sekk med 'gulrøter
 N a-M sack(M) with carrot-PL
 'a sack of carrots'

The complete lack of stress on the quantifying nominal is typical only if it consists of the indefinite article and the (indefinite singular) quantifying noun. If there is a different quantifier or a determiner (demonstrative or possessive), this is normally stressed. This more general situation is illustrated in (10) and (11).

(10) 'tre dropar 'vatn
 N three drop-PL water
 'three drops of water'

(11) tre 'dropar med 'vatn
 N three drop-PL with water
 'three drops of water'

It must be added that there are no clear-cut limits of acceptability here. A stressed quantifying noun can clearly be used in juxtaposition, and the use of a preposition after an unstressed quantifying noun is marginally possible.

Iversen (1918: 15, footnote) explains the use of *med* with reference to rhythmic factors:¹ The preposition is inserted between the two nouns in order to avoid adjacent stressed syllables. As pointed out by Knudsen (1967: 86–87), this account cannot be accepted as a satisfying explanation. There is hardly any doubt that the use of a preposition is related to stress. But as Knudsen observes, phrases like (12) are just as normal as phrases like (13), although the former type has an unstressed syllable which in itself is enough to prevent stress on two adjacent syllables and should thus render the preposition unnecessary.

¹His footnote is not quite explicit; I base my interpretation of Iversen on Knudsen (1967: 86–87).

(12) ein 'brote med 'ungar
 N a-M multitude(M) with kid-PL
 'a horde of kids'

(13) ein 'flokk med 'ungar
 N a-M flock(M) with kid-PL
 'a flock of kids'

Thus, although the use of a preposition rather than juxtaposition is related to stress, the avoidance of adjacent stressed syllables cannot account for the use of prepositional pseudopartitives.

However, if it is assumed that juxtaposition is an icon of conceptual unity, the tendency observed above can to a large extent be explained. In pseudopartitives, two nouns cocategorize one object, and the notion of unity is enhanced by juxtaposition and stress reduction. The focus on the categorization provided by the quantifying noun is relatively low. But the speaker may wish to focus on that categorization (for instance, on tons rather than kilos). This is most easily done by stressing the quantifying noun. However, focussing on the quantifying unit means breaking up the conceptual unity that is the hallmark of juxtaposition. Thus, if the speaker wants to focus on the quantitative categorization of the object referred to, she will stress the quantifying noun, and it becomes more likely that she will use a preposition.

The use of a preposition, especially *med*, rather than juxtaposition has been claimed to be more common in spoken than in written language; cf. Knudsen (1967: 86) and Næs (1972: 339). Delsing (1993: 201) writes the same about Swedish. I believe this is a correct observation, although I have not done any systematic investigation of spoken Norwegian. I have not come across any attempt to explain why the use of a preposition should be more common in spoken than in written Norwegian, and I do not have any fully satisfactory hypothesis myself. It does seem likely, however, that the use of a preposition is disfavoured in writing because this medium is more conservative than the spoken language. After all, juxtaposition is the successor of the old genitival constructions and therefore traditional, while the prepositional constructions appear to have grown frequent at a more recent stage. (I do not claim that the latter did not exist before the demise of genitival expressions.)

6.1.4 Primary and secondary quantifying nouns

Faarlund et al. (1997: 239–240) claim that secondary quantifying nouns (that is, group nouns, portion nouns, and container nouns) can be used in prepositional

constructions rather freely, while primary quantifying nouns (that is, numeral nouns, indefinite numeral nouns, unit nouns, and indefinite measure nouns) are normally used only in juxtaposition, at least in writing. Delsing (1993: 204) writes the same about Swedish. Neither Faarlund et al. nor Delsing explains why there is a difference between primary and secondary quantifying nouns with respect to the constructions that they are used in.

Compare (14), with the secondary quantifying noun *flaske* 'bottle', and (15), with the primary quantifying noun *liter*.

- (14) tre flasker med vin
 three bottle-PL with wine
 'three bottles of wine'
- (15) tre liter med vin
 three litre-(PL) with wine
 'three litres of wine'

According to Faarlund et al., expressions like the one in (15) are only marginally grammatical. As we shall see below, juxtaposition is more common in both cases (in writing). To some extent, it is true that primary quantifying nouns are less frequently followed by a preposition than are secondary quantifying nouns. But the facts are rather more complex. Example (15) is no doubt grammatical; the quantifying noun will normally be stressed when followed by *med*, unlike juxtaposition, where it is usually unstressed (cf. section 6.1.3). We shall see that not only are constructions with primary quantifying nouns like unit nouns followed by *med* fully grammatical, but the preposition is even obligatory in some contexts. In more "normal" cases, however, the picture is much less clear.

This is a very complex area of Norwegian grammar. In order to be able to characterize at least parts of the field in some more detail, I have investigated the usage in written Norwegian of numerous quantifying nouns from four classes. These classes form two pairs, each containing one class of primary and one class of secondary quantifying nouns. Unit nouns are compared to container nouns, and indefinite numeral nouns are compared to group nouns. Sections 6.1.4.1 and 6.1.4.2 present the comparative studies of these two pairs.

6.1.4.1 Unit nouns versus container nouns

In this section, I compare the usage of unit nouns and container nouns on the basis of a corpus-based investigation of four central unit nouns (one each of length, area,

capacity, and weight; time has been left out) and eight container nouns. The aim is to find out to what extent the observations of Faarlund et al. (1997) are correct.

According to Faarlund et al., primary quantifying nouns are found in juxtapositional pseudopartitives, but not normally in prepositional ones, while secondary quantifying nouns are used freely in both kinds of constructions. This means, first, that container nouns can be used with or without a preposition, namely *med* 'with' (as illustrated in (16) and (17)), since they are secondary quantifying nouns.

(16) Kanskje vi skal åpne med et glass vin?

B-BT ... a-N glass(N) wine

'Perhaps we should start with a glass of wine?'

(17) 30 sølvpenge er ikke mer enn et glass med øl i dag ...

B-BT ... a-N glass(N) with beer ...

'30 silver coins aren't more than a glass of beer today.'

This point is not in dispute. But a question immediately arises: What is the difference between the constructions?

Second, Faarlund et al.'s generalization means that unit nouns, being primary quantifying nouns, are normally used only in juxtaposition. This point needs to be modified. In written Norwegian, unit nouns are indeed found more frequently in juxtapositional than in prepositional pseudopartitives. Some typical examples are given in (18)–(21) – for length, area, capacity, and weight.

(18) Var det fire hundre meter vassrør du snakka om ...?

N-HE ... four hundred-(PL) metre-(PL) water-pipe ...

'Was it four hundred metres of water pipe you were talking about?'

(19) Han åtte fleire mål jord som låg brakk ...

N-HA ... several ten.ares-(PL) earth ...

'He owned several thousand square metres of ground that lay fallow.'

(20) Vi kjøpte berre [elleve tusen fire hundre] hektoliter vin herfrå i fjor ...

N-BT ... only eleven thousand-(PL) four hundred-(PL) hectolitre-(PL) wine ...

'We bought only 11,400 hectolitres of wine from here last year.'

(21) I forrige uke ble det beslaglagt et halvt kilo amfetamin ...

B-BT ... a-N half-N kilo(N) amphetamine

'Last week half a kilo of amphetamine was seized.'

But one does find unit nouns followed by a preposition in writing as well. Some examples are given in (22)–(25), with the same quantifying nouns as in the juxtapositional examples above. The preposition is always *med*.

- (22) På et par døgn kom det over en halv meter med snø.
 B-BT ... over a-M half-M/F metre(M) with snow
 'In a couple of days there came more than half a metre of snow.'
- (23) I Golfen vil mange millioner mål med ørken bli fruktbar ...
 B-BT ... many million-PL ten.ares-(PL) with desert ...
 'In the Gulf, many thousand square kilometres of desert will become fertile.'
- (24) Hordafor tar ... imot [tre hundre tusen] hektoliter med død fisk og lakseslo.
 B-BT ... three hundred-(PL) thousand-(PL) hectolitre-(PL) with dead-M/F fish(M)
 and salmon-guts
 'Hordafor receives 300,000 hectolitres of dead fish and salmon guts.'
- (25) Til sammen selger vi rundt [trettifem] kilo med upoppet mais ...
 B-BT ... around thirty-five kilo-(PL) with unpopped corn
 'We sell altogether around 35 kilograms of unpopped corn.'

I judge all of these examples to be perfectly grammatical; they will normally be pronounced with stress on the quantifying noun.

To find out about the relative frequency of the two constructions, I searched the corpora (cf. section 2.2) for tokens of *meter* 'metre', *kvadratmeter* 'square metre', *liter* 'litre', and *kilo* 'kilo (-gram)'. The search was restricted to just these forms, which means that indefinite singular and plural forms are included, while definite forms as well as abbreviations (*m*, *m*², *l*, *kg*) are excluded. I further excluded examples not followed by any kind of quantifying nominal, which represent a large part of the total, especially for *meter*. About half of the tokens of nouns following *kvadratmeter* are compounds whose last constituent is a noun that designates area (*flate* 'expanse', *areal* 'area', *plass* 'space'), and whose first constituent is a noun designating what is quantified. An example is (26).

- (26) [I]drettsdelen ... har [cirka fem tusen] kvadratmeter golvflate ...
 N-BT ... circa five thousand-(PL) square-metre-(PL) floor-expanse
 'The sports part has about 5000 square metres of floor.'

This category of examples is included in the numbers for *kvadratmeter*. The corpora include no examples of *meter*, *liter*, or *kilo* used in a parallel way. The distribution of juxtaposition and use of prepositions is presented in table 6.1. Of the two

Noun	Juxtaposition		Preposition		<i>med</i>	<i>av</i>	Total
<i>meter</i>	59	87 %	9	13 %	9	0	68
<i>kvadratmeter</i>	39	91 %	4	9 %	4	0	43
<i>kilo</i>	155	98 %	3	2 %	3	0	158
<i>liter</i>	184	99 %	2	1 %	1	1	186

Table 6.1. Juxtaposition and use of a preposition with unit nouns

Noun	Juxtaposition		Prep. (<i>med</i>)		Total
<i>korg</i> 'basket'	2	33 %	4	67 %	6
<i>sekk</i> 'sack'	12	57 %	9	43 %	21
<i>kasse</i> 'case, box'	23	66 %	12	34 %	35
<i>pakke</i> 'packet'	26	68 %	12	32 %	38
<i>tønne</i> 'barrel'	12	86 %	2	14 %	14
<i>boks</i> 'can, tin'	31	86 %	5	14 %	36
<i>flaske</i> 'bottle'	152	90 %	16	10 %	168
<i>glas</i> 'glass'	98	92 %	8	8 %	106

 Table 6.2. Juxtaposition and use of *med* with some container nouns

prepositions, almost only *med* is used.² While *liter* and *kilo* are overwhelmingly dominated by juxtaposition, *meter* and *kvadratmeter* are found somewhat more often followed by *med*, although juxtaposition has around 90 % of the examples here as well. If we add up the tokens of the four words, the distribution of juxtaposition and use of a preposition is 437 : 18, that is, 96 % and 4 %.

I further searched for tokens of singular and plural indefinite forms of various container nouns, to be able to compare them to unit nouns; definite forms were excluded. Eight different container nouns were investigated. (The forms searched for can be extracted from appendix 4.) The container types involved represent a wide variety, with respect to typical contents, typical size and shape, and typical material (of the container itself). The findings are presented in table 6.2. Only *med* is used,

²The newspaper corpus includes one pseudopartitive example with *av*: *Hittil i år har vi inntatt nær fem millioner liter av rød drikke derfra*. [near five million-PL litre-(PL) of red drink] 'So far this year, we have consumed close to five million litres of red beverage from there.' This may not be quite ungrammatical, but it is highly unusual.

never *av*. Except for the low-frequency word *korg* 'basket', all the nouns are more common in juxtaposition than with a preposition.³ But the usages are remarkably different; even if we disregard *korg*, there are container nouns that are used with *med* almost as often as in juxtaposition, and there are other container nouns that are used with *med* only about one out of ten times. If we add up the tokens of the eight words, the distribution of juxtaposition and *med* is 356 : 68, that is, 84 % and 16 %.

It can now be considered a fact that both container nouns and unit nouns are used in prepositional constructions as well as in juxtaposition – even in writing. Let us summarize what else the data show. First, container nouns as a class are more frequently used with a preposition than are unit nouns, but certain unit nouns are as often used with a preposition as are certain container nouns. Second, certain container nouns are more frequently used in juxtapositional constructions than others. And third, length and area nouns are used more in prepositional constructions than are capacity and weight nouns. In the rest of this section, I shall examine these three phenomena in some more detail and try to explain them in the light of my analysis of juxtaposition as an icon of conceptual unity.

Container nouns are used less frequently in juxtaposition than are unit nouns. This can be explained with reference to the objective basis of conceptual unity. Container nouns are not primarily used with a quantitative meaning, but are used to refer to concrete physical objects. These objects may serve as containers of substance, but as we have seen, container nouns are used secondarily about contained amounts. This is what makes them quantifying nouns. Unit nouns, on the other hand, normally have a primary quantitative meaning. Clearly, containers are more salient and separable from the quantified mass than are abstract amounts; containers are things in their own right. Amounts understood as held by containers approach the meanings of unit nouns, and we may expect container nouns that are used with such a meaning to resemble unit nouns. However, it is also to be expected that the primary container meaning should influence the grammatical properties of container nouns. The entities designated by container nouns are therefore more likely to be conceptualized as separate from the quantified mass than are the entities designated by unit nouns. It is thus expected on the basis of my description of juxtaposition as an icon of conceptual unity that juxtaposition should be less appropriate for container nouns than for unit nouns.

But the usage of many container nouns is strongly dominated by juxtaposition. What is it that distinguishes these from the container nouns that are more frequently

³The noun *boks* 'tin' is found rather often in ingredient lists of recipes. It is possible that this has skewed the result towards a greater share of juxtaposition.

used with *med*? From what we have said already, we expect those container nouns whose meanings approach those of unit nouns (notably capacity nouns like *liter*) to be used most frequently in juxtaposition. It is the most frequent container nouns that are most strongly dominated by juxtaposition, thus approaching the usage of unit nouns. This must be related to the higher degree of standardization of the measure meaning of these nouns (relative to what they quantify). If a container noun is used about a standard-sized amount of some mass, the concept of the container itself becomes less prominent, and a higher degree of conceptual unity emerges. Thus, if it is clear how large an amount a container noun designates, it becomes more appropriate to use juxtaposition. Examples with the container noun that favours juxtaposition least, *korg* 'basket', will serve to illustrate how one typically distinguishes between juxtaposition and the use of *med*.

(27) [D]u tek ei korg jordbær frå ein kasse i vegkanten ...

N-BT ... a-F basket(F) strawberry-PL ...

'You take a basket of strawberries from a case at the edge of the road.'

(28) [Han] set ei korg med rista brødsiver på bordet.

N-BT ... a-F basket(F) with toasted bread-slice-PL ...

'He puts a basket of toasted slices of bread on the table.'

The noun *korg* is seldom used about a container that is standardly used as a unit of measurement. One exception, though, is for berries and the like, which are sold in plastic vessels of a certain size, oddly enough called baskets. In such cases, juxtaposition is appropriate. The example in (27) is typical; a basket of strawberries is a fairly standardized amount of berries. In (28), it is primarily the actual basket as such that is put on the table, and only secondarily the amount of toast. Container nouns that are more strongly associated with juxtaposition, like *flaske* 'bottle', are typically used in the way exemplified for *korg* in (27). Bottles have a more or less standard size depending on their content (wine, beer, soft drinks, etc). Consider example (29).

(29) Politiet meiner at mannen prøvde å omsetja [trettifem] flasker sprit ...

N-BT ... thirty-five bottle-PL spirit

'The police think that the man tried to sell 35 bottles of spirits.'

Since a bottle used for alcoholic beverages usually holds 70 centilitres, the amount of spirits mentioned in (29) is presumably 35 x 70 cl, i.e. 24.5 litres of spirits. If the size of the bottles is very different, one would expect the writer to say so.

Returning to unit nouns, there is no doubt that the four words that I have investigated (*meter, kvadratmeter, liter, kilo*) designate standard amounts. They are all dominated by juxtaposition, which reflects that these abstract amounts tend not to be conceptualized as distinct from the quantified mass; the use of juxtaposition is well motivated. Nevertheless, the nouns vary in their use of juxtaposition versus *med*. If the selected nouns and the corpora are representative, we may conclude that juxtaposition is the norm (at least in writing) for capacity and weight, while this is less clear for length and area. This difference can be explained with reference to our metaphorical understanding of the various types of quantity. I argued in section 5.4 that length (and duration, which has been left out here) and possibly area are naturally understood metaphorically as companions, while volume/capacity and weight are more likely to be understood in terms of metaphorical containment. That is, length and area are conceptually more independent than volume/capacity and weight, since companions are more separable from one another than are containers from contents. There is consequently a higher degree of conceptual unity in the case of volume/capacity and weight than in the case of length and area. This also shows up in the relative frequency of unit nouns not followed by a substance nominal. All kinds of unit nouns can be used without a following substance nominal. This is particularly common with length nouns. The same tendency was seen for length quantifiers in *-vis* (cf. section 5.3.2). The only class of quantifiers in *-vis* used less frequently with a following substance nominal is time quantifiers. And a search would no doubt have shown that time nouns are even less frequently followed by a substance nominal than are length nouns; recall that it has even been claimed (Lødrup 1989: 86) that juxtapositional pseudopartitives with time nouns are not found in Norwegian. If a weighed mass is not there, then neither is the weight, and if a three-dimensionally measured mass is not there, the empty space is treated as nothing, although of course the volume is still there. Norwegian treats length and area differently: The distances and the expanses are there as parts of our surroundings. For instance, in *to kilometer med veg* 'two kilometres of road' the road is something that stretches along a distance that would still be there if the road were not. The greater conceptual independence of length and duration is thus found to affect linguistic usage in more than one way. We shall see in section 6.2.4.3 that length and duration are treated differently from capacity and weight in yet another area, namely with respect to the choice between *med* and *av* after quantifiers in *-vis*.

To conclude, the difference in the use of juxtaposition versus *med* between the classes of unit nouns and container nouns as well as the differences internally in the two classes is to a large extent expected. Varying degrees of conceptual unity

between quantifying and substance mass lead to varying degrees of motivation for the use of juxtaposition.

6.1.4.2 Indefinite numeral nouns versus group nouns

In this section, I discuss the usage of indefinite numeral nouns and group nouns on the basis of a corpus-based investigation of five indefinite numeral nouns and eight group nouns.

Recall that Faarlund et al. (1997) claim that primary quantifying nouns are normally used only in juxtapositional pseudopartitives, while secondary quantifying nouns are used also in prepositional pseudopartitives. This means that group nouns, which are secondary quantifying nouns, can be used in both construction types. Both *med* 'with' and *av* 'of' can be used. This is illustrated in (30)–(32).

(30) I en køyeseng ligger en stabel utpakkede kofferter.

B-BT ... a-M stack(M) un-unpacked-PL suitcase-PL

'In a bunk bed lies a stack of suitcases that have not been unpacked.'

(31) De seks fangene knuste ... et tv-apparat og en stabel med tallerkener ...

B-BT ... a-M stack(M) with plate-PL

'The six prisoners broke a TV set and a stack of plates.'

(32) [Brukerne kan bli] sittende med en stabel av bokser på TV-en ...

B-BT ... a-M stack(M) of box-PL ...

'The users can end up with a stack of boxes on their TV.'

The versatility of group nouns is undisputable, but what are the differences between the constructions?

Regarding indefinite numeral nouns, Faarlund et al.'s generalization implies that they are normally used only in juxtaposition, since they are primary quantifying nouns. This is a claim that needs modification.

It is true that in written Norwegian, some indefinite numeral nouns are more frequent in juxtaposition than in prepositional constructions. Typical examples of the former are given in (33) and (34).

(33) Et begrenset antall tidsskrifter omhandler de nye medier.

B-BT a-N limited number(N) journal-PL ...

'A limited number of journals deal with the new media.'

(34) Med en bråte næringslivsledere i salen leverte han også et lite stikk til dem.

B-BT ... a-M multitude(M) business-leader-PL ...

'With lots of business leaders in the (meeting) hall, he also delivered them a little stab.'

But indefinite numeral nouns can also be found in prepositional pseudopartitives, and both *med* and *av* are found. This is illustrated in (35) and (36), which are quite well-formed expressions.

(35) [D]e låner det neppe bort uten å stille en helvetes bråte med spørsmål.

B-BL ... a-M hell-'s multitude(M) with question-PL

'They will hardly lend it out without asking a hell of a lot of questions.'

(36) Det finnes et utall av måter å kommunisere på.

B-BT ... a-N un-number(N) of way-PL ...

'There are an uncountable number of ways to communicate.'

In order to investigate the relative frequency of the constructions, I searched the corpora for five indefinite numeral nouns (cf. table 6.3). All forms that were included in the search are listed in appendix 4. (I searched only parts of the newspaper corpus for *antall* (the corpora for the first half of 1995 and the second half of 1998). The reason for this limitation is that *antall* is very frequent, and only about 29 % of the tokens of *antall* had the relevant meaning. In addition, some of these were partitives or had no following substance noun. I restricted the search to get a more tractable number of examples. The restricted selection is sufficient to indicate the main tendency in usage.) Table 6.3 presents the distribution of juxtaposition and use of a preposition in pseudopartitives with these nouns. The three words in *-tal(l)* are used in very different ways: While juxtaposition is the norm for *antall* and *fåtal*, *utal* is used with *av* in about one third of the examples. (Not represented in the limited corpora is *antall med*, but this is found in some of the other newspaper corpora.) The other words are not frequent, but the data suggest that besides juxtaposition there is a fair share of prepositional expressions. They may be compared to *utal* in this respect, except that *med* tends to be used, rather than *av*.

I further investigated the patterns found for eight group nouns. Four of these are used about naturally occurring configurations of living creatures, and the other four about configurations of things of a particular kind of shape, where the collection is usually man-made. (Some of them, like *bunt* 'bunch', are sometimes used with singular nouns; cf. section 5.2.3. Examples of such use are included.) I searched the newspaper and novel corpora for the indefinite singular forms; the full list of forms

Noun	Juxtaposition	Preposition	<i>med</i>	<i>av</i>	Total
<i>brote</i> 'multitude'	4 44 %	5 56 %	5	0	9
<i>drøss</i> 'multitude'	12 67 %	6 33 %	5	1	18
<i>utal</i> 'unc. no.'	42 69 %	19 31 %	0	19	61
<i>fåtal</i> 'small no.'	26 96 %	1 4 %	0	1	27
<i>antall</i> 'number'	67 99 %	1 1 %	0	1	68

Table 6.3. Juxtaposition and the use of prepositions with some indefinite numeral nouns. Note: The numbers for *antall* are based on a more limited set of corpora than those of the other words (cf. text).

Noun	Juxtaposition	Preposition	<i>med</i>	<i>av</i>	Total
<i>sverm</i> 'swarm'	1 11 %	8 89 %	0	8	9
<i>stim</i> 'shoal'	1 25 %	3 75 %	0	3	4
<i>stabel</i> 'pile'	5 38 %	8 62 %	4	4	13
<i>skokk</i> 'crowd'	7 54 %	6 46 %	5	1	13
<i>bunt</i> 'bunch'	6 75 %	2 25 %	1	1	8
<i>bunke</i> 'pile'	36 86 %	6 14 %	0	6	42
<i>flokk</i> 'flock'	83 87 %	12 13 %	7	5	95
<i>knippe</i> 'bunch'	44 96 %	2 4 %	1	1	46

Table 6.4. Juxtaposition and the use of prepositions with some group nouns

can be extracted from appendix 4. From the data I have excluded clearly non-pseudopartitive uses. One example from the newspaper corpus with the indefinite form *flokk* used in a singly definite nominal was also excluded. The findings are shown in table 6.4. We see that the nouns are very different in their usage, ranging from some that are used chiefly in prepositional constructions, to others that are heavily dominated by juxtaposition.

If we compare indefinite numeral nouns and group nouns as classes, we see that both exhibit a high degree of internal variation. The percentages of juxtaposition with indefinite numeral nouns range from 44 to 99 %, while the range for group nouns is 11 to 96 %. (Of course, some of the nouns are too poorly represented to be a basis for generalizations, but even if these are disregarded, there is considerable variation.)

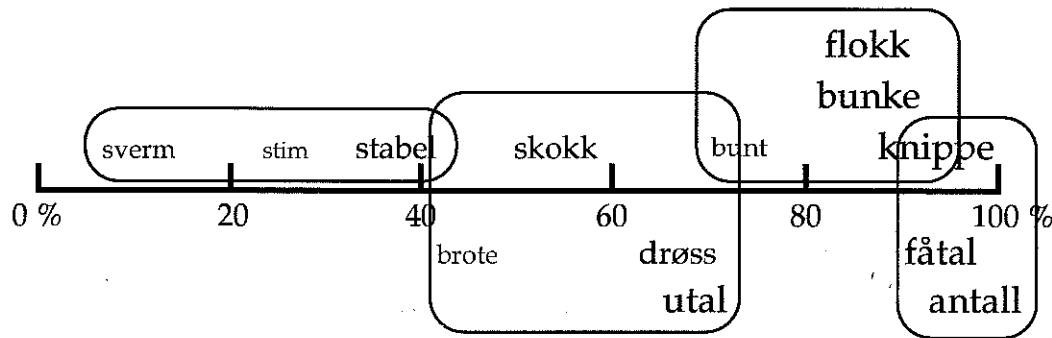


Figure 6.2. The percentage of juxtaposition with some indefinite numeral nouns and group nouns

In figure 6.2, I have arranged indefinite numeral nouns (below the scale) and group nouns (above the scale) according to the percentage of juxtaposition in the data. The size of the print is meant to indicate the frequency of the words and the assumed representativity of the findings; small print means few tokens and uncertain representativity. I suggest that there are basically four groups of words represented here. Three group nouns, *sverm*, *stim*, and *stabel*, have the lowest percentages. Four other group nouns, *bunt*, *bunke*, *flokk*, and especially *knippe*, are much higher on the scale, as are the indefinite numeral nouns *fåtal* and *antall*. An intermediate position is held by three indefinite numeral nouns, *brote*, *drøss*, and *utal*, and a group noun, *skokk*.

The group noun *skokk* turns out to be rather similar to the three indefinite numeral nouns *utal*, *drøss*, and *brote* with a preposition used in around half of the tokens. What these four nouns have in common, is that they are used about large indefinite numbers of individuals and typically, but not necessarily, have emphatic stress in spoken Norwegian. Such use implies that the quantitative categorization of the pseudopartitive is focussed. Such focus breaks up conceptual unity, and the use of juxtaposition is no longer well motivated. Semantically, such expressions come very close to unbounding, and to the extent that they are used with a preposition, this has the same motivation as in unbounding (cf. section 6.1.5).

The other indefinite numeral nouns, *antall* and *fåtal*, are normally used in juxtaposition. Thus, they resemble unit nouns, another class of primary quantifying nouns. This is as expected, since such nouns designate intermediate numbers of individuals and are not likely to be strongly emphasized. One group noun, *knippe*, approaches these in the share of juxtaposition. In its basic meaning, *knippe* is used about a moderate number of objects that are somehow held together. This is

illustrated in (37). But *knippe* is nowadays much more frequently used without any implication that there are things that are held together; rather, only a vague, not very large number is meant. Most examples involve people or abstract entities (proposals, melodies, etc.), as illustrated in (38) and (39).

(37) Og han plukka fram eit knippe med aviser.

N-HE ... a-N bunch(N) with newspaper-PL

'And he produced a bunch of newspapers.'

(38) I bakgrunnen ventet et knippe sjåførar utålmodig.

B-BT ... a-N bunch(N) chauffeur-PL ...

'In the background, a bunch of chauffeurs were waiting impatiently.'

(39) I tillegg kommer et knippe såkalte verbalforslag ...

B-BT ... a-N bunch(N) so-called-PL verbal-proposal-PL

'In addition, there are a bunch of so-called verbal proposals.'

The countability of *knippe* itself is practically lost in this usage: Since no special configuration is meant, but only a vague number, there cannot be a normal singular-plural opposition. Thus, it comes close to a typical indefinite numeral noun like *antall* 'number', which is uncountable (in the relevant meaning). The similarity in behaviour of *antall*, *fåtal*, and *knippe* is thus seen to be semantically based.

The remaining group nouns vary a great deal. The two nouns *bunke* 'pile' and *bunt* 'bunch' are typically used about rather clearly bounded entities. (To some extent, though, *bunt* is used like *knippe* about a moderate number of just about anything.) For instance, *ein bunt persille* 'a bunch of parsley' refers to the amount bought in the supermarket and is often found in recipes. And *ein bunke papir* 'a pile of paper(s)' is typically an amount that can be held in one hand. These are typically used in juxtaposition. The noun *stabel* 'pile', on the other hand, is more often found with a preposition. It designates something which is much less clearly bounded, and which is characterized more by its shape. Thus, *bunke* and *bunt* are used about better bounding entities than *stabel*; they approach, although to a limited extent, unit nouns. We see, then, that the distribution of juxtaposition and prepositional constructions is at least partly motivated here, too.

At the prepositional end, we have *sverm* 'swarm' and *stim* 'shoal'. (I think the tendency exhibited by the few examples is rather representative.) These differ strongly from *flokk* 'flock', which approaches the juxtapositional end. I see two possible explanations of the preference for prepositional constructions with *sverm* and *stim*. First, they are typically used about groups of abundant numbers of smallish

creatures; *flokk*, on the other hand, does not necessarily designate a very large number of individuals. It may be that it is the abundance sense that approaches unbounding and triggers the use of a preposition. On the other hand, it may be that swarms and shoals tend, to a higher degree than flocks, to be conceptualized as objects in their own right, thus motivating the use of *av* with a clear material meaning (cf. *ring av gull* 'ring of gold'). This may possibly be related to the smallish size of the creatures.

To conclude, we may generalize as follows: Juxtaposition is typical for both indefinite numeral nouns and group nouns as classes. But there are significant exceptions. Quantifying expressions that emphasize the abundance of a mass approach unbounding and favour the use of a preposition, because the focus on quantitative categorization breaks up the conceptual unity associated with juxtaposition. Further, group nouns are used about "good" objects that to some extent tend to be conceptualized as something else (or more) than the material they are constituted of, thus disfavours the use of juxtaposition.

6.1.4.3 Summary

Our findings concerning the relation between primary versus secondary quantifying nouns and the use of juxtaposition versus a preposition can now be summarized.

The claim of Faarlund et al. (1997) that primary quantifying nouns are not normally used with a preposition is too categorical. But on the whole, primary quantifying nouns do show a greater preference for juxtaposition than do secondary quantifying nouns. This can be explained with reference to conceptual unity. Primary quantifying nouns designate entities referring to rather "bad" objects, while secondary quantifying nouns designate entities whose referents are more easily conceptualized as objects. If something is seen as an object in its own right, it is less naturally conceptualized as forming a conceptual unit with a substance. Therefore, secondary quantifying nouns used about "good" objects are more likely than primary quantifying nouns to be used with a preposition, indicating a lower degree of conceptual unity.

One consequence is that unit nouns (as a class) are used more frequently in juxtaposition than are container nouns; they are not used about "good" objects. Another consequence is that indefinite numeral nouns (as a class) are used more frequently in juxtaposition than are group nouns. Whether this also holds for indefinite measure nouns in relation to portion nouns remains to be investigated (cf. section 6.2.4.2). Numeral nouns clearly pattern with the other primary quantifying nouns, being the most juxtaposition-dominated class.

6.1.5 Bare quantifying nouns and quantifiers in *-vis*

It has been observed in the literature that certain kinds of quantifying expressions are normally not used in juxtaposition, notably bare plurals and definite quantifying nouns without any preceding determiner, quantifier, or adjective. The latter will be referred to as bare definites. I shall look at bare plurals (along with quantifiers in *-vis*) and bare definites in turn.

Teleman (1969: 34) and Delsing (1993: 216, footnote) note that bare plurals in Swedish are used only with a following preposition. Swedish and Norwegian appear to be quite similar in this respect. A Norwegian example is given in (40). If, however, a quantifier or modifying adjective is used, the preposition is no more necessary than with most other quantifying expressions. This is illustrated in (41). In Norwegian, the need for a preposition is more or less common to all kinds of quantifying nouns used as bare plurals (cf. section 5.2), although juxtaposition is sometimes used, at least in the context of numeral nouns.

- (40) mengder av/med/*?Ø snø
 quantity-PL of/with/Ø snow
 '(large) amounts of snow'
- (41) store mengder av/med/Ø snø
 large-PL quantity-PL of/with/Ø snow
 'large amounts of snow'

Delsing (1993: 216, footnote) suggests an explanation for the special behaviour of bare plurals: The quantifying noun moves from its original position to the position of the determiner, as illustrated in figure 6.3. This produces an impossible structure, because it is assumed that the substance nominal has to be adjacent to the quantifying noun. This adjacency is lost as a consequence of the movement, and a preposition must be inserted. Note the consequence of the notion that there is an underlying syntactic structure in addition to the surface structure: A structure where the nouns are adjacent (on the surface) is ruled out as ungrammatical because they are not adjacent (in the underlying syntax). When there is a quantifier (which is analyzed as occupying the determiner position) or a modifying adjective, the quantifying noun is not assumed to move. In the case of a quantifier, the D-position is already occupied, and in the case of an adjective, movement is blocked. Therefore, juxtaposition is possible since the nouns are adjacent.

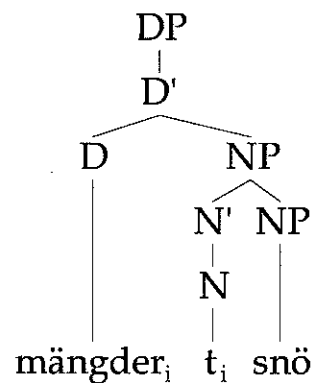


Figure 6.3. Delsing's (1993) analysis of ungrammatical juxtaposition with bare plurals (my representation)

This kind of explanation is not available in the framework employed here, and we shall have to look for another kind of reason. Interestingly, quantifiers in *-vis*, which have about the same meaning as bare plurals, also need a preposition, as illustrated in (42).

- (42) mengdevis av/med/*Ø snö
 quantity-*vis* of/with/Ø snow
 '(large) amounts of snow'

Bare plurals and quantifiers in *-vis* express indefinite abundance. They are used to focus specifically on the amount, and they are always stressed. The quantifying nominal emphasizes not just the amount, but also the quantifying unit that is employed. Nothing of this resembles the kind of situation where juxtaposition is expected. Conceptual focus on quantitative categorization and stress on the quantifying noun are departures from juxtaposition and conceptual unity as described in section 6.1.2. Thus, the low degree of acceptability of juxtaposition in connection with these quantifying nominals is motivated; the semantics of juxtaposition on the one hand and of bare plurals and quantifiers in *-vis* on the other are poorly compatible. Instead, a prepositional construction is used. When, on the other hand, an adjective is added, as in (41), the emphasis will not be on the quantitative categorization, but on the size of the amount. This is quite compatible with conceptual unity, and juxtaposition is well motivated.

Note that the unacceptability of juxtaposition with bare plurals applies to primary quantifying nouns just as well as secondary quantifying nouns. Thus, bare plurals

show that it is not correct that primary quantifying nouns appear (almost) only in juxtaposition. Here, a preposition is not only possible, but necessary.

Heltoft (1996) observes about Danish that when a definite singular or plural quantifying noun is used as the only word of a quantifying expression (as a bare definite), a preposition is required in front of the substance noun. Danish and Norwegian appear to be quite similar in this respect. Examples (43) and (44) illustrate this phenomenon. With an adjective or a determiner, the expression is grammatical without a preposition, as illustrated by (45) and (46). But prepositional expressions are more common than juxtaposition even when the definite quantifying noun is not bare (cf. section 6.1.6). Nevertheless, there is a clear difference in acceptability between bare definites and other definite quantifying expressions in the context of juxtaposition.

- (43) flokken av/med/*Ø ungar
 N flock-DEF of/with/Ø kid-PL
 'the flock of kids'
- (44) flokkane av/med/*Ø ungar
 N flock-PL&DEF of /with/Ø kid-PL
 'the flocks of kids'
- (45) den store flokken av/med/Ø ungar
 N the-M/F large-DEF flock(M)-DEF of/with/Ø kid-PL
 'the large flock of kids'
- (46) disse flokkane av/med/Ø ungar
 N this-PL flock-PL&DEF of/with/Ø kid-PL
 'these flocks of kids'

Bare definite quantifying nouns, too, involve a deviation from the conceptual unity described in section 6.1.2. A bare definite is focussed in two ways. First, it is stressed. Second, it is definite, and the constituent marked for definiteness determines the profile of the whole construction. (It is the head; cf. chapter 7.) This is clearly at odds with the semantics that characterizes juxtapositional pseudopartitives. Thus, bare definites break up conceptual unity by emphasizing categorization by the quantifying noun, and the use of juxtaposition is poorly motivated.

The conflict is considerably weaker when a demonstrative is used: The demonstrative takes scope over the whole complex, not just the quantifying noun – although it is morphologically tied to the quantifying noun by agreement. This is reflected in the stress pattern: The demonstrative and the substance noun are

normally stressed, while the quantifying noun is unstressed: '*dette glaset 'vin* 'this glass of wine'. If the stress is put on the quantifying noun, the use of a preposition is preferred: *?dette 'glaset 'vin* vs. *dette 'glaset med 'vin*.

Juxtaposition with a definite quantifying noun becomes more acceptable when the focus is moved off the quantifying noun itself. Otherwise, we would have expected definiteness and juxtaposition to be incompatible, which they are not. Nevertheless, it is no doubt the case that definiteness and juxtaposition are slightly at odds. Juxtaposition is characterized by a conceptual unity that is achieved by a reduced focus on quantitative categorization. But the definite form of a quantifying noun automatically makes it more salient. We shall see in section 6.1.6 how language use reflects that juxtaposition and definiteness do not quite agree.

6.1.6 The role of definiteness

Quantifying nouns are more frequently followed by a preposition in definite than in indefinite phrases; that is, definiteness disfavours juxtaposition. I am not familiar with any previous observation of this in the literature.

In order to throw light on this phenomenon, I searched the newspaper and novel corpora (cf. section 2.2) for examples of two classes of secondary quantifying nouns: group nouns and container nouns. Both singular and plural forms were included, and the classification with respect to definiteness was made on a syntactic basis, so that singly definite and possessive-definite nominals were included in the definite category, although the noun is indefinite in these constructions. (Examples of possessive-definite and doubly definite nominals are *mine tre flasker (med) vin* [my-PL three bottle-PL (with) wine] 'my three bottles of wine' and *desse tre flaskene (med) vin* [this-PL three bottle-PL&DEF (with) wine] 'these three bottles of wine'.) Bare quantifying nouns were excluded.

Definite pseudopartitives are infrequent, which means that it is difficult to find a sufficient number of examples that can be the basis for generalization. I therefore included as many as eight group nouns and eight container nouns in the search; these are the same as those investigated in sections 6.1.4.1 and 6.1.4.2. A full list of forms included in the search is provided in appendix 4. The results are presented in table 6.5. (After group nouns, both *med* and *av* occur. Only *med* is used after container nouns.)

The number of examples of definite phrases is small, but sufficient to show that definite phrases are different from indefinite ones. While about a fourth of the indefinite examples with group nouns have a preposition, four fifths of the definite

	Juxtaposition		Preposition		Total
Group indef.	179	76 %	55	24 %	234
def.	3	20 %	12	80 %	15
Cont. indef.	356	84 %	68	16 %	424
def.	6	46 %	7	54 %	13

Table 6.5. The role of definiteness for the choice between juxtaposition and a prepositional construction

examples do. The difference is smaller for container nouns, but nevertheless clear: Whereas only about one eighth of the indefinite examples have a preposition, close to half of the definite ones do. Some typical examples are given in (47) and (48).

(47) [D]et var ... en flokk unge gutter som lekte på marken utenfor skogen.

B-GN ...a-M flock(M) young-PL boy-PL ...

'There was a flock of young boys playing in the field outside the wood.'

(48) Den vesle flokken av skandinaver stod tett omkring ham ...

B-GN the-M/F small-DEF flock(M)-DEF of Scandinavian-PL ...

'The small flock of Scandinavians was standing close around him.'

The greater tendency of definite quantifying nominals to be followed by a preposition is related to the head status of the quantifying noun and the fact that it is profiled (cf. chapter 7). This profiling breaks up conceptual unity. The choice of a quantifying noun as the head of a definite phrase makes it more natural to see the thing referred to (the flock in (48)) as something separate from the substance which it is constituted of, or which it contains.

In addition, definiteness of the noun may be interpreted as involving expressions of type c on Haiman's scale of linguistic distance (X + A # Y) (cf. section 6.1.2). The definiteness suffix intervenes between the stem of the quantifying noun and the substance nominal, and as we shall see in section 6.1.7, words interrupting the adjacency of the two nominals trigger the use of a preposition. It is possible that the weaker interruption involved in definiteness is a contributing factor to more preposition use, in addition to the increased focus related to the semantic aspects of definiteness.

Recall (from section 4.4.2) that when a numeral noun like *million* is used as the head of a definite phrase, it can be followed by *med*, whereas this is not possible in

indefinite phrases or definite phrases headed by the substance noun. We are here dealing with the same phenomenon: The choice of a numeral noun as the head of a definite phrase makes it more natural to see the entities designated by the quantifying and the substance noun as separate, not as a conceptual unit.

6.1.7 Intervening constituents

Juxtaposition, I am claiming, is an icon of conceptual unity. Anything that intervenes between the quantifying noun and the substance nominal will break up the juxtapositional construction and destroy the iconicity. Therefore, certain elements are incompatible with juxtaposition, but work well in prepositional constructions. I have not come across any reference to this in the literature.

Postnominal possessives cannot be used in juxtapositional expressions, while prenominal possessives can. Both kinds of possessives are fine in prepositional expressions. This is illustrated in (49) and (50).

(49) dei tre flaskene mine med/*Ø vin
 N the-PL three bottle-PL&DEF my-PL with/Ø wine
 'my three bottles of wine'

(50) mine tre flasker med/Ø vin
 my-PL three bottle-PL with/Ø wine
 'my three bottles of wine'

Similar data are found in connection with *til* meaning 'another, more'. This is an intransitive use of the preposition *til* 'to'; its meaning in this context is something like 'added to what is there already'. It cannot be used in the middle of a juxtapositional expression, but only after the substance noun. In prepositional constructions, *til* can be inserted after the quantifying noun, and this sounds better than putting it after the substance nominal. This is illustrated in (51) and (52).

(51) tre liter vin til / *tre liter til vin
 three litre-(PL) wine to / three litre-(PL) to wine
 'three litres of wine more'

(52) tre liter til med vin / (?) tre liter med vin til
 three litre-(PL) to with wine / three litre-(PL) with wine to
 'three litres more of wine'

Exactly the same pattern is found with *ekstra* 'in addition' (*tre liter ekstra med vin*, **tre liter ekstra vin*, etc). Compare also *mange nok flasker (med) vin* 'many enough bottles of wine' with *mange flasker nok med vin* and **mange flasker nok vin*, where an intervening *nok* 'enough' makes juxtaposition impossible.

I suggest a simple explanation for the ungrammaticality of broken-up juxtapositional expressions: They do not work as icons of conceptual unity. Therefore, a prepositional construction is used instead. Note in particular that broken-up juxtaposition is impossible even when we are dealing with a primary quantifying noun like *liter*. This shows, again, that claims to the effect that primary quantifying nouns require juxtaposition rather than a prepositional construction are wrong. In certain cases, only prepositional structures are possible.

6.1.8 Summary

I have argued that the juxtapositional construction is an icon of conceptual unity, where the focus on the quantitative (and qualitative) categorization contributed by the quantifying noun is reduced in favour of the qualitative categorization of the substance noun. I have discussed observations and explanations in the previous literature about the use of juxtapositional versus prepositional pseudopartitives and attempted to show that in those types of nominals where juxtaposition is disfavoured or even disallowed, this is due to an emphasis on the categorization contributed by the quantifying noun, leading to a breaking-up of conceptual unity. Juxtaposition is favoured by the medium of writing and disfavoured or disallowed by 1) stressed quantifying nouns, 2) secondary quantifying nouns, 3) bare plurals and quantifiers in *-vis*, 4) bare definites, 5) definiteness of the pseudopartitive, and 6) constituents intervening between the quantifying noun and the substance nominal.

6.2 *Med*-pseudopartitives versus *av*-pseudopartitives

In this section, I discuss the factors that determine whether *med* or *av* is used in prepositional pseudopartitives. These are semantic factors, related both to the meaning of the preposition and to the meaning of the quantifying expression. Of course, such an account implies that the prepositions in question are actually meaningful. Section 6.2.1 is an introductory discussion of prepositions and their meanings, while sections 6.2.2 and 6.2.3 discuss the radial structures of *med* and *av*, respectively. In section 6.2.4, I relate the relevant meanings of *med* and *av* to the metaphorical concepts of quantity discussed in section 5.4 and try to show that the

distribution of the prepositions is to a large extent motivated. As part of this, the use of prepositions in connection with quantifiers in *-vis* is examined.

6.2.1 The meaningfulness of prepositions

Prepositions are often highly polysemous. How one deals with polysemous categories thus becomes particularly important for the treatment of prepositions (cf. Taylor 1988: 300). Very often they straddle the traditional dividing line between lexical and grammatical (functional) words. This distinction has inevitably led to problems with prepositions and has made them a rather homeless group of words in the various approaches to language. Some theorists classify them as lexical, some regard them as grammatical, and some say that there are both lexical and grammatical prepositions, or that some prepositions belong partly to one category, partly to the other.

Perhaps the most common approach has been to assume a partition of the class into two subclasses, with the resulting problem that some prepositions belong in both classes – or neither of them. Cadiot (1997) notes several classificational bases which have been used, presented in table 6.6 (my translation of French terms; his list is longer). He notes that different criteria give different classifications. Most of the dichotomies are conceptually related, however. If a preposition is strongly polysemous and unpredictably used, it is a natural (if not necessary) consequence that the context becomes important with respect to the interpretation of the preposition. Vagueness is of course related to abstractness and lack of “colour”. The extreme possibility is for the preposition to be “empty” – to mean nothing at all.

In generative syntax, it has become common to regard prepositions as one of four major classes of lexical categories. But there is no fully agreed-upon approach. Rauh (1997), who works within Chomskyan syntax, argues that some prepositions belong in the class of lexical categories (*lexikalische Präpositionen*), some in the class of functional categories (*regierte Präpositionen*), and that some are intermediate (*grammatische Präpositionen*). Examples of the two main types (lexical versus functional) are *on* in *Bill sat on Mary's sofa* and *Bill relied on Mary's experience*, respectively. This sets her approach apart from certain other generative approaches. For instance, Zwarts (1997), working within the same paradigm, regards all prepositions as non-lexical.

It has been quite common to regard some prepositions as completely meaningless, “empty”. Examples are English *of* and French *de* ‘of, from’ and *à* ‘to, at’. This may be seen as a result of the insistence on discrete categories (cf. Zelinsky-Wibbelt 1993) of

lexical	vs.	grammatical or case-like
full	vs.	empty
coloured	vs.	colourless
concrete	vs.	abstract
polysemous with enumerable uses	vs.	very polysemous with (in part) unpredictable uses
autosemantic	vs.	synsemantic

Table 6.6. Lexical versus grammatical prepositions

formalist approaches to language (to some extent structuralism, but especially generative syntax and formal semantics). Lack of meaning is sometimes seen as a necessary consequence of obligatoriness. For instance, Lyons writes (1968: 418; not specifically about prepositions) that “*any* linguistic element which occurs in an utterance has meaning only if it is not completely determined (‘obligatory’) in that context” (italics in original). For nominalizations like *destruction of the city*, Chomsky (1981) assumes that there is a process called *of*-insertion between deep and surface structure. According to Chomsky’s theory, there is no *of* in deep structure. But a noun phrase must be assigned abstract case, and only verbs and prepositions, not nouns, are able to assign case. Therefore, *of*, “an empty preposition, devoid of semantic content” (Chomsky 1981: 50), is inserted to allow for a complement noun phrase. Such views are not uncommon in generative linguistics. Another example is Delsing (1993: 169), who writes that Norwegian *til* ‘to’ in possessive constructions is a “dummy preposition” (his example: *huset til læreren* ‘the house of the teacher’).

All approaches that assume a preposition (or some other grammatical word, morpheme, etc.) in a grammatical use to be meaningless suffer from a major drawback: A usage where the preposition has no meaning can never be motivated by the meaning of the preposition in another usage. If *til* is a dummy in Norwegian possessive expressions, it is difficult to see how it can be related to the prototypical allative meaning of *til*. However, typological research on possessive constructions (e.g. Heine 1997b) has shown that morphemes with a local meaning (locative, allative, ablative) cross-linguistically are a very common kind of source of possessor markers. The reason is that possession, an abstract relation, is conceptualized in terms of concrete location. And the use of a basically allative preposition to refer to a locative relationship is merely an example of the wide-spread tendency for

expressions for paths and for endpoints of paths to coincide (cf. *The ball landed/is lying on the floor*). Thus, the possessive meaning of *til* is related to the allative meaning of *til* by metaphor (from location to possession) and synecdoche (from path to endpoint of path). Such an account is clearly not possible if it is assumed that possessive *til* is meaningless.

Before 1980, prepositions received little attention in the linguistic literature (cf. Cuyckens 1997: 63). In cognitive linguistics, however, they have been one of the major centres of attention. Since the beginning of the 1980s, there have appeared a number of cognitive analyses of prepositional categories. (See Cuyckens (1997) for an overview.) Most of them have dealt with words whose basic senses are local (e.g. Brugman (1988) (originally from 1981), Cuyckens 1993, Herskovits 1988, Taylor 1988, Schulze 1993). An interesting example of an analysis of a preposition that is not so clearly local is Schepping's (1991) article on French *contre* 'against', and Radden (1997) deals with prepositions in the expression of emotional causes. A Norwegian example is Kristoffersen's (2001) analysis of *mot* 'towards, against'.

However, there are some analyses of prepositions (and postpositions) of the grammatical type, for instance Delbecque (1996) about Spanish *por* 'by, for' and *para* 'for, in order to', Kabata and Rice (1997) about Japanese *ni* (an extremely multifunctional postposition), and Cook (1993) about Japanese *wa* and *ga* (the topic and the subject postposition, respectively). Kemmer and Shyldkrot (1996) present an analysis of the two most grammatical prepositions of French, *de* 'of, from' and *à* 'to, at', used in front of infinitives. They find that these grammatical words are indeed meaningful regardless of their obligatoriness and abstractness, and they show that the investigated uses are motivated by the more central meanings of these words. Langacker (1992, 1999: ch. 3) analyzes English *of* (cf. section 6.2.3), arguing that it does indeed have meaning, contrary to assumptions like the ones that we encountered above. He also gives an analysis of English *by* used in passives (Langacker 1991a: 139ff). Campe (1997) discusses the variation between genitive case marking and the use of *von* 'of, from' in German.

Common to all of these analyses is that prepositions are regarded as meaningful, although they are frequently very polysemous and often rather abstract. As we have seen (section 2.1.2), there are basically two ways of approaching the matter of polysemy: the core-sense model and the meaning-chain model (radial category structure). A problem with the former approach is that if it is at all possible to find a core sense, it will often cover a lot more than just the category in question. But as Vandeloise (1992) points out, there are also some problems with a radial category approach. The radial category does not in itself allow generalizations about the total

category, and the danger of overdifferentiation is considerable. Up to a certain point, the two approaches are compatible, and which approach one chooses, may depend on one's objectives. The core-sense approach allows one to generalize, but possibly at the cost of content. The radial-category approach allows one to be specific about content, but only about limited domains at a time. For a discussion, see Cuyckens (1997). Sandra and Rice (1995) criticize cognitive analyses of polysemous prepositions at several points. Some of these are lack of explicitness with respect to the criteria for distinguishing between senses, lack of clarity with respect to the distinction between senses and usages, and lack of explicitness with respect to what radial category networks represent.

In sections 6.2.2 and 6.2.3, I analyze the prepositions used in Norwegian pseudopartitives, *med* 'with' and *av* 'of'. Both of these have such a complex range of uses and senses that an analysis confined to a few pages cannot come close to an exhaustive treatment. I aim at specifying their meanings in pseudopartitives by showing how these are related to and motivated by more basic and original senses. The meanings of the prepositions are assumed to be structured as radial categories which can largely be seen as the result of multiple developments of grammaticalization involving semantic extensions, notably expansions (cf. section 2.1.3). That is, I propose hypotheses about the relations between senses. Evidence for a given structure comes from cross-linguistic research, providing information about which sense is the original one, and from grammaticalization theory and metaphor theory, providing information about which kinds of semantic extensions are commonly found and hence may reasonably be assumed also to have shaped the radial structures in question.

My analyses are not based on criteria for distinguishing senses, but rather on grammatical tradition and distinctions between generally recognized semantic roles. The various senses and usages are not regarded as belonging to separate and watertight compartments; rather, a preposition has a certain meaning in a certain context. Which analytic distinctions are made depends on the purpose of the categorization. The purpose of my analyses is to provide the basis for explaining the grammar of pseudopartitives. Relatively few senses are distinguished; the only exception is the area of *med* from which pseudopartitive uses are extended, where context-dependent subsenses of a more general sense are relevant. If the distinctions made by the linguist prove to be useful in explaining complex sets of data, then there is a fair chance that they are also relevant for the language users. How they are mentally represented remains a question outside the scope of the linguist (cf. Croft 1998, Sandra 1998).

6.2.2 The preposition *med* as a radial category

In this section, I sketch the more frequent uses of the preposition *med* 'with' and those (less frequent ones) that are relevant in connection with pseudopartitives. Several peripheral uses are left out. The literature that I build on includes Fretheim (1969), Hansen (1971), Faarlund (1974), and Faarlund et al. (1997).

Med is a preposition that is typically used in adverbials. I did a count of 500 newspaper text tokens of *med* which illustrates this: 64 % of the prepositional phrases with *med* were constituents of verb phrases, 27 % were constituents of nominal phrases, and the rest, 9 %, were constituents of adjective or adverb phrases. This distribution is quite different from that of *av* (cf. section 6.2.3).

The primary modern meanings of *med* are comitative, associative, and instrumental. If a core meaning were to be extracted, it would have to be centered around coexistence, two things being together. It is not uncommon for languages to merge the expression of these senses in one category. Outside Europe, it is found for instance in the Chadic (Afro-Asiatic) language Hausa and the Malayo-Polynesian language Malay (Croft 1991: 238). It is not obvious how the senses of *med* are related to each other, but I shall attempt an analysis. The proposed structure is represented in figure 6.4, where the inclusion of one box in another symbolizes that the sense represented by the smaller box is a more elaborated (specific) meaning than the sense represented by the larger box. To put it simply, I assume that the central meaning is the comitative, and that there are two sets of semantic extensions from it: instrumental and associative senses.

I regard the comitative sense of *med* (box 1 in the figure) as the most central and basic meaning. The meaning of the Indo-European root was 'in/into the middle' (Pokorny 1959), and this is retained in Greek *metá* 'among, with, after'. German *mit* has a very similar range of uses as Norwegian *med*. The comitative sense is the same as the comitative case of Fretheim (1969); Faarlund (1974) calls it the conjunctive function of *med*. An example is given in (53).

(53) Denne gangen turnerer han med gambierne Juldeh Camara og Alagi M'Bye ...
B-BT ... be.on.tour-PRES he with Gambian-PL&DEF ...

'This time he is on tour with the Gambians Juldeh Camara and Alagi M'Bye.'

The landmark referent is together with the trajector referent as a participant of the same activity. (The trajector is usually designated by the subject of the sentence, but sometimes by the object; cf. Hansen (1971).) This usually means that trajector and landmark can switch places without affecting the objective content of the sentence, but the construction imposes a conceptual asymmetry on the situation.

A second important use (box 2 in the figure) is the instrumental (called by that name in Fretheim (1969) and Faarlund (1974), too). This is illustrated in (54).

- (54) Dekk blomkålhodet med kjøttfarsen ...
 B-BT cover-IMP cauliflower-head-DEF with forcemeat-DEF
 'Cover the cauliflower with the forcemeat.'

As the example shows, the landmark refers to a non-active mediating participant, an instrument proper or a means (like the forcemeat), and the trajector referent is the action. Here the landmark and the trajector cannot switch places. Heine et al. (1991) argue that there is cross-linguistic evidence that if a morpheme has both a comitative and an instrumental meaning, the latter meaning is derived from the former, and not the other way around. They relate this to the proposed conceptual metaphor of Lakoff and Johnson (1980) that an instrument is a companion. According to Heine et al. (1991: 103–104), "accompaniment serves as a metaphorical vehicle for expressing instrumentality; in more general terms, the domain of human beings is exploited to conceptualize entities belonging to the domain of inanimate concepts". It seems justified, then, to assume that the instrumental sense of *med* is derived from the comitative sense. (About instrumental and related meanings, see also Nilsen (1973), Schlesinger (1979), and Stolz (2001).)

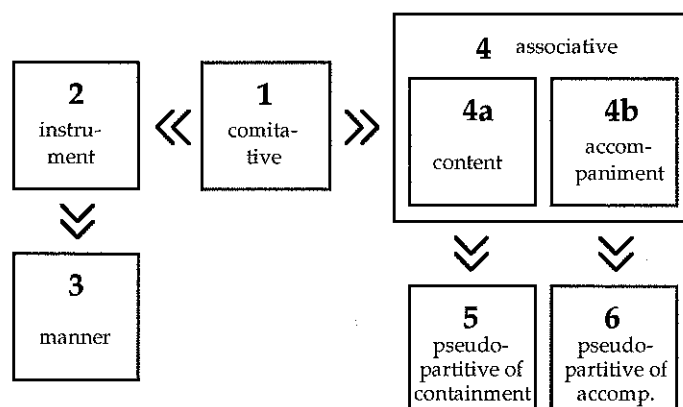
Closely related to the instrument role is the manner role (box 3 in the figure), illustrated in (55). Here the "instrument" is an abstract entity.

- (55) Og det gjør han med stor dyktighet ...
 B-BT and that-N do-PRES he with big-M/F skill(M/F)
 'And that he does with great skill.'

Another central sense is the associative (box 4 in the figure); this is (roughly) the objective case of Fretheim (1969) and the possessive function of Faarlund (1974). The associative is a very broad category for structures of the type where the trajector referent "has" the landmark referent; for instance as a possession, a part, a property, or a content. The associative use of *med* is illustrated in (56).

- (56) Se henne prøvesitte en stol med springfjærer for første gang!
 B-BT ... a-M chair(M) with spring-PL ...
 'See her test-sit a chair with springs for the first time!'

In this use, the landmark does not refer to a central participant of the events that the trajector referent takes part in; it is there only as an accessory. Hence, the two participants cannot be switched in the sentences.


 Figure 6.4. The radial structure of *med*

A special variety (that is, an elaboration rather than an extension) of the associative sense is the *med* of containment (box 4a in the figure), which is the source of the *med* found in prepositional pseudopartitives. The landmark referent is contained in the trajector referent, as in (57), or is an ingredient of it, as in (58).

(57) Han etterlot seg en bag med klær og flybilletten.

B-BT ... a-M bag(M) with cloth-PL and plane-ticket-DEF

'He left behind a bag with clothes and the plane ticket.'

(58) Stadig fleire blir uroa over ... mat med helsefarlege tilsetjingsstoff.

N-BT ... food with health-dangerous-PL additive-PL

'More and more people are worried about food with dangerous additives.'

An even more specialized use is where the container is full of the content and contains only that which the object of the preposition refers to, as is presumably the case in example (59). The trajector does not have to refer to a typical container; it can for instance be an aggregate of some kind, as in (60).

(59) [Jeg har] jo fått noen flasker med etterbarberingsvann ...

B-BT ... some-PL bottle-PL with after-shave

'Of course, I've been given some bottles of after-shave.'

(60) De kom først over en haug med store steiner ...

B-BT ...a-M heap(M) with big-PL stone-PL

'They first got /came over a heap/mound of big stones.'

Both of the underlined nominals in (59) and (60) may be interpreted as pseudopartitives, but it would seem that the mound shape is more important in (60)

than the amount of stones. At any rate, it is this usage that has been extended to pseudopartitives of containment (box 5 in the figure), where the notion of a container is metonymical or metaphorical. It may be a standardized quantity (like a litre or a kilo) or a more vaguely bounded quantity (like a heap). This is illustrated in examples (61)–(63), with typical pseudopartitive constructions.

(61) Omkring [seks hundre] liter med ulovlig brennevin er inndratt.

B-BT around six hundred-(PL) litre-(PL) with illegal spirits ...
 'Around 600 litres of illegal spirits have been seized.'

(62) Hver kveld bruker vi [to hundre] kilo med konfetti ...

B-BT ...two hundred-(PL) kilo-(PL) with confetti
 'Every evening we use 200 kilos of confetti.'

(63) En hel haug med forretningsfolk har gått før oss ...

B-BT a-M whole-M/F heap(M) with business-people-(PL) ...
 'A whole heap of business people have gone before us.'

A different variety of the associative sense (box 4b in the figure) has the landmark referent as an external companion of the trajector referent, as exemplified in (64).

(64) Rektor tok ein stor bit av ei skive med fårepølse.

N-HR ... a-F slice(F) with mutton-sausage
 'The headmaster took a big bite of a slice (of bread) with "mutton sausage".'

The pseudopartitive use of *med* in connection with length and duration (box 6 in the figure) seems to be derived from this kind of use of *med*.

(65) I tillegg er det tillegg er det to mil med oppkjørte turløyper ...

BT ...two 10.kilometres-(PL) with up-driven-PL tour-track-PL
 'In addition, there are twenty kilometres of prepared tour tracks.'

(66) Måneder med hæverk har gjort det umulig å drive stedet.

B-BT month-PL with vandalism ...
 'Months of vandalism have made it impossible to run the place.'

The measured entities (tracks and vandalism) accompany the distance and the duration, respectively. This is rather closely related to the comitative meaning, but the interchangeability characteristic of typical comitative constructions is missing.

To sum up, the central meaning of *med* is comitative. One important extension is a set of instrumental and manner uses. Another is the associative sense, which is the most relevant here. On the basis of two special associative uses, containment and

accompaniment, Norwegian has extended the use of *med* to pseudopartitives of containment and of accompaniment.

6.2.3 The preposition *av* as a radial category

In this section, I sketch the frequent uses of *av* 'of' and those (less frequent ones) that are relevant for pseudopartitives. The analysis is based wholly on my own work; I do not know of any previous research specifically on the polysemous structure of *av*. Many interesting data are treated in Faarlund et al. (1997), however. Langacker (1992, 1999: ch. 3) discusses some related questions regarding English *of*.

Av is a typically adnominal preposition, as a count that I did of 500 newspaper text tokens illustrates: 73 % of the prepositional phrases with *av* were constituents of nominal phrases (with nouns or quantifiers), and only 18 % were constituents of verb phrases; the rest, 9 %, were constituents of adjective or adverb phrases. This massive adnominal bias is related to a high frequency of various partitive relations and sets *av* apart from *med* and most other Norwegian prepositions.

Av is probably the most polysemous of all Norwegian prepositions. Its meaning is partitive, ablative, causative, etc. I do not think it is possible to extract a core sense common to all its various uses. As with *med*, it is not obvious how the various senses of *av* are related to each other. My proposal for a radial structure is represented in figure 6.5. Basically, I assume that there are three sets of extensions from a central ablative meaning: agentive-causative senses, part-whole senses, and material senses.

The original meaning of *av* is ablative; the meaning of the Indo-European root was 'away (from)' (Pokorny 1959). *Av* is historically related to Latin *ab* 'from' and Greek *apó* 'from, of', and it is the same as English *of* and *off* as well as German *ab* 'from, away'. The historically basic ablative or source meaning of *av* (box 1 in the figure) is now most common in connection with adverbs like *ut* 'out'. (The preposition *frå* (Bokmål: *fra*) is the typical ablative marker in modern Norwegian.) The ablative use is illustrated in (67).

- (67) [Nødsystemene] skal hjelpe folk ut av skipet ...
 B-BT emergency-system-PL&DEF shall-PRES help-INF people-(PL) out of ship-DEF
 'The emergency systems are meant to help people out of the ship.'

The landmark most often refers to a place (a source) from which the trajector referent moves or is moved. (There are also static uses.) In (67), the people (trajector referent) move from the ship (landmark referent).

There is a bundle of agentive and causative uses of *av* (box 2 in the figure) which can be regarded as extensions from the ablative meaning. Something that is caused is conceptualized as stemming from, coming out of, the cause (cf. Nikiforidou 1991: 175). It is cross-linguistically quite common for causes and agents to be expressed like ablatives. In the agentive use (box 2a), *av* designates the relation between an event expressed with a passive and the agent causing that event to come about (see example (68)). An example of *av* with a non-agentive cause (box 2b) is given in (69). The preposition can also be used about the relation between a product and its maker or originator (box 3), as in example (70). This should probably be regarded as an extension from agentive *av*.

- (68) [E]n motorsykkelfører ble stoppet av politiet ...
 B-BT a-M motor-cycle-driver(M) become-PAST stop-PRT of police-DEF
 'A motor cyclist was stopped by the police.'
- (69) [Han] har lenge lidd av kreft.
 BT he have-PRES long suffer-PRT of cancer
 'He has suffered from cancer for a long time.'
- (70) To mål av Robbie Fowler ga en fortjent seier ...
 B-BT two goal-(PL) of R.F. ...
 'Two goals by Robbie Fowler gave (them) a deserved victory.'

The rest of the uses of *av* all designate thing–thing relations of some kind, roughly speaking: part–whole relations and object–material relations. (This is not to say that the prepositional phrase is always a constituent of a nominal phrase, but I shall concentrate on such examples, which are most frequent.)

Part–whole relations make up a substantial share of the instances of *av* (box 4 in the figure). They can be regarded as extensions from the ablative; cf. Nikiforidou (1991: 173). This kind of extension is very common in the world's languages. There is no movement of a trajector referent away from a landmark referent, but there is an identification of a trajector referent on the basis of its being part of a landmark referent, and this implies that the trajector referent is isolated from the surrounding landmark referent – separation of figure from ground. There are two main types. The proper part–whole relation between a part of an object and the whole object (box 4a) is illustrated in (71). The partitive relation between a submass and the whole mass (box 4b) is illustrated in (72). It is possible that the latter is derived from the former; this direction of development is assumed in Nikiforidou's (1991: 194) analysis of the genitive.

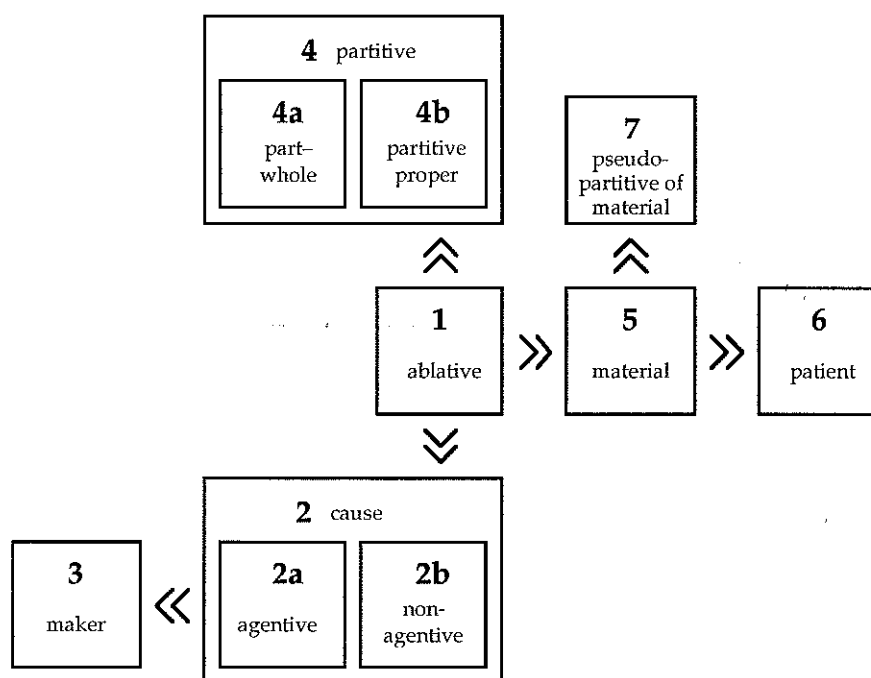


Figure 6.5. The radial structure of *av*

(71) [D]ei kjem frå mange kantar av landet ...

N-BT ... many-PL corner-PL of country-DEF

'They come from many corners of the country.'

(72) [De inviterte ham] til et møte med tre av EUs utenriksministre.

B-BT ... three of EU-'s foreign.minister-PL

'They invited him to a meeting with three of the foreign ministers of the EU.'

There is an important difference between the two part-whole relation types: While a subpart and a whole thing are in general of different types (corners \neq country), a submass and a whole mass are in general of the same type (ministers = ministers). (Note that although *av* corresponds to English *of* in the part-whole use, *av* does not have the generalized possessive function of *of*. There is a possessive construction using either of the prepositions *til* 'to' or (geographically more limited) *åt* 'to' (cf. Torp 1973 and Kinn 1994).)

A different extension from the ablative is the relation between a thing and the material that it is made of (box 5 in the figure), illustrated in (73). This extension, too, is very common, and is included in Nikiforidou's (1991) analysis of the genitive. Here the trajector referent has emerged and exists as an object on account of its being constituted of the landmark-referent material. In (73), the walls are Formica and

linoleum, yet something more than just the material: They are objects in their own right.

(73) [Gangene blir som en] brønn med glatte vegger av Respatex og linoleum.

B-BT ... smooth-PL wall-PL of R. (≈ Formica) and linoleum

'The corridors become like a well with smooth walls of Formica and linoleum.'

An intricate issue is the use of *av* to link a trajector action or event (expressed by a deverbal noun) and a landmark patient (box 6 in the figure). This use is illustrated in (74) and (75). (Note that action nouns derived from transitive verbs are used with an *av*-phrase for the patient, while with passive verbs it is the agent that is expressed by an *av*-phrase; see example (68).) *Av* is also used with agent nouns, as illustrated in (76). This use must be based on the use with action nouns.

(74) [Fylket har gjennomført ei samordning av sjukehusa ...

N-BT ... a-F coordination(F) of hospital-PL&DEF

'The county has implemented a coordination of the hospitals.'

(75) [Hun] er bekymret for ... utviklingen av antall tilfeller farlige infeksjoner ...

B-BT ... development-DEF of number case-PL dangerous-PL infection-PL

'She is worried about the development of the number of cases of dangerous infections.'

(76) Kjøpere av elektrisk kraft oppmuntres nå til å gå over til oljefyring ...

B-BT buyer-PL of electrical power ...

'Buyers of electricity are now encouraged to change to oil firing (heating).'

I propose that the patient function of *av*-phrases can be regarded as an extension from the material sense. The meaning chain is easily seen with polysemous nouns that are used about either an object (a product) or an action; the material of the object and the patient of the action are expressed in the same way, as illustrated in (77) and (78).

(77) (ei) blanding av mjøl og vatn

(a-F) mixture/mixing(F) of flour and water

'a mixture of flour and water / mixing flour and water'

(78) (ei) samling av bøker

(a-F) collection(F) of book-PL

'a collection of books / collecting books'

Finally, there is the pseudopartitive use of *av*, designating a relation between an amount and a material (box 7 in the figure). I take this to be an extension from the material sense. The connection is most readily seen where the amount can also be conceptualized as an object, for instance *haug* 'heap' as in (79). Here it can be seen that the landmark material (in this case, various (toy) building materials) is constitutive of either real heaps or of an indeterminate large quantity. In examples such as (80) and (81) the notion of an object is very vague; the trajectors refer to amounts. These are clear pseudopartitives.

- (79) [H]auger av bjelker, hjul, skruer og muttere ble tømte ut på bordet foran ham.
 B-BT heap-PL of beam-PL wheel-(PL) screw-PL and nut-PL ...
 'Heaps of beams, wheels, screws, and nuts were dumped out onto the table in front of him.'
- (80) Det er mengder av ekstremister innenfor politiet ...
 B-BT ... quantity-PL of extremist-PL ...
 'There are loads of extremists in the police.'
- (81) Statsløse beduiner ... slo opp tusenvise av telt ...
 B-BT ...thousand-*vis* of tent-PL
 'Bedouins without a citizenship put up thousands of tents.'

At first sight, *av*-pseudopartitives resemble partitives. Examples (80) (a pseudopartitive) and (82) (a partitive) illustrate this.

- (82) [S]tore mengder av glykolen [har] forsvunne ut av leidningsnettet.
 N-BT large-PL quantity-PL of glycol-DEF ...
 'Large quantities of the glycol have disappeared from the pipe net.'

Despite superficial similarities there is a fairly clear semantic difference, as the morphological difference in definiteness also indicates. In the proper partitive, the landmark referent is a given mass, and a trajector-referent submass is identified on account of its being part of the landmark referent. In the pseudopartitive, the landmark referent is a kind of material, and the trajector referent is the amount of that material. Figuratively, in the partitive the trajector referent is taken out of the landmark referent leaving the rest of it behind; the landmark referent is split in two, partitioned. The phrase *store mengder av glykolen* in (82) picks out a submass of the mass of glycol; some glycol has disappeared, and some has not. In the pseudopartitive, the trajector referent figuratively comes out of the landmark referent in being its measure. There is no indication that a part of the landmark referent is not

involved; there is no partition. The phrase *mengder av ekstremister* in (80) says that the extremists in the police constitute considerable amounts, but it does not imply that there are other extremists. In some languages, the parallelism between pseudopartitives and partitives is stronger, for instance in English, where both involve the use of *of* in most cases, and in French, with *de* 'of, from'. As I have analyzed the Norwegian situation, the pseudopartitive and the partitive use of *av* are not directly related, but the relations are expressed by the same morpheme because the relevant senses are both extensions from a basic ablative meaning. Koptjevskaja-Tamm (forthc.) points to the fact that pseudopartitives employ the partitive morpheme in several languages, and she assumes that such pseudopartitives are based on the partitives. It may well be that her analysis is correct for other languages, but the limited use of *av* in Norwegian pseudopartitives seems rather to be based on the material use of the preposition.

To sum up, the sense at the centre of the radial category of *av* is ablative. From this there are three sets of extended meanings. First, there is an agentive-causative cluster. Second, there are various partitive senses. And third, there are material senses, including the patient of nominalizations and the most relevant usage in our context, the pseudopartitive of material.

6.2.4 Three competing concepts of quantity

In this section, I address the relation between *med*-pseudopartitives and *av*-pseudopartitives: What determines whether a construction with *med* or a construction with *av* is used?

There is very little to be found in the literature about the difference in use between *med* and *av* in pseudopartitives. In Faarlund et al. (1997: 240) it is mentioned that *med* can be found with secondary quantifying nouns, and similar observations are made for Swedish by Delsing (1993: 204). Neither of these works discusses the relation to *av*. Daugaard (1994: 49–50) has some interesting observations about *med* and *af* in Danish: *Med* is found primarily with container nouns, and *af* can be found where the quantifying noun is, in Daugaard's view, coreferential with the substance noun (basically, all except container nouns, numeral nouns, and unit nouns).

In section 6.2.4.1, I relate the concepts of quantity discussed in section 5.4 to the sources of pseudopartitives presented in sections 6.2.2 and 6.2.3. Section 6.2.4.2 briefly discusses the use of *med* and *av* in unit counting and mass construction, while section 6.2.4.3 presents data of usage in the context of unbounding. The usage data

are analyzed in sections 6.2.4.4–6.2.4.6, which focus on the domains of accompaniment, containment, and material constitution, respectively.

6.2.4.1 Concepts of quantity and the prepositions *med* and *av*

In section 5.4, I discussed different concepts of quantity on the basis of secondary quantifying nouns and sources of primary quantifying nouns. Three different source concepts for quantities were recognized: an object constituted of a material, a container holding a content, and an object with an accompanying object.

In sections 6.2.2 and 6.2.3, the radial structures of *med* and *av* have been analyzed, and it can now be specified how these prepositions relate to the concepts of quantity. The relation between a quantity conceptualized as a constituted object and its constitutive material is designated by *av*, the preposition that is used in Norwegian about prototypical relations between objects and their material. The relation between a quantity conceptualized as a container and its content is designated by *med*, the preposition for real container–content relations. And the relation between a quantity conceptualized as an accompanied object and its accompaniment is also designated by *med*, which is used about two objects that accompany one another. I shall refer to these prepositional usages as material *av*, containment *med*, and accompaniment *med*.

Non-metaphorical accompaniment *med* refers to the relation between a trajector referent and a landmark referent, the latter often conceptualized as being extended along the former. The referent of the landmark is external to that of the trajector, and the boundedness of the accompanying object emerges from its parallel extension along with the bounded accompanied object. In the pseudopartitive version, exemplified in (83), the quantifying nominal and the substance nominal are cocategorizing, and the relation of accompaniment is metaphorical, not real.

(83) Det hadde falle tre fot med snø.

N ... three foot-(PL) with snow

‘There had fallen three foot of snow.’

Whether accompaniment *med* is used in pseudopartitives will be determined by how well the entities referred to by the nominals are conceptualized as being external to and extending alongside one another.

In its non-metaphorical meaning, containment *med* refers to the relation between a container and a content. There is a relation between two distinct entities, such as a (physical) bottle and some wine. The container bounds the content; the latter is internal to the former. In the derived pseudopartitive version of containment *med*,

exemplified in (84), the two nominals are cocategorizing. The relation of containment is therefore metaphorical.

- (84) Ho drakk ei flaske med vin.
 N ... a-F bottle(F) with wine
 'She drank a bottle of wine.'

Whether containment *med* is used will depend upon how good a metaphorical container the quantifying nominal designates, how natural it is to conceive of the substance as being bounded by and internal to the amount.

Typically, material *av* is used about the relation between a physical object (trajector referent) and its sole or clearly dominating constitutive material (landmark referent). The two are coextensive, and bounding is not a central part of the meaning. To the extent that the object referred to by the quantifying nominal is a "good" object which can be conceptualized as being constituted of the substance, pseudopartitives can be based directly on this basic meaning of material *av*. If the quantifying noun does not refer to a "good" object, but only to the quantitative aspect of the quantified mass, the material relation is metaphorical, as in example (85).

- (85) Dei brukte millionar av kroner.
 N ... million-PL of *kroner*-PL
 'They spent millions of *kroner*.'

The more container-like the amount is, or the easier it is to conceptualize amount and substance as companions, the more competition material *av* has.

In section 6.1.2, I argued that juxtaposition is a construction that expresses conceptual unity iconically, while the use of a preposition signals a lower degree of conceptual unity between amount and substance. The three usages of *av* and *med* can be arranged on the same scale of conceptual unity versus separation. Of the three, material *av* is closest to conceptual unity. When it is used non-metaphorically, it refers to the relation between an object and its material, which are coextensive. Containment *med* is closer to the other end of the scale. In non-metaphorical use, it refers to the relation between a container and its content, which are physically in contact (the latter being internal to the former), but not coextensive. Accompaniment *med* has the highest degree of conceptual separability. When it is used non-metaphorically, it refers to the relation between an object and an external accompanying object, which are physically close, but which are not necessarily in contact and not coextensive. The opposition between (containment/accompaniment) *med* and (material) *av* in pseudopartitives, then, lies in the higher degree of

separability for *med* (especially accompaniment *med*) than for *av*. Further, while containment *med* is characterized by bounding, *av* and accompaniment *med* are less clearly related to bounding.

The distinction between unity and separability is largely conceptual, not factual. I have argued that pseudopartitivity involves a situation where the substance nominal and the quantifying nominal cocategorize one object. This includes abstract primary quantifying nouns such as unit nouns and numeral nouns and also, by metonymy, container nouns. Still, the use of a preposition to link the two nouns requires some conceptual relation between the entities that they designate. That is, two conceptual entities correspond to one real-world object.

6.2.4.2 *Med* versus *av* in unit counting and mass construction

In this section, I briefly recapitulate the data on the distribution of *med* and *av* in unit counting and mass construction that have been mentioned in previous chapters. Further, I examine their usage with two classes of quantifying nouns that have not been discussed in this respect: portion nouns and indefinite measure nouns.

We saw in chapter 4 that numeral nouns (which are used in unit counting, not mass construction) are rarely used with a preposition at all, but certain numeral nouns can be followed by *med* when used as heads of definite pseudopartitives (cf. section 4.4.2). Further, we have seen that container nouns and unit nouns (also primarily used in unit counting) are typically used in juxtaposition, but may also be followed by *med* (cf. section 6.1.4.1). Group nouns and indefinite numeral nouns (which are primarily used in mass construction) are often found in juxtaposition, too, but here, both *med* and *av* are also used (cf. section 6.1.4.2). Which preposition is used, varies a good deal, but it would appear that a typical quantitative reading of the quantifying noun gives preference to the use of *med*, while a more object-oriented reading favours the use of *av*. This was not discussed in section 6.1.4.2, but the tendency appears to be the same as the one that I shall discuss here for portion nouns and indefinite measure nouns.

Portion nouns and indefinite measure nouns are, like most quantifying nouns, typically used in juxtaposition, at least in writing. However, words of both classes are found with *med* as well as with *av*. Examples with *med* are given in (86)–(88), with *av* in (89)–(91). *Skive* ‘slice’ (examples (86) and (89)) and *dunge/dynge* ‘heap’ (examples (87) and (90)) are portion nouns; they are a good and a bad unit counter, respectively. *Mengde* ‘quantity’ (examples (88) and (91)) is an indefinite measure noun and a bad unit counter.

- (86) Deretter skjærer du opp et par skiver med appelsin ...
 B-X ... a-N couple(N) slice-PL with orange
 'After that you cut up a couple of slices of orange.'
- (87) [M]en Frode falt ganske bløtt på en dunge med løv og barnåler.
 B-ST ... a-M heap(M) with leaf and conifer-needle-PL
 'But Frode fell quite softly onto a heap/mound of leaves and conifer needles.'
- (88) [Endringene] har gitt oss en mengde med tekniske kulturminner i fylket.
 B-BT ... a-M/F quantity(M/F) with technical-PL culture-memory-PL ...
 'The changes have given us a lot of technical cultural monuments in this county.'
- (89) [U]middelbar effekt skal det ha å legge noen skiver av rå potet på pannen ...
 B-BT ... some-PL slice-PL of raw-M/F potato(M/F) ...
 'An immediate effect it is said to have if you put some slices of raw potato on your forehead.'
- (90) En dyngje av blodrøde kranser lå foran muren ...
 B-GN a-M heap(M) of blood-red-PL wreath-PL ...
 'A heap of blood-red wreaths lay in front of the wall.'
- (91) [De] leverte [noen] akustiske sanger til en fargerik mengde av deltakere ...
 B-BT ... a-M/F colourful-M/F quantity(M/F) of participant-PL ...
 'They delivered some acoustic songs to a colourful lot (crowd) of participants.'

The semantic difference between expressions with *med* and expressions with *av* is not very clear. But to some extent, *med* favours a typical pseudopartitive reading, while *av* favours a material reading (a thing made of a substance). This difference can be rather clear in the case of some portion nouns. For instance, *et par skiver med appelsin* in (86) refers to an amount of orange, measured in slices, while *noen skiver av rå potet* in (89) is more likely to be understood as referring to some slices (objects) of a certain kind of material.

As seen in section 6.1.4.2, certain group nouns and indefinite numeral nouns can be used to refer to abundant quantities and are frequently used with emphatic stress and followed by a preposition. These include the group noun *skokk* 'crowd' and the indefinite numeral nouns *utal* 'uncountable number', *drøss* 'multitude', and *brote* 'multitude'. Three of these are typically followed by *med*; only *utal* is often followed by *av*. Similar properties are found with a portion noun like *haug* 'heap'. This noun is

typically followed by *med*, as illustrated in (92). When used like this, it commonly has emphatic stress. A more neutral use of *haug* is illustrated in (93).

(92) Dessuten skylder han en haug med penger til leverandører ...

B-JJ ... a-M heap(M) with money-PL ...

'Besides, he owes a heap of money to suppliers.'

(93) På loftet ligger en liten haug maiskolber helt åpent ...

B-BT ... a-M small-M/F heap(M) corncob-PL ...

'In the loft, a small heap/mound of corncobs is lying quite openly.'

The tendency is that the abundance sense is used with *med*, while the basic sense occurs in juxtaposition. The abundance usage must be seen in relation to usage in the context of unbounding (cf. section 6.2.4.3).

To conclude, only *med* is found in unit counting after numeral nouns, unit nouns, and container nouns. After portion nouns, group nouns, indefinite numeral nouns, and indefinite measure nouns (of which the first class and to some extent the second are used in unit counting, the others in mass construction), both *med* and *av* are found. To the extent that a distinction is made, the use of *med* indicates a quantitative reading of the quantifying noun, the use of *av* a qualitative ("good" object) reading. That is, *med* is the typical prepositional marker of pseudopartitive relations in mass construction and especially in unit counting.

6.2.4.3 *Med* versus *av* in unbounding

The use of prepositions in connection with bare plurals and quantifiers in *-vis* is quite different from the use in bounding quantification (unit counting and mass construction). As we saw in section 6.1.5, the use of a preposition is obligatory after such quantifying expressions. In addition, we shall see that *av* is used far more frequently here.

Recall (section 5.2) that the set of nouns used as bare plurals is rather limited in Norwegian, while the range of quantifiers in *-vis* is much wider (section 5.3). I have not investigated the use of prepositions after bare plurals in any detail, but my impression is that it is very similar to that seen with quantifiers in *-vis*, relative to the semantic class of the noun/quantifier. In this section, I shall therefore sketch the use of prepositions with quantifiers in *-vis* as found in the corpora (cf. section 2.2). As seen in section 5.3.2, most kinds of quantifying nouns are found as bases for the derivation of quantifiers in *-vis*. There are few exceptions: Area and volume nouns

Class	<i>med</i>	<i>av</i>	Total
Capacity unit	2 100.0 %	0 0.0 %	2
Time unit	6 100.0 %	0 0.0 %	6
Length unit	9 90.0 %	1 10.0 %	10
Unit (all)	29 78.4 %	8 21.6 %	37
Container	6 66.7 %	3 33.3 %	9
Weight unit	12 63.2 %	7 36.8 %	19
Ind. numeral	3 30.0 %	7 70.0 %	10
Portion	4 25.0 %	12 75.0 %	16
Group	1 20.0 %	4 80.0 %	5
Ind. measure	3 5.6 %	51 94.4 %	54
Numeral	2 0.4 %	459 99.6 %	461

Table 6.7. The use of *med* and *av* with quantifiers in *-vis*

are not represented in the corpora. In addition, the most typical indefinite numeral nouns are not found, either.⁴ The full lists of words can be found in section 5.3.2.

The use of *med* and *av* after quantifiers in *-vis* used in pseudopartitives is presented in table 6.7.⁵ These data do not include partitives. Neither do they include, of course, instances without a substance nominal. Surprisingly, the corpora include as many as seven instances of quantifiers in *-vis* used in "juxtaposition",⁶ i.e. with a following substance nominal not preceded by any preposition. These are excluded as ungrammatical and are at any rate rather irrelevant for the discussion of the relation between *med* and *av*. Some of the classes are too poorly represented to allow generalization with any certainty on the basis of just the numbers. But it would appear that there are four groups of classes, two "extreme" and two intermediate.

At one end, numeral quantifiers (*tusenvis* 'thousands', *hundrevis* 'hundreds', etc.) are massively dominated by *av*,⁷ and indefinite measure quantifiers (*massevis*

⁴But I have treated *drøsevis* 'multitudes' as an indefinite numeral quantifier, since I classify *drøss* as an indefinite numeral noun. It could alternatively have been considered a group quantifier.

⁵*Lassevis* 'loads' is included among the portion quantifiers. It could alternatively have been classified as a container quantifier. There are only two examples, both with *av*.

⁶"Juxtaposition" is found with *tusenvis* 'thousands' (3 instances), *titusenvis* 'tens of thousands', *dusinvis* 'dozens', *tonnevis* 'tons', and *byttevis* 'buckets' (1 instance each).

⁷The two examples with *med* both have a peripheral member of the class: *dusinvis* 'dozens'.

'masses' and *mengdevis* 'quantities') approach numeral quantifiers in their preference for *av*.

The first intermediate group has a majority of *av*; the classes here are group quantifiers (e.g. *flokkevis* 'flocks'), portion quantifiers (e.g. *haugevis* 'heaps'), and the single indefinite numeral quantifier *drøssevis* 'multitudes'.

The second intermediate group has a majority of *med*; the classes here are weight quantifiers (e.g. *tonnevis* 'tons') and container quantifiers (e.g. *byttevis* 'buckets').

At the opposite end from numeral quantifiers, there are time quantifiers (e.g. *dagevis* 'days') and, approaching them, length quantifiers (e.g. *metervis* 'metres'); these classes are clearly dominated by *med*.

Capacity quantifiers are represented with only two examples, both with *litervis* 'litres' and *med*. On the basis of their meaning, I would expect them to group with weight and container quantifiers. The two examples suggest that either this is correct or else they have an even stronger preference for *med*, aligning with length and time quantifiers.

6.2.4.4 The domain of accompaniment

The domain of accompaniment is quantification with length and time (and possibly area) units. For these categories of quantification, *med* is the only or the clearly dominating preposition in prepositional pseudopartitives, in both unit counting and unbounding. (Mass construction is not normally found here.) This can be interpreted as a consequence of a preference for the accompaniment metaphor of quantity in the context of length and time, and possibly of area.

In unit counting, *med* can be used, as discussed in section 6.1.4.1 and exemplified in (94)–(96), although juxtaposition is far more frequent, at least in writing. If *med* is replaced with *av* in these examples, the result is ungrammatical.

(94) Dessuten skal det ... bygges fem kilometer med tunneler i området.

B-BT ... five kilometre-(PL) with tunnel-PL

'In addition, there will be built five kilometres of tunnels in the area.'

(95) [J]eg får [tre–fire] sekunder med gratis oppmerksomhet ...

B-BT ... three four second-PL with free attention

'I get three or four seconds of free attention.'

(96) I Hordaland har vi [seks–sju hundre] dekar med jordbæråkre.

B-BT ... six seven hundred-(PL) ten.ares-(PL) with strawberry-field-PL

'In Hordaland, we have 6–700,000 square metres of strawberry fields.'

In unbounding (cf. table 6.7), all the corpus examples with time quantifiers have *med*. This is exemplified in (97); replacing *med* with *av* would not produce an ungrammatical sentence, but it would sound rather awkward. Recall that such quantifiers are not usually followed by a substance nominal at all (cf. section 5.3.2.2). Length quantifiers in *-vis* are usually also found with *med*, and (98) sounds somewhat better than (99), which is the only example with *av* in the corpora.

(97) Bak en internasjonal avtale ligger det årevis med forhandlinger ...

B-BT ... year-*vis* with negotiation-PL

'Behind an international agreement lie years of negotiations.'

(98) De kommer tilbake med kilometervis med film.

B-BT ... kilometre-*vis* with film

'They return with kilometres of film.'

(99) [D]er hadde gått milevis av stive rep gjennom [hendene] i tidens løp ...

B-ST ... 10.kilometres-*vis* of stiff-PL rope ...

'There had gone miles (tens of kilometres) of stiff ropes through (his) hands in the course of time.'

This situation in the domain of accompaniment, with only *med* in bounding and a clear preference for *med* in unbounding must be contrasted with the usage in the principal domain of containment (cf. section 6.2.4.5), where bounding exhibits similar properties, but unbounding is less clearly dominated by *med*. The difference between the two domains must be understood on the background of the relation between accompaniment and containment on the one hand and bounding on the other. The notion of accompaniment is not affected by bounding; two objects can accompany one another whether they are bounded or not. Therefore, accompaniment *med* works well in both bounding and unbounding. But containment, on the other hand, is affected by bounding: If there are no boundaries, there can hardly be any containment. Therefore, containment *med* works well in bounding, but less so in unbounding. I return to this in section 6.2.4.5. But in spite of the dominance of *med* in the domain of accompaniment, the use of *av* is not entirely unacceptable in unbounding. It would appear that the notion of containment is present in bounding, but not in unbounding, strengthening the preference for *med* in the former contexts and weakening it in the latter.

We have found three ways in which length and either time or area or both are different from other kinds of measures. All of these are motivated if it is assumed that length and time, and possibly area, are primarily conceptualized in terms of the

accompaniment metaphor, which involves the lowest degree of conceptual unity of the three concepts of quantity. First, length and time nominals are more often used without a substance nominal (cf. section 5.4). Distances and time stretches are more easily conceptualized as being present in our surroundings without actually measuring anything in particular than are for instance capacity and weight. Second, length and area nominals are somewhat more often used with *med* (rather than in juxtaposition) than are capacity and weight nominals (cf. section 6.1.4.1). Something that is measured for its length, duration, or (possibly) area is more easily conceptualized as being external to and separate from the measure than is something that is measured, say, for its weight. Third, length and time quantifiers in *-vis* are more often followed by *med* (rather than *av*) than are other quantifiers in *-vis* (possibly with the exception of capacity quantifiers). Lack of bounding is more compatible with measures understood in terms of accompaniment than with those that are understood in terms of containment.

6.2.4.5 The principal domain of containment

The principal domain of containment is quantification of volume/capacity and weight units and by means of container nouns. For these categories of quantification, only *med* is used in prepositional pseudopartitives in unit counting. In unbounding, *med* is the dominating preposition, but *av* is also common. (Mass construction is not normally found here.) This can be interpreted as a preference for the container metaphor of quantity in bounding and a situation of competition between this metaphor and the material metaphor of quantity in unbounding.

Volume, capacity, and weight nouns are typically found in juxtaposition (cf. section 6.1.4.1), but are also used with *med*, as exemplified in (100)–(102). In none of the examples can *med* be replaced with *av*.

(100) Her vil en enkelt kubikkmeter med vannfylt grus inneholde så mye som 200–400 liter vann.

B-X ... one-M single cubic-metre(M) with water-filled gravel ...

'Here one single cubic metre of water-filled gravel will contain as much as 200–400 litres of water.'

(101) Men jeg vet ... at det kun er et par desiliter med bensin igjen ...

B-X ... a-N couple(N) decilitre-(PL) with petrol ...

'But I know that there are only a couple of decilitres of petrol left.'

(102) [De] skal plukke [ti–tolv] tonn med plommer de nærmeste ukene.

B-BT ... ten twelve ton-(PL) with plum-PL

'They are going to pick 10–12 tons of plums (over) the next weeks.'

As we saw in section 6.1.4.1, container nouns are somewhat more often used with a preposition than are unit nouns. Here, too, it is *med* rather than *av* that is used. The use of *av* would specify the material of the container itself, rather than its quantified content. This is illustrated in (103) and (104).

(103) ein sekk med bomull

N a-M sack(M) with cotton

'a sack (-ful) of cotton'

(104) ein sekk av bomull

N a-M sack(M) of cotton

'a sack (made) of cotton'

In unbounding, weight and container quantifiers in *-vis* are dominated by the use of *med*, but there is a fair share of *av* (cf. table 6.7). Examples with *med* are given in (105) and (106), with *av* in (107) and (108). Here, too, my intuition is that *med* sounds better, but *av* is definitely not ungrammatical. (Capacity quantifiers in *-vis* are only represented with two examples in the corpora, both with *med*, but *av* is as acceptable here as with weight and container quantifiers.)

(105) Bøker, blader ... og tonnevis med sirkulærer fløt fritt omkring.

B-BL ... ton-*vis* with circular-PL ...

'Books, magazines and tons of circulars were floating about freely.'

(106) Og der sto [de] med nytt bygg, former og tønnevis med plastråstoff.

B-BT ... barrel-*vis* with plastic-raw-material

'And there they stood, with a new building, moulds, and barrels of crude plastic material.'

(107) Det kan være tonnevis av is utenfor her.

B-BL ... ton-*vis* of ice ...

'There may be tons of ice outside here.'

(108) [Han] fikk tid til å kjøpe kassevis av ungarsk tokaier ...

B-BT ... case-*vis* of Hungarian Tokay

'He had time to buy crates of Hungarian Tokay (wine).'

The fact that *med* rather than *av* is used in unit counting can be seen as a result of the notions of containment and bounding working together in one direction. When both *med* and *av* are used in unbounding, this can be interpreted as a situation of competition between the containment metaphor and the material metaphor of quantity. The use of *med* is motivated by the container meaning (literal or metaphorical) of the nominal stem of the quantifiers (e.g. *tønne* 'barrel' in *tønnevis* 'barrels'), while the use of *av* is motivated by the notions of bounding and containment being to a large extent eliminated by unbounding. It would appear from the data presented in table 6.7 that the containment metaphor is at least as active for capacity quantifiers as for container quantifiers. I suggested in section 5.4 that the material metaphor might be as relevant for weight as is the containment metaphor. The idea of such an intermediate position receives a certain amount of confirmation from the corpus data, although it is of course possible that these are not quite representative: With capacity and container quantifiers taken together, *med* is used in 72.7 % of the examples, while the percentage for weight quantifiers is 63.2 %. But weight quantifiers are far from the *av*-dominated classes, none of which exceeds 30 % in its share of *med*. The solid position of *med* in unit counting also suggests that the container metaphor is considerably more important for weight than is the material metaphor.

6.2.4.6 The principal domain of material constitution

The principal domain of material constitution is quantification with numeral nouns, indefinite numeral nouns, group nouns, indefinite measure nouns, and portion nouns. For most of these categories of quantification, both *med* and *av* are found in bounding quantification as well as in unbounding, but while *med* tends to dominate in bounding, *av* dominates in unbounding. This can be interpreted as a situation of competition between the container metaphor and the material metaphor of quantity, with a certain preference for the former in bounding contexts and for the latter in unbounding contexts.

If we start with bounding, numeral nouns are typically used in unit counting, while indefinite numeral nouns and indefinite measure nouns are typically used in mass construction. Portion nouns and group nouns are intermediate and are used in both ways. We have seen that numeral nouns can only be used with *med* (cf. section 4.4.2), while the rest can be used with either *med* or *av* (cf. sections 6.1.4.2 and 6.2.4.2).

In unbounding (cf. table 6.7), group and portion quantifiers in *-vis* and the single indefinite numeral quantifier *drøssevis* 'multitudes' are dominated by use of *av*, but

med has a relatively large share and is fully acceptable. Examples with *av* are given in (109)–(111) for the three classes; examples with *med* are given in (112)–(114).

(109) [Der kan du] treffa flokkevis av mørkhuda personar.

N-BT ... flock-*vis* of dark-skinned person-PL

'There you can meet flocks of dark-skinned persons.'

(110) Jeg kjenner til haugevis av eksempler på [slike] utøvere ...

B-BT ... heap-*vis* of example-PL ...

'I know of heaps of examples of such performers.'

(111) Det finst drøssevis av bøker om kontinentale jernbaneselskap ...

N-BT ... multitude-*vis* of book-PL ...

'There are lots and lots of books about continental railway companies.'

(112) [D]et var flokkevis med folk utanfor redaksjonslokala.

N-HE ... flock-*vis* with people-(PL) ...

'There were flocks of people outside the editorial offices.'

(113) [Då] ville han ha funne haugevis med former av typen Noreghes ...

N-BT ... heap-*vis* with form-PL ...

'Then he would have found heaps of forms of the type Noreghes.'

(114) Det gav henne drøssevis med modelloppdrag ...

BT ... multitude-*vis* with model-task-PL

'It gave her lots of modelling jobs.'

When we come to numeral quantifiers and indefinite measure quantifiers in *-vis*, *av* dominates very strongly, and the use of *med* sounds a little awkward. The normal use of *av* is exemplified in (115) and (116), while (117) and (118) illustrate the less common use of *med*.

(115) [O]ppføringen av katedralen [har] gitt arbeid til dusinvis av innbyggere.

B-BT ... dozen-*vis* of inhabitant-PL

'The construction of the cathedral has given work to dozens of inhabitants.'

(116) Barn har egne kolleksjoner med massevis av gøyale briller.

B-BT ... mass-*vis* of funny-PL spectacle-PL

'Children have their own collections with masses of funny spectacles.'

(117) [D]usinvis med plastsekker taler sitt tydelige språk ...

B-BT dozen-*vis* with plastic-sack-PL ...

'Dozens of plastic sacks speak for themselves.'

(118) [Foreldrene gir] dem ... massevis med dyre, fine leker.

B-BT ... mass-*vis* with expensive-PL fine-PL toy-PL

'The parents give them masses of expensive, nice toys.'

In this area of quantification, the competition between the container metaphor and the material metaphor of quantity is evident, but the picture is rather confusing. I propose that three factors favour the container metaphor and therefore the use of *med*: 1) bounding quantification (at the level of the quantifying mass), 2) good unit counters, 3) and "good" objects (both at the level of the quantifying individual). These all relate to the salience of the concept of bounding. It would appear that in bounding – which favours containment and *med* – it is relevant whether there is a good unit counter or not, the former type favouring containment and *med* (as we have seen with the various kinds of unit nouns), the latter being more open to material constitution and the use of *av*. Numeral nouns provide good units, and when they are used in bounding, *med* is the best motivated choice. The four other classes of quantifying nouns provide less good or bad units, and when used in unit counting or mass construction, both *med* and *av* are to some extent motivated. On the other hand, in unbounding – which disfavors containment and *med* –, the goodness of units appears to be less relevant; presumably this is because the bounding function of the units is rendered less important by unbounding itself. Here it would appear to be more important whether the quantifiers refer to good objects or not, the good ones favouring containment and *med*. Numeral quantifiers and indefinite measure quantifiers in *-vis* are not bounding quantifiers, nor do they refer to good objects; since the two relevant motivating factors for containment and *med* are not present, material constitution and *av* are used instead. (These quantifiers denote good unit counters, but as mentioned above, this factor appears to be of little significance in unbounding.) Group quantifiers and portion quantifiers in *-vis* are not bounding quantifiers, but do refer to rather good objects; this accounts for their intermediate position between *med*-dominated and the heavily *av*-dominated classes (cf. table 6.7). The indefinite numeral quantifier *drøsevis* 'multitudes' resembles group and portion quantifiers more than it does numeral and indefinite measure quantifiers; this is contrary to what we expect, since it is neither a bounding quantifier nor clearly referring to good objects. But then the noun *drøss* 'multitude' does have a peripheral

position in the class of indefinite numeral nouns, resembling to some degree group and portion nouns. This may possibly account for the deviance of *drössevis*.

6.2.6 Summary

In section 6.2, I have tried to show that *med* and *av* are meaningful prepositions, and that their use in pseudopartitives must be understood in the light of the source structures from which pseudopartitives are derived. The use of *med* in pseudopartitives is based on two associative uses of the preposition, suitable in connection with the accompaniment metaphor and the containment metaphor of quantity. The use of *av* in pseudopartitives is based on constructions where it refers to the relation between an object and its constitutive material; this is linked to the material metaphor of quantity. On this basis, I have tried to show that the distribution of *med* and *av* in pseudopartitives is to a large extent motivated. In quantification where the accompaniment metaphor is a natural choice, length and time (and possibly area), *med* dominates almost completely. In areas where this metaphor does not apply, the containment metaphor and the material metaphor compete. The clearer the notion of bounding, the better the motivation is for containment and the use of *med*.

6.3 Conclusion

In this chapter, I have discussed what determines the choice between juxtapositional pseudopartitives and prepositional pseudopartitives, and between *med*-pseudopartitives and *av*-pseudopartitives. I have argued that juxtaposition is an icon of conceptual unity, and that this construction is best motivated when no subjective, objective or linguistic factors work to disturb conceptual unity. Further, I have argued that the choice between the prepositions *med* and *av* is largely determined by the interaction between the meaning of the preposition and the meaning of the quantifying expression.

7

Pseudopartitive constructions: Grammatical structure

Determining which noun is the head of a juxtapositional pseudopartitive, like *ein flokk sauer* 'a flock of sheep', is a "classic" problem that has been discussed extensively in relation to both Norwegian and other Scandinavian and Germanic languages that have such pseudopartitives (Danish, Swedish, German, Dutch, etc.), and the conclusions have varied.

The problem carries over to prepositional structures like *ein flokk av sauer* 'a flock of sheep' and *to koppar med te* 'two cups of tea' as well. This is known from the literature on English; for instance, *a number of books* is a plural expression although superficially it looks like it is headed by the singular noun *number*. There is very little to be found in the literature about similar phenomena related to prepositional pseudopartitives in the Scandinavian languages.

In this chapter, I discuss the syntagmatic relations of pseudopartitives. As a basis, old and some new data are presented in section 7.1. Sections 7.2 and 7.3 contain my synchronic analyses of juxtapositional and prepositional pseudopartitives, respectively, in addition to some subsections that present previous approaches, and some that point towards the diachronic orientation of section 7.4. In that section, I argue for a diachronically and pragmatically based understanding of the structure of pseudopartitives.

7.1 Data

In this section, I present data on juxtapositional pseudopartitives that are already relatively well-known in the literature, while showing that prepositional pseudopartitives have very similar properties (sections 7.1.1–7.1.4). In section 7.1.5, I discuss evidence from definite pseudopartitives, some of which is known from the

literature, and some of which is new and sheds new light on the status of the preposition in prepositional pseudopartitives.

7.1.1 Internal syntax: Indefinite pseudopartitives

Consider juxtapositional pseudopartitives like the ones in (1) and (2). Both have a quantifying noun and a substance noun. And both of these may be constituents of larger nominals – quantifying nominals and substance nominals – which include other constituents. The question is, which noun is the head in such expressions? This is the “classic” problem of juxtaposition.

- (1) eit kilo appelsinar
 N a-N kilo(N) orange-PL
 ‘a kilo of oranges’
- (2) tre store dropar brunt vatn
 N three big-PL drop-PL brown-N water(N)
 ‘three big drops of brown water’

Juxtapositional pseudopartitives do not have any marker of subordination related to any of the nouns; the nouns are simply juxtaposed. If we limit our attention to the internal structure of these indefinite phrases, it will probably be impossible to settle on any answer to the question of headedness, and we are left with two alternative answers: Either the quantifying noun is the head, and the substance nominal is a subordinate constituent, as illustrated in figure 7.1. Or the substance noun is the head, and the quantifying nominal is a subordinate constituent, as illustrated in figure 7.2. Different structures have been assumed by different writers (cf. section 7.2.1). But there is no evidence to be found within these nominals themselves. We have to look outside them for evidence of their internal structure (cf. sections 7.1.3–7.1.4), and we need to take definite nominals into consideration (cf. section 7.1.5).

While juxtapositional structures have long been recognized as problematic, the grammar of prepositional pseudopartitives in Norwegian has hardly been discussed at all. Consider (3) and (4).

- (3) eit kilo med appelsinar
 N a-N kilo(N) with orange-PL
 ‘a kilo of oranges’

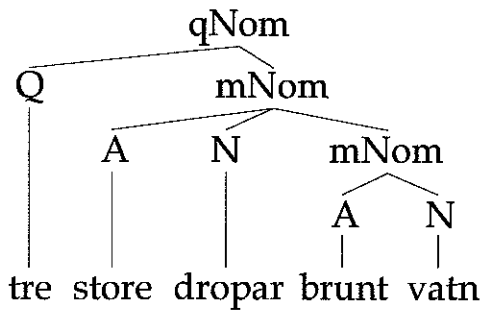


Figure 7.1. Juxtaposition with a head quantifying noun (*dropar*)

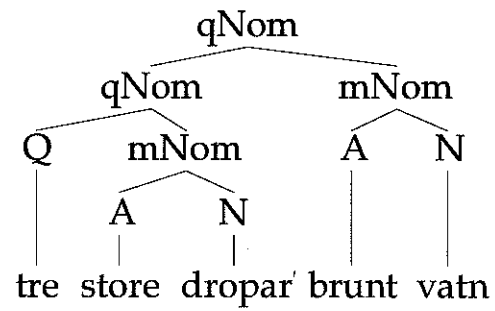


Figure 7.2. Juxtaposition with a head substance noun (*vatn*)

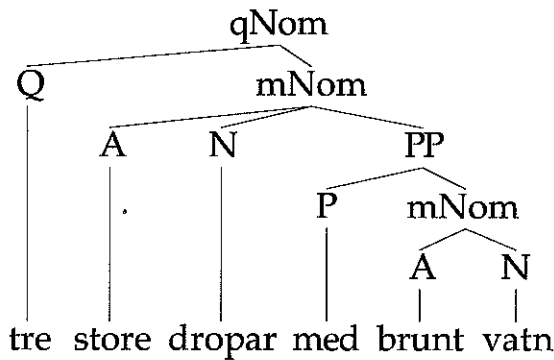


Figure 7.3. The structure of prepositional pseudopartitives?

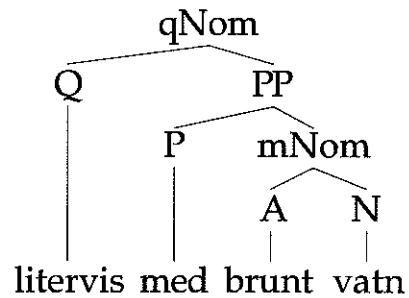


Figure 7.4. The structure of pseudopartitives with a quantifier in *-vis*?

- (4) tre store dropar med brunt vatn
 N three big-PL drop-PL with brown-N water(N)
 'three big drops of brown water'

To the extent that the existence of such structures in the Scandinavian languages has been commented on, it has been assumed that the preposition, which is normally a marker of subordination, shows that its object (the substance nominal) is subordinate (cf. section 7.3.1). Traditionally, this has been assumed for similar structures in other languages as well, such as English pseudopartitives with *of* and German pseudopartitives with genitival case marking of the substance nominal. Thus, one has generally concluded that prepositional pseudopartitives are unproblematic instances of the structure in figure 7.3 (or some similar structure, depending on the syntactic framework). If this line of reasoning is correct, quantifiers in *-vis* must also

be heads, since a preposition precedes a following substance nominal. A pseudopartitive like *litrois med brunnt vatn* 'litres of brown water' could then be analyzed as in figure 7.4.

However, we shall see in sections 7.1.2–7.1.5 that this conclusion may have been too hasty. There is evidence that the substance noun has certain properties that are characteristic of heads of nominals, and that the preposition may sometimes not be a subordination marker at all.

7.1.2 Functional considerations

If we compare the meanings and functions of quantifying nominals and quantifiers, we find that there are clear similarities. Given that quantifiers are subordinate constituents in relation to head nouns, such similarities suggest that quantifying nominals, too, may be subordinate. Further, we find differences between quantifying nouns and typical head nouns, which suggests that the former cannot be regarded as unproblematic head nouns.

Let us take a look at the syntax of the nominal *tre store dropar brunnt vatn* 'three big drops of brown water' again, this time with an additional functional point of view. I have sketched a functional analysis in figure 7.5. The adjective *store* is a qualitative modifier of *dropar* and the quantifier *tre* a quantitative modifier. These are subordinate constituents of the quantifying nominal. Further, the adjective *brunnt* is a qualitative modifier of *vatn*, and the quantifying nominal *tre store dropar* is

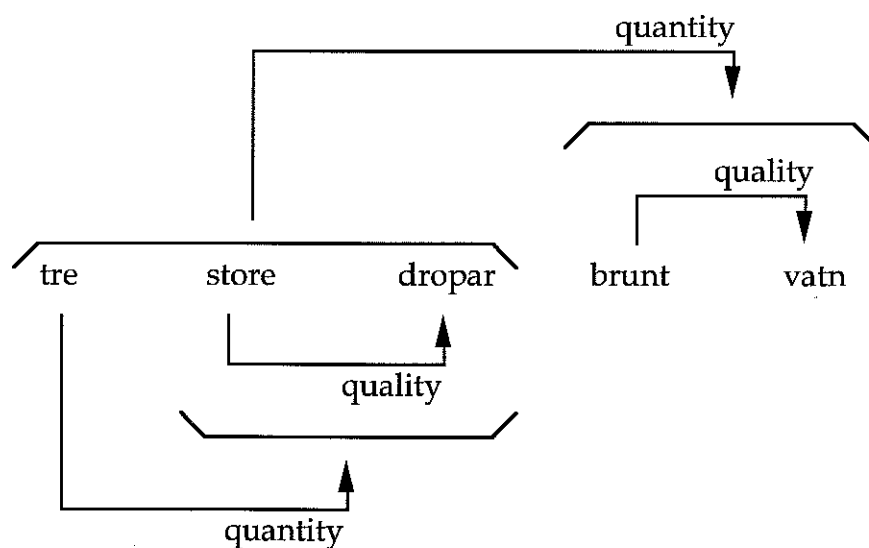


Figure 7.5. The functional structure of a pseudopartitive

(functionally) a quantitative modifier. The adjective is a subordinate constituent of the substance nominal, and the picture would be very tidy if the quantifying nominal were also subordinate. Functionally, *tre store dropar* is to *brunt vatn* as *tre* is to *store dropar*. Given this kind of structure, both nouns can be modified by prenominal adjectives and quantified by prenominal (and preadjectival) quantifying expressions.

Usually, it is possible to substitute a quantifier like *mange* 'many' or *mykje* 'much' for a quantifying nominal, giving expressions with the same precedence relations and with very similar kinds of meanings (cf. Teleman 1969). This is illustrated in (5)–(8).

- (5) *ei mengd (med) kattar*
 N a-F quantity(F) (with) cat-PL
 'a lot of cats'
- (6) *mange kattar*
 N many-PL cat-PL
 'many cats'
- (7) *tre kvadratkilometer (med) skog*
 three square-kilometre-(PL) (with) forest
 'three square kilometres of forest'
- (8) *mykje skog*
 N much forest
 'much forest'

Further, quantifying nouns and quantifiers are often modified by the same degree words (adjectives or adverbs) (cf. Teleman 1969). This is illustrated with *utruleg* 'unbelievable' and *svær* 'great' in (9) and (10).

- (9) *utruleg/svært mange kattar*
 N unbelievable/great-N many-PL cat-PL
 'unbelievably/very many cats'
- (10) *ei utruleg/svær mengd (med) kattar*
 N a-F unbelievable/great-M/F quantity(F) (with) cat-PL
 'an unbelievable/a great number of cats'

A similarity between quantifying nominals (at least those with a primary quantifying noun) and quantifiers is found in topicalization and similar structures. Compare (11)–(16). As a pragmatically marked alternative to ordinary nominals with

a numeral and a prepositional-phrase modifier (as in (11)), it is possible to topicalize the noun with the modifier, while the quantifier is *in situ* and is followed by *av* (as in (12)); *av* cannot be left out or replaced with *med*.

- (11) Ho hadde tre appelsinar med tjukt skal.
 N she have-PAST three orange-PL with thick-N peel(N)
 'She had three oranges with a thick peel.'
- (12) Appelsinar med tjukt skal hadde ho tre av /*med/*Ø.
 N orange-PL with thick-N peel(N) have-PAST she three of/with/Ø
 'As for oranges with a thick peel, she had three.'
- (13) Ho hadde tre kilo (med) appelsinar.
 N she have-PAST three kilo-(PL) (with) orange-PL
 'She had three kilos of oranges.'
- (14) *Kilo appelsinar hadde ho tre av.
 N kilo-(PL) orange-PL have-PAST she three of
 'As for kilos of oranges, she had three.'
- (15) ??Kilo med appelsinar hadde ho tre av.
 N kilo-(PL) with orange-PL have-PAST she three of
 'As for kilos of oranges, she had three.'
- (16) Appelsinar hadde ho tre kilo av /*med/*Ø.
 N orange-PL have-PAST she three kilo-(PL) of/with/Ø
 'As for oranges, she had three kilos.'

If the pseudopartitive in (13) were an ordinary nominal headed by *kilo*, one would expect the topicalizations in (14) and (15) to be perfectly well-formed, but they are not. Rather, the quantifying nominal *tre kilo* behaves like a quantifier: It must be *in situ* and be followed by *av*, while the substance noun behaves like an ordinary head noun. Thus, quantifying nouns are seen to behave differently from typical head nouns. Quantifiers in *-vis* behave in the same way, i.e. *kilovis* 'kilos' could replace *tre kilo* in (13) and (16). In (13) it could be followed by *med* or *av*, in (16) only by *av*.

Further, at least some quantifying nouns behave differently from ordinary nouns with respect to interrogation and negation (cf. Teleman 1969). Compare examples (17)–(22).

- (17) Ho eig ein ring av gull.
 N she own-PRES a-M ring(M) of gold
 'She owns a ring of gold.'
- (18) Eig ho nokon ring av gull?
 N own-PRES she any-M ring(M) of gold
 'Does she own any ring of gold?'
- (19) Ho eig slett ikkje nokon ring av gull.
 N she own-PRES at.all not any-M ring(M) of gold
 'She doesn't own any ring of gold at all.'
- (20) Ho drakk ein liter (med) vin.
 N she drink-PAST a-M litre(M) (with) wine
 'She drank a litre of wine'
- (21) ?? Drakk ho nokon liter (med) vin?
 N drink-PAST she any-M litre(M) (with) wine
 'Did she drink a/any litre of wine?'
- (22) ?? Ho drakk slett ikkje nokon liter (med) vin.
 N she drink-PAST at.all not any-M litre(M) (with) wine
 'She didn't drink a/any litre of wine at all.'

The difference concerns the use of the indefinite article *ein* 'a' versus the indefinite pronoun *nokon* 'some, any'. Only the article can be used in declaratives, as in (17) and (20). In interrogatives and negative sentences the pronoun can be used in front of an ordinary noun, as illustrated in (18) and (19). (The article is possible in interrogatives, but marginal in negative sentences.) However, the pronoun sounds very strange in front of the quantifying noun, as illustrated in (21) and (22).

The functional considerations of this section, then, show that quantifying nominals resemble quantifiers, and that quantifying nouns are, at best, untypical as head nouns.

7.1.3 External semantics

In general, the context of a pseudopartitive, especially a verb, may fit either the quantifying noun or the substance noun, as illustrated in (23) and (24), respectively. Note that this is true for both juxtapositional and prepositional structures. It also holds for quantifiers in *-vis*. The quantifying nominal *tre kassar* in (23) and (24) could

be replaced with *kassevis* 'cases'; one would then have to use a preposition (*med* or *av*).

- (23) Tre kassar (med) eple blei stabla oppå kvarandre.
 N three case-PL (with) apple-(PL) become-PAST stack-PRT up-on each-other
 'Three cases of apples were stacked on top of each other.'
- (24) Tre kassar (med) eple trilla ut på golvet.
 N three case-PL (with) apple-(PL) roll-PAST out on floor-DEF
 'Three cases of apples rolled out on the floor.'

However, when the verb/adjective and the substance noun are clearly incompatible, juxtaposition may sound a little awkward while the use of a preposition is quite acceptable, as illustrated in (25) and (26).

- (25) Ho drakk tre flasker Ø/med vin.
 N she drink-PAST three bottle-PL Ø/with wine
 'She drank three bottles of wine.'
- (26) Ho knuste tre flasker (?)Ø/med vin.
 N she break-PAST three bottle-PL Ø/with wine
 'She broke three wine bottles.'

The verb in (26) implies that *flasker* refers to actual containers. Thus, it does not categorize the same object as the substance noun; it is not really a pseudopartitive meaning, but a container construction (cf. section 6.1.1).

Apart from the complications related to the distinction between pseudopartitives and the container construction, the data show fairly clearly that both nouns are relevant with respect to context compatibility and that they are possible heads. This contradicts the assumption that the quantifying noun is always the head in prepositional pseudopartitives (cf. section 7.1.1).

7.1.4 External syntax

In Nynorsk and certain dialects, there are two kinds of elements external to the nominal which agree: predicate adjectives and past participles after certain auxiliaries; only the former is found in Bokmål and certain other dialects. Delsing (1993) shows for Swedish that adjectives and participles can agree with the substance noun or the quantifying noun if the latter is a secondary quantifying noun (Delsing: a pseudoquantifier), but only with the substance noun if the quantifying noun is a

primary one (Delsing: a genuine quantifier). As far as I can tell, this holds pretty well for Norwegian, too. Moreover, it even holds for prepositional pseudopartitives. This is illustrated in (27) and (28).

- (27) Ein kasse (med) eple blei stolen/stolne.
 N a-M case(M) (with) apple-(PL) become-PAST stolen-M/F /stolen-PL
 'A case of apples was/were stolen.'
- (28) Eit tonn (med) eple blei *(?)stole/stolne.
 N a-N ton(N) (with) apple-(PL) become-PAST stolen-N /stolen-PL
 'A ton of apples was/were stolen.'

This suggests that the substance noun can normally be the head, while the quantifying noun can be the head only if it is a secondary quantifying noun. Quantifiers in *-vis* appear to pattern with primary quantifying nouns, i.e. as non-heads.

- (29) Kassevis med vin blei stolen/*(?)stolne.
 N case-*vis* with wine(M) become-PAST stolen-M/F /stolen-PL
 'Cases of wine were stolen.'

The observations in this section contradict the assumption that the quantifying noun is always the head in prepositional pseudopartitives (cf. section 7.1.1).

7.1.5 Internal syntax: Definite pseudopartitives

Definite nominals provide more clues to their own internal structure than do indefinite nominals. This is seen most clearly with doubly definite nominals, because definiteness of the pseudopartitive makes it necessary to choose one noun which is to receive definiteness marking. One of the nouns is (morphologically) definite, not both. (In possessive-definite and singly definite nominals, there is no definite noun.) The definite article or a demonstrative or possessive agrees for gender and number with the head noun in all types of definite nominals.

Recall from chapter 4 that in numeral constructions, the substance noun is normally the head, as in example (30), but that certain numeral nouns can be heads, as in example (31).

- (30) dei tre millionar aksjane
 N the-PL three million-PL share-PL&DEF
 'the three million shares'

- (31) dei tre millionane (med) aksjar
 N the-PL three million-PL&DEF (with) share-PL
 'the three million shares'

This is not generally the case for quantifying nouns, however. Delsing (1993: 215–218) shows for Swedish that in definite juxtapositional pseudopartitives only quantifying nouns can be heads. (He does not comment on the deviance of numeral nouns.) The same holds for prepositional pseudopartitives. Examples (32)–(34) illustrate this for Norwegian. The expressions in (33) and (34) are totally ungrammatical.

- (32) dei tre kassane (med) sand/appelsinar
 N the-PL three case-PL&DEF (with) sand/orange-PL
 'the three cases of sand/oranges'
- (33) *den tre kassar (med) sanden
 N the-M/F three case-PL (with) sand-DEF
 'the three cases of sand'
- (34) *dei tre kassar (med) appelsinane
 N the-PL three case-PL (with) orange-PL&DEF
 'the three cases of oranges'

Examples (35) and (36) show that the quantifying noun is the head in possessive-definite nominals, too, where none of the nouns is definite; the possessive agrees with the quantifying noun, not with the substance noun.

- (35) mine tre kassar (med) sand
 N my-PL three case-PL (with) sand
 'my three cases of sand'
- (36) *min tre kassar (med) sand
 N my-M three case-PL (with) sand(M)
 'my three cases of sand'

According to Vos (1999: 13), structures like the one in (37) occur in Dutch (although some regard them as ungrammatical). Here the demonstrative *deze* agrees with the substance noun *ham* for gender.

- (37) deze pond ham
 D this-NON-N pound(N) ham(NON-N)
 'this pound of ham'

This illustrates that definite pseudopartitives headed by the substance noun are not universally limited to numeral constructions.

Unbounding is seldom used in definite nominals. There is one use with single definiteness and a restrictive relative clause following the substance noun where the quantifying noun is clearly the head. This is most frequently found with numeral nouns, as in (38), but also with for instance indefinite measure nouns, as in (39). Note that the article *de* in (39) agrees with *mengder*, not with *materiale*. This construction can also be found with numeral quantifiers in *-vis*, as exemplified in (40). Presumably, the quantifier should be regarded as the head of such pseudopartitives.

(38) For de millioner av østeuropeere som de siste årene har mistet arbeidet ..., er det liten trøst å hente i rapporten.

B-BT ... the-PL million-PL of east-European-PL that ...

'For the millions of Eastern Europeans who during the last years have lost their jobs, there is little consolation to be found in the report.'

(39) De mengder av fast materiale som rutinemessig slippes ut ..., er små.

B-X the-PL quantity-PL of solid material that ...

'The quantities of solid material which are let out routinely are small.'

(40) Jeg takker også de tusenvis av nordmenn som har vist sin medfølelse ...

B-BT ... the-PL thousand-*vis* of Norwegian-PL that ...

'I also thank the thousands of Norwegians who have shown their sympathy.'

Single definiteness is also used about abstract types in a way that approaches generic reference. This is illustrated in (41). In possessive definiteness, there cannot be any definite head noun. This is illustrated in (42). (43) shows the same construction with a quantifier in *-vis*.

(41) Det er de tusener av utålmodige ledere ... som kan starte revolusjonen ...

B-X ... the-PL thousand-PL of impatient-PL leader-PL ...

'It's the thousands of impatient leaders who can start the revolution.'

(42) [Vi takker] våre tusener av tillitsvalgte for [innsatsen].

B-X ... our-PL thousand-PL of trust-chosen-PL ...

'We thank our thousands of members with honorary functions for their work.'

- (43) [O]ksekalfene ... er avfallsprodukter fra Storbritannias titusenvis av melkedyrbedrifter.

B-BT ... Great-Britain-'s ten-thousand-*vis* of milch-animal-business-PL

'The ox calves are waste products from Great Britain's tens of thousands of milch-animal businesses.'

But now consider unbounding in definite nominals where double definiteness is expected. Data on this have not, to my knowledge, been presented in the previous literature. An example with a numeral noun is given in (44), while the use of a quantifier in *-vis* is illustrated in (45)

- (44) [Det er] den største øygruppen i Nord-Norge som ønsker oss velkommen. Dette er et unikt område i europeisk sammenheng. De tusener av øyene er spredt langs kysten ...

B-X ... the-PL thousand-PL of island-PL&DEF ...

'It is the largest archipelago of Northern Norway that welcomes us. This is a unique area in a European context. The thousands of islands are spread out along the coast.'

- (45) Vi kaller Kroatia for Europas Karibia. Landet ... har en ... nydelig skjærgård. ... På mange av de hundrevis av øyene finner du små landsbyer ...

B-X ... the-PL hundred-*vis* of island-PL&DEF ...

'We call Croatia the Caribbean of Europe. The country has a beautiful coast of skerries. On many of the hundreds of islands, you find small villages.'

Note that it is the substance noun that is definite in (44) and not the quantifying noun; there is agreement for definiteness and number between the article *de* and the noun *øyene* "across" the preposition *av*. It is not possible to change the expression so that the quantifying noun is definite instead. Further, if the substance noun is changed to the indefinite form (*øyer* 'islands'), the result sounds like an unmotivated use of single definiteness. Thus, *de tusener av øyene* resembles an ordinary definite nominal like *de tre øyene* 'the three islands' in spite of the preposition *av*. Example (45) shows that this carries over to constructions with a quantifier in *-vis*.

Some of my informants judge examples like (44) and (45) not to be quite well-formed. However, when they are presented with versions with single definiteness (*de tusener av øyer*, *de hundrevis av øyer*), the response is that that sounds equally bad or worse. As far as I can tell, the problem is the combination of unbounding and definiteness. Unbounding quantifiers are typically used about new rather than given referents, and the vagueness of such expressions is somewhat at odds with the

presupposed unique identifiability of definiteness. Thus, to the extent that such expressions are well-formed, they provide direct evidence that the substance noun can be the head even of prepositional pseudopartitives, and that the preposition in such cases cannot be regarded as an unproblematic subordinator.

To conclude, in most definite pseudopartitives in Norwegian, the quantifying noun is head. But certain numeral nominals that are part of the numeral system may be subordinate. Marginally this is possible also for indefinite numeral nouns and numeral quantifiers in *-vis* followed by a preposition (in unbounding).

7.1.6 Summary

The data can be summarized as follows: In indefinite juxtapositional pseudopartitives with primary quantifying nouns (including numeral nouns), the substance noun seems to be the head. In parallel structures with secondary quantifying nouns, it appears that either the quantifying noun or the substance noun can be the head. In definite juxtapositional pseudopartitives with numeral nouns, either the quantifying noun or the substance noun can be the head. In parallel structures with other quantifying nouns, only the quantifying noun can be the head. This is identical with Delsing's (1993) conclusion, except that he does not mention the special behaviour of numeral nouns.

With respect to indefinite prepositional pseudopartitives, the situation is somewhat unclear. The presence of the preposition suggests that the quantifying noun is the head, while agreement suggests that these expressions are exactly like juxtapositional pseudopartitives. Further, almost all definite prepositional pseudopartitives are headed by the quantifying noun. But in constructions with unbounding quantifying expressions, it appears, considering nominal-internal agreement data, that the substance noun is the head in spite of the preceding preposition. Unclear as the data may be, they cast serious doubt on the subordinating status of the preposition.

7.2 The structure of juxtapositional pseudopartitives

I now turn to the analysis of the semantics and syntax of juxtapositional pseudopartitives. Section 7.2.1 presents some main points of previous approaches. My proposal for synchronic analyses of juxtapositional pseudopartitives in Modern Norwegian is developed in section 7.2.2; the assumed structures resemble Delsing's (1993) ambiguity analysis of juxtaposition in Swedish. I further lay the ground for a

diachronic understanding of this situation with two kinds of structures by sketching their Old Norse origin (section 7.2.3) and discussing the development from Old Norse to Modern Norwegian (section 7.2.4).

7.2.1 Previous approaches

Discussing the structure of juxtapositional pseudopartitives in various Germanic languages, some theorists have concluded that it is indeterminate (e.g. Diderichsen (1957) for Danish). Others have found it more fruitful to assume that the substance noun is the head (e.g. Lødrup (1989) for Norwegian), while yet others have concluded that the quantifying noun is the head (e.g. Löbel (1986) for German). Still others have argued that both kinds of structures exist (e.g. Teleman (1969) and Delsing (1993) for Swedish). It is the last of these views that will be defended in the present work.

Traditional grammarians have tended to conclude that it is difficult or impossible to determine the head of juxtapositional pseudopartitives (e.g. Diderichsen 1957: 231–232 and 241–242, Næs 1972: 338–339). There seems to be a tendency in non-Chomskyan works to prefer analyses where the substance noun is the head (cf. Lødrup 1989: 83–86 and Faarlund et al. 1997: 236–240), primarily based on the functional similarities between quantifying nominals and ordinary quantifiers, the latter of which are taken to be subordinate.

In some of the Chomskyan syntactic literature, it has been assumed on the basis of the kinds of evidence presented in sections 7.1.3 and 7.1.4 that many juxtapositional pseudopartitives are grammatically ambiguous. I regard this as an essentially correct assumption. Teleman (1969: 26) concludes in his traditional transformational work that there must be two different underlying structures, where either the quantifying or the substance noun is higher up in the structural hierarchy.

The most important modern analysis of a Scandinavian language is found in Delsing (1993: 200–224), a Chomskyan approach of the principles-and-parametres variety. The focus is primarily on Swedish. Delsing assumes that indefinite pseudopartitives with secondary quantifying nouns (Delsing's pseudoquantifiers) involve ambiguity. An example of an ambiguous phrase is *en låda äpplen* 'a crate of apples'. The two structures of this phrase are given in figures 7.6 and 7.7. (He assumes a version of the DP-hypothesis, which makes the article *en* the head in the former case, while in the latter case an inaudible [+count] feature is in the head determiner position.) Let us limit our attention to the NPs. The structure in figure 7.6 has the quantifying noun *låda* 'case, crate' as head, while the substance nominal

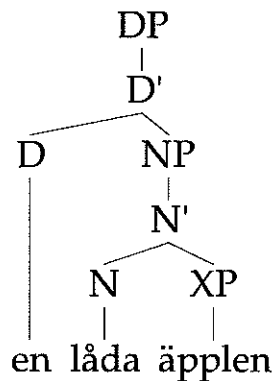


Figure 7.6. Delsing's (1993) analysis of juxtaposition with a head quantifying noun

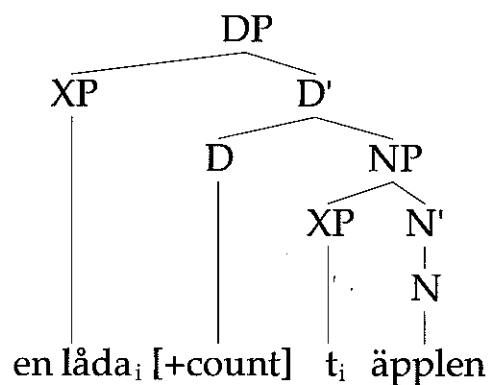


Figure 7.7. Delsing's (1993) analysis of juxtaposition with a head substance noun

äpplen 'apples' is a complement of *låda*. On the other hand, the structure in figure 7.7 has the substance noun *äpplen* 'apples' as head, while the quantifying nominal *en låda* 'a crate' is a specifier of *äpplen*.

Delsing (1993: 210) proposes a semantic explanation of the fact that secondary quantifying nouns can be both heads and non-heads: They are ambiguous between a measure interpretation (non-heads) and a more concrete interpretation (heads); he speaks of a container interpretation – I am uncertain whether he includes non-container nouns in this. Primary quantifying nouns are non-heads because they only have a measure interpretation.

Delsing (1993: 215–218) also discusses the difference between indefinite and definite pseudopartitives. He admits that he cannot explain why only quantifying nouns can head definite phrases, but accounts formally for it by assuming that in definite phrases, quantifying nouns can only be generated in head-noun position and not in specifier position, and therefore we do not find definite phrases where the substance noun is head.

I take Delsing's ambiguity analysis to be basically correct. In section 7.2.2, I propose a synchronic analysis which matches Delsing's analysis quite closely, except for obvious framework-related differences. But such synchronic analyses blatantly beg two questions: Why does the difference between primary and quantifying nouns not carry over to definite nominals? And why can numeral nouns (which Delsing does not discuss) still be non-heads in definite pseudopartitives?

To approach an explanation, I believe we must turn to diachrony. Some interesting, but rather vague, hints at a diachronic account of the structure of modern

juxtapositional expressions can be found in the literature. Knudsen (1967: 87) writes in his discussion of the modern juxtapositional pseudopartitives that a shift (*forskyvning*) has taken place: The substance noun has become the head, while the quantifying noun was originally superordinate. A similar understanding is expressed by Næs (1972: 339) and Faarlund et al. (1997: 238). I shall propose an analysis where structures headed by the substance noun are seen as the result of reanalysis.

7.2.2 Juxtaposition in Modern Norwegian

I argued in section 4.3.2 that numerals in Norwegian are subordinate constituents of nominals; this includes numeral noun phrases like *tre millionar* 'three million'. In section 7.1, we saw that indefinite juxtapositional pseudopartitives with other kinds of primary quantifying nouns also appear to be headed by the substance noun, while those with secondary quantifying nouns appear to be ambiguous; they may be headed either by the substance noun or by the quantifying noun. I adopt Delsing's (1993) view that we are dealing with two kinds of syntactic structures for juxtapositional pseudopartitives. Tree structures for these are given in figures 7.8 and 7.9 (cf. also figures 7.1 and 7.2). The first kind of structure has the quantifying noun as the head. The substance nominal is not a full nominal; it does not allow quantifiers or determiners and can be called a modified noun phrase. The second kind of structure is familiar from my analysis of numerals in section 4.3. The substance noun is the head, and the subordinate quantifying nominal takes on the function of a quantifier.

Let us look at the details of the semantic composition of the two kinds of pseudopartitives. The semantic structure and composition of *tre liter vin* 'three litres of wine' is given in figure 7.10; this structure is headed by the substance noun *vin*. Such structures can be analyzed in exact parallel to expressions with numerals, like *tre millionar kattar* 'three million cats', and it will be useful for the reader to refer to

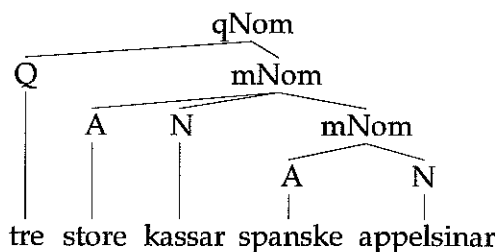


Figure 7.8. A juxtapositional pseudopartitive with a head quantifying noun

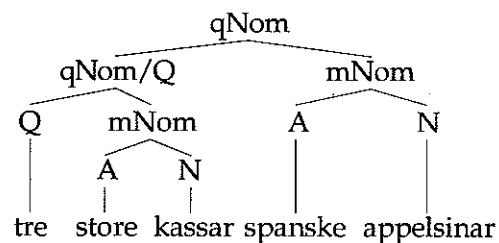


Figure 7.9. A juxtapositional pseudopartitive with a head substance noun

sections 4.2.4 and 4.3.1 (especially figure 4.33) for comparison.

Consider first the plural unit noun *liter* (bottom right-hand box). It profiles a replicate mass of litres (top part of the box). Recall that a litre – like other entities designated by quantifying nouns – is the individuation of a (homogeneous or replicate) mass. The replicate mass of litres is related to a schematic mass – the quantified mass – which will be elaborated by the substance noun. The two semantic entities categorize one object in two ways; the nouns are cocategorizing (“weak coreferentiality”). Each litre is an individuation of a mass that is a submass of the quantified mass and measures 1 l. (There are three litres (= individuated masses), but only one unit 1 l.)

This nominal structure is combined with the structure of the quantifier (bottom left-hand box), which profiles the relation between a replicate mass of schematic individuals and the number 3. The replicate mass of individuals corresponds to the replicate mass of litres in the structure of *liter*. It now becomes possible to multiply 1 l by 3; this gives a measure to the whole quantified mass, namely 3 l. To the extent that *tre liter* is an ordinary nominal, it will have the same profile as its head noun; the quantifier is a modifier (an elaborated non-head).

However, I assume that these quantifying nominals are like numeral nominals: They profile emergent quantifier relations. In the case of *tre liter*, this is the relation between a schematic (homogeneous or replicate) mass and the measure 3 l. The use of a quantifying nominal as a quantifier implies a shift in profile, as shown by the broken arrow in the figure (middle left-hand box).

This emergent quantifier structure is combined with the structure of the substance noun (middle right-hand box), which profiles a homogeneous mass of wine. The mass of wine corresponds to the quantified mass in the structure of *tre liter*. This yields the structure of *tre liter vin* (top box), which profiles a homogeneous mass of wine because the substance noun is the profile determinant. The quantifying nominal is a modifier.

Consider next *tre fedd kvitlauk* ‘three cloves of garlic’, which according to my assumptions is ambiguous, since it involves a secondary quantifying noun. The analysis of the structure where it is headed by the substance noun *kvitlauk* would be exactly parallel to what we have seen for *tre liter vin* above. The analysis of the structure where it is headed by the quantifying noun *fedd* is given in figure 7.11.

The plural quantifying noun *fedd* (bottom left-hand box) profiles a replicate mass of cloves. A clove is an object, but in pseudopartitives it is additionally or primarily an individuation of a homogeneous mass. The replicate mass of cloves and the mass

THE STRUCTURE OF JUXTAPOSITIONAL PSEUDOPARTITIVES

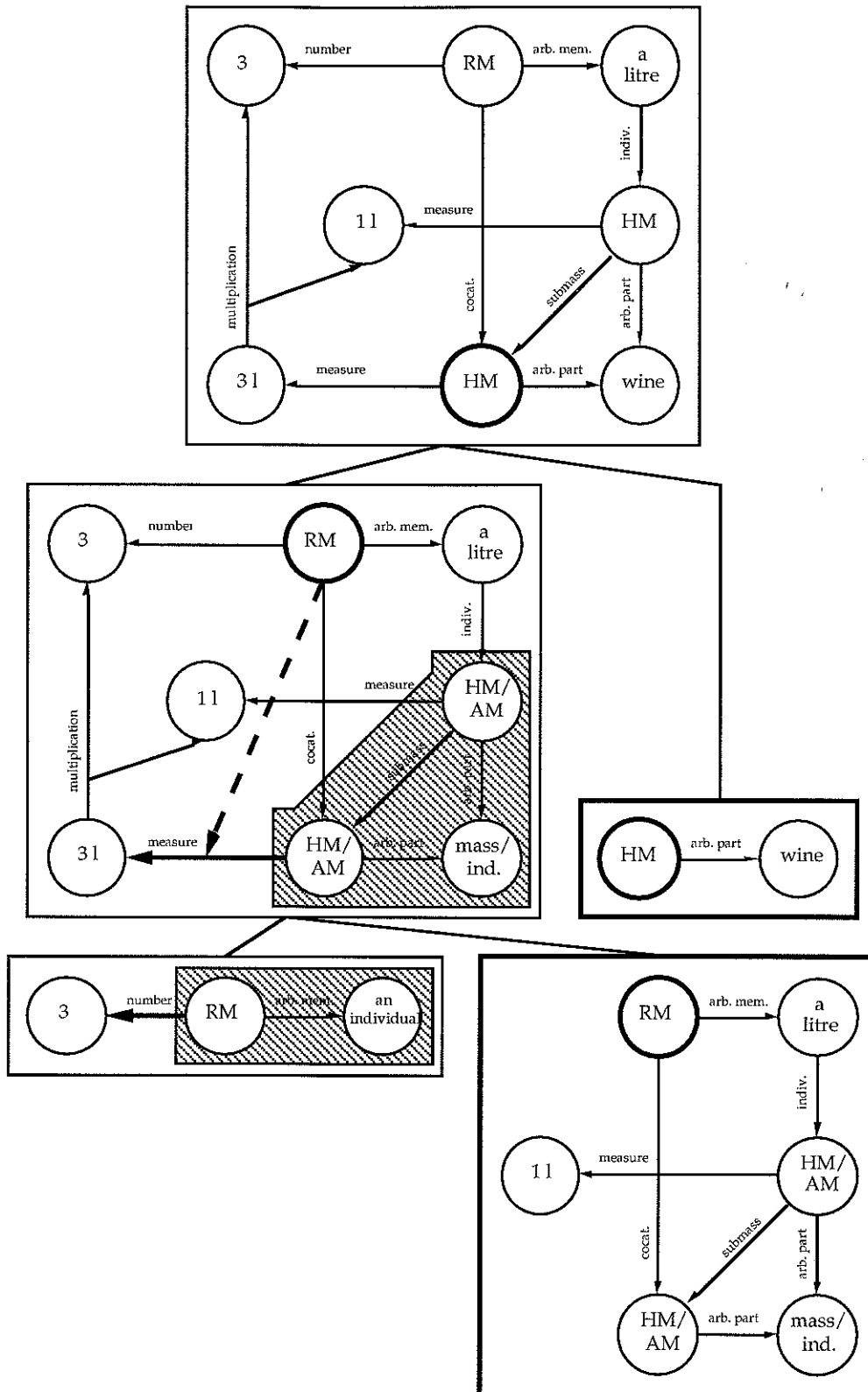


Figure 7.10. The semantic composition of a juxtaositional pseudopartitive headed by the substance noun

GRAMMATICAL STRUCTURE

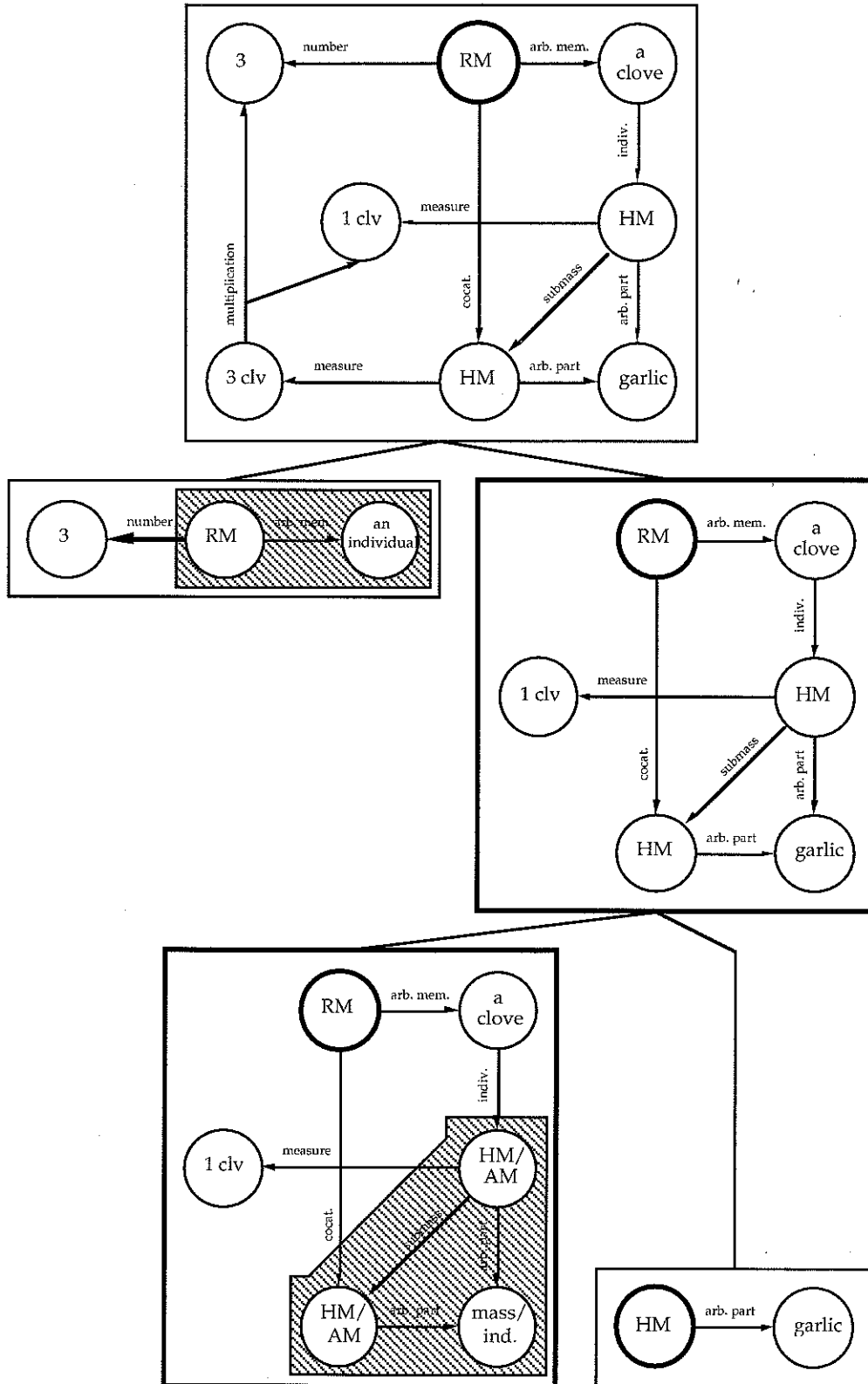


Figure 7.11. The semantic composition of a juxtapositional pseudopartitive headed by the quantifying noun

designated by the substance noun (the quantified mass, all the garlic) are cocategorizing. Each clove is an individuation of a mass that is a submass of the quantified mass. Such submasses are of a certain size; they each measure 1 clove – informally abbreviated 1 clv to differentiate the natural “unit of measurement” from the physical entities. (A clove is a physical entity; 1 clv is a unit. There are three cloves, but only one unit. If this seems overly complicated, compare it with the analysis of *tre millionar kattar* ‘three million cats’: A million is an individuation of a group; 1,000,000 is a number. There are three millions (= individuated groups), but only one number 1,000,000.)

The structure of the quantifying noun is combined with the structure of the substance noun *kvitlauk* (bottom right-hand box), which profiles a homogeneous mass of garlic. This mass corresponds to the quantified mass in the structure of *fedd*. The combination of these two yields the juxtapositional structure of *fedd kvitlauk* (middle right-hand box), which profiles the replicate mass of cloves because the quantifying noun is the profile determinant. The substance noun is a complement (an elaborating non-head).

This structure is combined with the structure of the quantifier *tre* (middle left-hand box), which profiles the relation between a replicate mass of schematic individuals and the number 3. The replicate mass of individuals corresponds to the replicate mass of cloves in the structure of *fedd kvitlauk*. The combination gives us the structure of *tre fedd kvitlauk* (top box), which profiles the replicate mass of cloves because the juxtapositional complex is the profile determinant; the quantifier, as before, is a modifier. Here, too, a quantifier relation emerges, since the unit 1 clv is multiplied by the number of cloves; this gives a measure to the whole mass of garlic, namely 3 clv. But this quantifier relation is not profiled. Of course, it is not always the case that multiplication is involved; for instance, one may use an adjective of size.

We have now seen how juxtapositional pseudopartitives can be analyzed from a synchronic point of view given the assumption that there are two kinds of constructions: one where the quantifying noun is head and one where the substance noun is. But it has not been explained why there are two kinds of structures, nor has it been explained why primary and secondary quantifying nouns are different. And the question of why definite pseudopartitives are usually headed by the quantifying noun has not been discussed. I turn to these questions in sections 7.2.3–7.2.4 and 7.4.

7.2.3 Numeral and nominal quantification in Old Norse

In Old Norse (cf. Iversen 1972, Haugen 1998), there were two main kinds of quantification, both of which were found in the context of numerals. In one type, there was a quantifier and a substance noun. The case of the noun would be determined by the syntactic and semantic function of the nominal, and the quantifier would either be uninflected or (for the numerals from 1 to 4) inflected for agreement with the noun (case and gender). This is illustrated with the nominative nominal in example (46). This kind of expression can be assumed to have the simple syntactic structure shown in figure 7.12.

(46) þrír kattar

- three-M&NOM cat(M)-PL&NOM
'three cats'

(47) þrjú hundruð katta

- three-N&NOM/ACC hundred(N)-PL&NOM/ACC cat-PL&GEN
'three hundred cats', literally: 'three hundreds of cats'

In the other type, there was a numeral nominal and a substance nominal – that is, a pseudopartitive structure. The case of the numeral noun would be determined by the function of the nominal, and the substance noun (and agreeing adjectives) would be in the genitive plural – *genitivus generis*. This is illustrated in (47). It is commonly assumed that the quantifying noun was the head; that is, the genitival marking of the substance nominal is interpreted as a subordinator. This kind of structure is shown in figure 7.13.

Numerals that were followed by a substance nominal in the genitive plural were the multiples of ten from 30 to 90 (*þrír tigur katta* 'thirty cats', literally 'three tens of

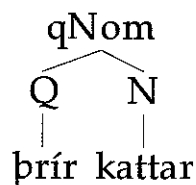


Figure 7.12. Quantification with a numeral quantifier in Old Norse

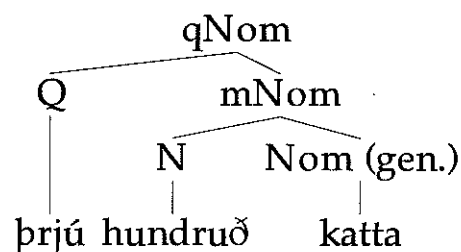


Figure 7.13. Quantification with a numeral noun in Old Norse

cats') as well as the numerals for 100 (*hundrað*) and 1000 (*þúsund*) and their multiples.

The structure found with numeral nouns is the one that was commonly used in Old Norse pseudopartitives. Examples are given in (48) and (49).

(48) mikill fjöldi manna

- large-M&NOM crowd(M)-NOM man-PL&GEN
'a large crowd of men'

(49) skeppa hveitis

- bushel-NOM wheat-GEN
'a bushel of wheat'

(50) hundrað katta

- hundred-NOM/ACC cat-PL&GEN
'a hundred cats', literally: 'a hundred of cats'

A nominal with a singular quantifying noun would itself be a singular despite the plurality of the substance noun, as illustrated in (50). This implies that a phrase like this used as a subject should require a singular verb. I have looked for examples of this with numeral nouns (*hundrað* and *þúsund*) in several grammars and dictionaries, without any luck. I also searched the complete collection of *Íslendinga sögur* (1996) on CD-ROM without finding any good examples. The closest I got was example (51) (in Modern Icelandic orthography), taken from *Valla-Ljóts saga*:

(51) ... að hundrað silfurs var goldið fyrir víg Halla ...

- ... hundred(N)-NOM/ACC silver(N)-GEN be-PRES&3SG paid-N&SG&NOM/ACC ...

'that a hundred of silver was paid for the killing of Halli'

The finite verb *var* is in the singular, and the participle *goldið* is in the neuter singular. Thus, it is possible that they agree with the neuter singular quantifying noun *hundrað*. But the substance noun *silfurs* is also in the neuter singular. Thus it cannot really be decided which noun the verb agrees with. But it is possible that *silfurs* should be considered an ellipsis of *penninga silfurs* [penny-PL&GEN silver-GEN] 'of silver pennies' or something similar, in which case it is clear that the verb agrees with *hundrað*. At any rate, it seems clear that at least originally the numeral noun was the head and determined the agreement of the verb and other agreeing constituents.

However, *hundrað* was already partly used as an uninflected quantifier in Old Norse (cf. Fritzner 1973) – that is, like *þrír* above, except for agreement. The expected structure is exemplified in (52); the numeral noun *hundraði* is in the dative because of the government of the preposition *með*, while the substance noun *katta* is a *genitivus generis*. But instead, one can find expressions like the one in (53); the substance noun *koṭtum* exhibits the dative case governed by the preposition, while *hundrað* is uninflected, like numeral quantifiers for numbers from 5 and up.

- (52) *með hundraði katta*
 ○ with hundred-DAT cat-PL&GEN
 ‘with a hundred (of) cats’
- (53) *með hundrað koṭtum*
 ○ with hundred cat-PL&DAT
 ‘with a hundred cats’

This use apparently came first with the singular meaning of *hundrað*; cf. that 10 was the uninflected *tíu*, while the multiples from 30 to 90 involved the plural *tigir*. Note that this is also found for Latin *mille* ‘thousand’, which is an uninflected numeral quantifier in the singular, but a numeral noun (taking a genitive complement) in the plural (cf. Coleman 1992). No doubt, the reason that the development towards quantifier syntax starts with the singular is the discrepancy between the singular meaning of the numeral noun and a conceived plurality of its referent.

7.2.4 From Old Norse to Modern Norwegian

The juxtapositional pseudopartitives of Modern Norwegian are historically derived from the genitival pseudopartitives of Old Norse. In Old Norse, the genitive was postnominal in most uses, and there were various genitive suffixes. In Modern Norwegian, postnominal genitives have been lost altogether, while prenominal genitives have survived as *s*-genitives similar to the English ones; the *-s* is a clitic that attaches to a whole nominal.

The *genitivus generis* started to be lost, resulting in juxtaposition, no later than the fifteenth century (Indrebø 1951: 259). To a certain extent, it has been replaced by the use of *med* ‘with’ and *av* ‘of’, but juxtaposition has been much more widely used. Among the various kinds of postnominal genitives, it is only this genitive which has generally been lost without replacement. Other kinds of genitive have been replaced: possessive and subjective genitive by the preposition *til* ‘to’ (or *åt* ‘to’) or some

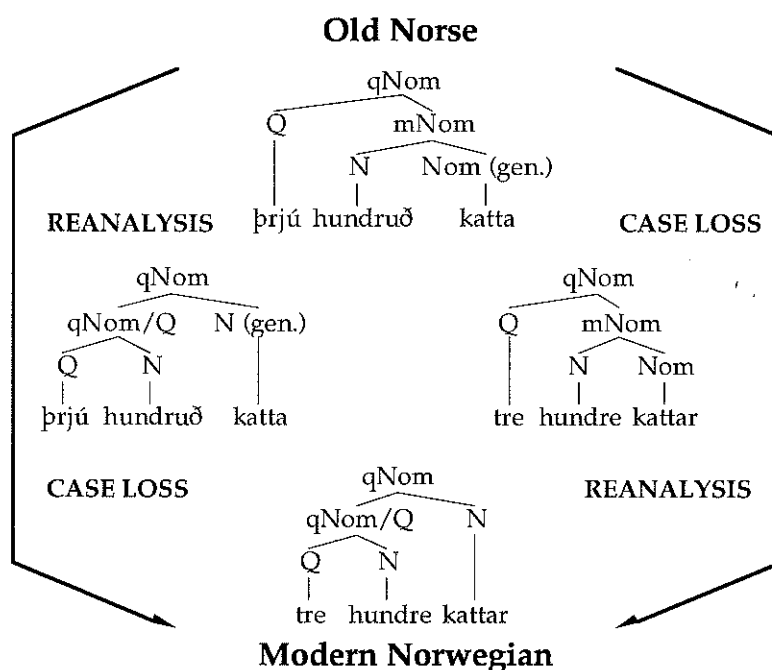


Figure 7.14. Two possible paths from Old Norse to Modern Norwegian

prenominal possessive, objective genitive and genitive of the whole by the preposition *av* 'of' (cf. section 6.2.3).

The development of modern pseudopartitives headed by the quantifying noun does not represent any particular formal problems; only the explicit marking of subordination has been lost. The development of modern pseudopartitives headed by the substance noun, on the other hand, implies reanalysis, as suggested in the literature (cf. section 7.2.1). I have not been able to find any detailed account of the process.¹ There are two main ways to go from the old to the new structure, illustrated in figure 7.14. Either the genitive is first lost and a juxtaositional structure headed by the quantifying noun is developed, and after that the head status is shifted from the quantifying noun to the substance noun, making a complex quantifier out of the numeral quantifier and the quantifying noun (right-hand path in the figure). Or the shift in head status takes place first, in spite of the genitive of the substance nominal (which originally was arguably a marker of subordination), and after that the genitive case marking is lost (left-hand path in the figure).

¹I posted a query on the Linguist List on September 7, 2000, asking for references to analyses of pseudopartitive constructions. I emphasized that I was particularly interested in diachronic approaches. I received a number of responses, but nobody had anything to say about diachronic issues. For the query, see <http://linguistlist.org/issues/11/11-1879.html#1>.

What actually happened? A separate investigation of texts from the intervening centuries might have given us an answer, but I have not found room for that in this project. I therefore have to rely on secondary material and some speculations.

On the first analysis, reanalysis becomes possible when the genitive marking has disappeared. After the loss of the genitive, there are two juxtaposed nouns, and there is no formal marking of any hierarchic asymmetry. Such a construction is obviously open to ambiguity. Ambiguity has been regarded as a prerequisite for reanalysis (cf. Timberlake 1977). If this assumption holds, the analysis where the genitive is lost before the reanalysis is more likely to be correct; at the outset, the genitive is clearly a marker of subordination. However, this does not explain why the *genitivus generis* is lost without replacement while other uses of the genitive are replaced by some other means of expression.

On the second analysis, reanalysis takes place irrespective of the genitive case marking. Harris and Campbell (1995: 70–72) argue that reanalysis can create new constructions. The condition appears to be that there be a possibility of two (semantic) analyses, rather than inherent structural (syntactic) ambiguity. If such reanalysis actually has occurred, it was of a similar kind as the change which Babby (1987) shows Russian to have undergone: Head quantifiers have been reanalyzed as modifiers of the substance noun, despite the fact that the noun is marked with the genitive.

If we assume that reanalysis had already taken place at the time of the loss of the postnominal genitive, this may at least partly explain the special fate of the *genitivus generis*. Other genitives, which clearly did mark subordination, were replaced with alternative subordinating elements; presumably, some marking was felt to be needed. If the genitival pseudopartitives had been reanalyzed and the substance noun was the head, there would have been less need for an alternative marking – and the result would have been loss.

More direct evidence is necessary to settle this issue. But it seems probable that reanalysis preceded and promoted the loss of the *genitivus generis*. Recall that *hundrað* '(a) hundred' was already being used as a non-head quantifier in Old Norse. That is, there already existed structures where a quantifying noun was used in the quantifier slot. The possibility that (some) other quantifying nominals would be interpreted as subordinate quantifiers, too, appears close at hand.

The intermediate stage that the reanalysis-before-loss approach assumes is of the same type as the problematic prepositional pseudopartitives of Norwegian and English where the substance noun appears to be the head in spite of the preposition. And we have seen that German genitival pseudopartitives exhibit the same

properties. I postpone the details of reanalysis and quantifier emergence until section 7.4, since they are to a large extent identical for juxtapositional and prepositional structures. Prepositional pseudopartitives are the subject of section 7.3.

7.3 The structure of prepositional pseudopartitives

In this section, I propose analyses of the semantics and syntax of prepositional pseudopartitives in Modern Norwegian. First, I present some previous approaches in section 7.3.1. The standard cognitive-grammar analysis of typical adnominal prepositional phrases is sketched (section 7.3.2), before I proceed in the same section to pseudopartitives, building the analysis of structures headed by the quantifying noun on the standard analysis of adnominal prepositional phrases, while the analysis of structures headed by the substance noun requires an unconventional approach. This approach assumes that the preposition of such structures is a head-marker, a concept that is discussed in section 7.3.3.

7.3.1 Previous approaches

As mentioned in section 7.1.1, it has usually been taken for granted that the preposition in prepositional pseudopartitives is a subordinating element (see for instance Knudsen (1967: 87), Næs (1972: 339), Teleman (1969: 24)). Hence, the quantifying noun has been taken to be the head. Traditionally, the same has been assumed for English pseudopartitives with *of* (see for instance Jespersen (1924: 113) and Jackendoff (1968)). And for languages like German, genitival case marking of the substance nominal has been taken to show its subordinate position (see for instance Löbel (1986)).

As we saw in section 7.1.4, external agreement indicates that some prepositional pseudopartitives are headed by the substance noun. And in unbounding definite nominals (cf. section 7.1.5), nominal-internal agreement shows that the substance noun can be the head although it is preceded by a preposition. This conflicts with the apparent subordination of the substance nominal by the preposition. I do not know of any attempts to account for such data in Norwegian, nor in Danish or Swedish. Delsing (1993) notes that *med* 'with' and *av* 'of' are sometimes used in pseudopartitives in Swedish, and that the object of the preposition may determine the agreement properties of the whole pseudopartitive. He does not offer any explanation for this phenomenon. However, there exist analyses of other languages,

e.g. English and French, where prepositional constructions are central and juxtaposition is a minor or non-existing pattern. I return to analyses of English below.

Given the assumption that the preposition in prepositional pseudopartitives is a subordinator, one has to regard agreement of adjectives and participles with the substance noun as *constructio ad sensum*. This is presumably the view of Beito (1986: 217), who gives the sentence in (54) as an example (my glosses and translation).

- (54) Ein heil dunge med høyr var tørt alt.
 N a-M whole-M/F heap(M) with hay(N) be-PAST dry-N already
 'A whole heap/stack of hay was dry already.'

That *constructio ad sensum* must be taken into account is evident from sentences like (55), or English sentences like *The committee have decided that ...* (cf. Corbett 2000: 187ff).

- (55) ? Heile familien var sjuke.
 whole family-DEF be-PAST ill-PL
 'The whole family were ill.'

On the other hand, we can speculate that the preposition does not always function as a subordinator. In that case, the possibility is open that the substance noun can be the head, and we would have a more regular instance of agreement. The question is, if the preposition is not a subordinator, what is it?

It is well known from English that even substance nouns that are preceded by *of* may determine the agreement of the verb, as shown in example (56). Here, *have* agrees with *cats*, not with *a number*.

- (56) A number of cats have had kittens.

The same phenomenon is found in German, as illustrated in (57) and (58) (examples from Findreng (1976: 268, 276), my glosses and translation). The verbs (*erleichterten* and *hockten*) agree with the substance nominals (*mutiger Professoren* and *Balinesen*), although the former is in the genitive and the latter follows the preposition *von* and is therefore in the dative.

- (57) Eine Reihe mutiger Professoren erleichterten ihm diese Einsicht.
 G a-F&NOM/ACC row(F) brave-PL&GEN professor-PL make.easy-PAST&3PL
 'A number of brave professors made it easier for him to reach this insight.'

- (58) Immer noch hockten eine ganze Anzahl von Balinesen um das Haus ... herum.
 G ... sit-PAST&3PL a-F&NOM/ACC whole-F&NOM/ACC number(F) of
 Balinese-PL&DAT ...

'Still a whole number of Balinese were sitting around (outside) the house.'

According to Findreng (1976: 68–71), there is agreement among grammarians that such examples can be found, but not all consider them to be well-formed. It appears that they are commonly regarded as *constructions ad sensum*.

In the literature on English, there have been suggestions that the preposition *of* cannot always be a subordinator. Akmajian and Lehrer (1976) point to a problem with the analysis in Jackendoff (1968), where all *of*-phrases in pseudopartitives (which Jackendoff does not distinguish formally from partitives) are treated as ordinary prepositional phrases. They observe the variation in agreement illustrated in (59) and (60) and argue (partly based on extraction phenomena that I shall not go into here) that the subject noun phrase must have two different structures.

- (59) A herd of elephants was stampeding, wasn't it?

- (60) A herd of elephants were stampeding, weren't they?

In sentences like (59), Akmajian and Lehrer argue, *herd* must be the head, while *elephants* heads the noun phrase in (60). They represent two "surface" structures for the phrase *a bottle of wine*, given here in figures 7.15 and 7.16. While in figure 7.15 the quantifying noun *bottle* is the head and the substance nominal the object of *of*, in

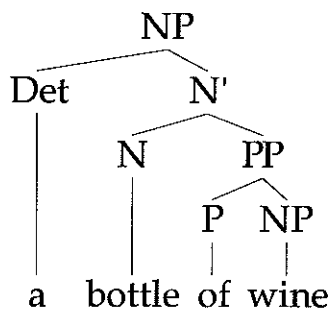


Figure 7.15. Akmajian and Lehrer's (1976) analysis of a prepositional pseudopartitive with a head quantifying noun

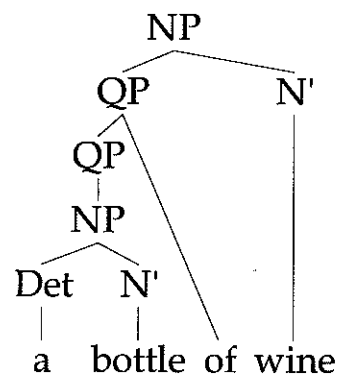


Figure 7.16. Akmajian and Lehrer's (1976) analysis of a prepositional pseudopartitive with a head substance noun

figure 7.16 the substance noun *wine* is the head, and the quantifying nominal is a subordinate constituent. The preposition *of* is not assumed to be present in the “deep” structure, but is transformationally inserted and adjoined to the quantifying nominal. Note the constituency of the structure in figure 7.16: The preposition is not considered to form a constituent with *wine*. The motivation for such an analysis is that *wine* (or *elephants* in example (60)) can determine the properties of the whole noun phrase and must therefore be its head. Apart from the preposition, this proposal resembles the later analysis of juxtapositional pseudopartitives in Delsing (1993).

One result of Akmajian and Lehrer's (1976) proposal is that the version of *a bottle of wine* headed by the substance noun is structurally very different from the partitive *a bottle of the wine*. This is a departure from Jackendoff's (1968) analysis, where they have parallel structures. The differentiation was reinforced by Selkirk (1977). She argues for the need to distinguish partitives and pseudopartitives, an approach that was followed, for instance, by Jackendoff (1977). I shall not go into the details of all the various later Chomskyan analyses. In general, there exist two opposed approaches in the Chomskyan tradition, to treat partitives and prepositional pseudopartitives as fundamentally similar or dissimilar, respectively (cf. Batty 1991 and de Hoop 1998). At the centre of the discussion lies the problematic status of the preposition.

The problematic status of the preposition is also evident in suggestions that the structures apparently headed by the substance noun are the results of reanalysis. Langacker (1991: 88–89) speculates that phrases like *a bucket of water* and *a lot of sharks* may be in the process of reinterpretation and reanalysis. The starting point, as he sees it, is a construction where a head noun is followed by a modifying prepositional phrase. The head noun then primarily designates a container filled with or a collection constituted of the mass designated by the nominal following the preposition. In the course of time, the sense shifts in the direction of the size of the contained or collected mass, so that the physical entity meaning becomes only secondary – the noun is reinterpreted. Eventually, the phrase as a whole might be syntactically reanalyzed, so that the erstwhile head noun becomes a quantifier and the second noun becomes head. For instance, *a bucket* originally may have designated simply a certain type of container with a typical build, size and function. On the basis of the size part of the meaning, it comes to mean the amount of mass typically contained in a bucket – to the extent that one can use *a bucket* without meaning to talk about such an object, but rather just an amount of some mass.

Langacker seems to think that, when reanalyzed, a phrase of this type has the preposition as part of the quantifier, for instance [*a lot of sharks*] rather than [*a lot [of sharks]*]. This structure is suggested in connection with a reference to Selkirk (1977). He does not comment on the meaning of *of* in this connection. I believe that Langacker's idea of reinterpretation and reanalysis is basically correct. But his and Akmajian and Lehrer's treatment of the preposition as some kind of appendix to the quantifier can hardly be correct. If it were the case that the preposition belonged with the quantifying rather than the substance noun, then one would expect it to appear when the substance noun is left out, but it does not, as illustrated in (61) and (62). For Norwegian, such an assumption is clearly incorrect, as shown by examples (63) and (64). If there is a constituent of some kind between the parts of the pseudopartitive, the preposition goes with the substance nominal.

(61) How much wine did she drink? – A bottle (*of).

(62) How many sharks did she catch? – A lot (*of).

(63) Det var tre liter ho kjøpte med vin.

N it be-PAST three litre-(PL) she buy-PAST with wine
'It was three litres that she bought of wine.'

(64) * Det var tre liter med ho kjøpte vin.

N it be-PAST three litre-(PL) with she buy-PAST wine
'It was three litres that she bought of wine.'

Croft (1996: 61–62) assumes that phrases like *a cup of coffee* have been reanalyzed, but from his brief treatment it is not clear what the new syntactic and semantic role of the preposition is.

Agreement "across" the preposition of prepositional pseudopartitives (cf. section 7.1.5) is not only found in Norwegian, but also in English. The agreement of the demonstrative and the substance noun across *of* in expressions like those in (65) and (66) strongly suggests that the preposition has lost its subordinating function (cf. also Kinn 2000a).

(65) These couple of pages are donated to Barbara and Klaus ...

X

(66) It was amazing how these couple of days changed my view about homeless
X and street kids.

(The examples may not represent fully accepted English usage. However, I searched (on April 26, 2001) the web for examples of the sequence *these couple of*, using the search engine Fast, located on <http://www.bos2.alltheweb.com/cgi-bin/advsearch>. 1517 documents were found.)

In section 7.3.2, I propose synchronic analyses of Norwegian prepositional pseudopartitives which in later sections will be embedded in a diachronic approach to pseudopartitives, and a way to analyze non-subordinating prepositions is proposed in section 7.3.3.

7.3.2 Prepositional pseudopartitives in Modern Norwegian

In this section, I first sketch the standard cognitive-grammar approach of adnominal prepositional phrases. The main part proposes synchronic analyses of prepositional pseudopartitives.

A typical preposition designates an atemporal relation (cf. section 2.1.1.2) whose trajector is a thing or a relation and may be expressed by various kinds of expressions (verbal, nominal, adjectival, etc.), and whose landmark is typically a thing, i.e. expressed by a nominal constituent – the object of the preposition (cf. Langacker 1987: ch. 6). The semantic composition of a typical example of a prepositional phrase modifying a noun, *lampa over bordet* ‘the lamp above the table’, is represented in figure 7.17.

The modified noun, *lampa*, and the object of the preposition, *bordet*, both designate a thing. Both are presupposed to be uniquely identifiable to the speaker and the hearer (definiteness). The preposition, *over*, designates a relation between two schematic things, a trajector and a landmark. These correspond to and are elaborated by the profiles of the modified noun and the object of the preposition, respectively. In the prepositional phrase, the preposition is profile determinant and head of the composite structure of itself and the object: While the object has a nominal profile, the preposition and the prepositional phrase have the same relational profile – except that the one of the prepositional phrase is more elaborate. The object is autonomous and the preposition dependent; hence, the object is a complement. Further, the modified noun is the profile determinant and head of the larger structure: The prepositional phrase has a relational profile, while both the modified noun and the whole nominal have the same nominal profile. The noun is autonomous and the prepositional phrase dependent, which means that the latter is a modifier.

In sections 7.1.3 and 7.1.4, it was shown that many indefinite prepositional pseudopartitives appear to be headed by the substance noun, despite its being

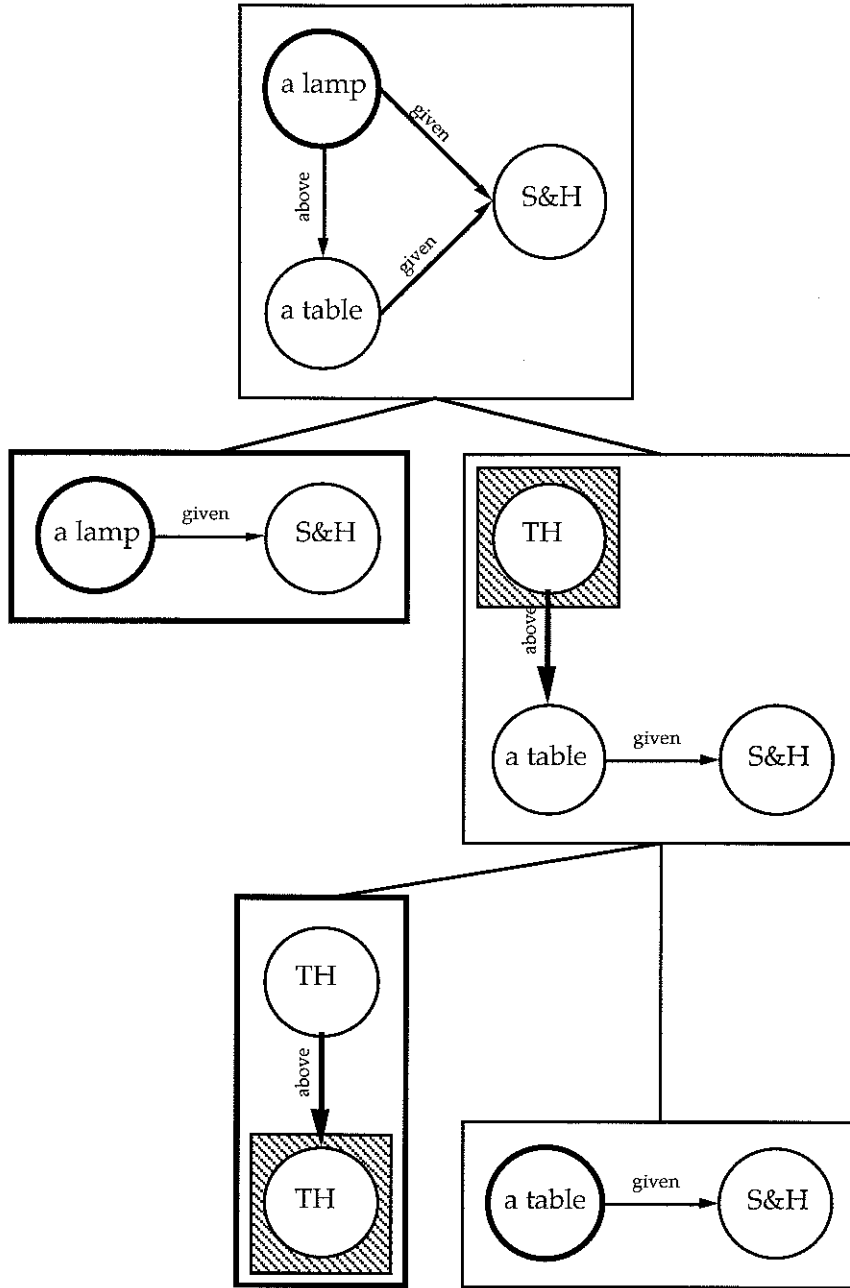


Figure 7.17. A typical adnominal prepositional phrase

preceded by a preposition, which normally marks subordination. And although they are marginal, definite nominals with quantifiers in *-vis* and with indefinite plural numeral nouns show that to the extent that the construction itself is possible, there is agreement between the definite article and the substance noun “across” the preposition (cf. section 7.1.5), while the quantifying nominal or quantifier in *-vis* appears to be subordinate. This casts serious doubt on the subordinating function of the preposition.

The phenomenon of grammatical “disregard” for the subordinating role of the preposition has received little attention in the literature on Norwegian, but we saw in section 7.3.1 that Beito (1986) regards it as *constructio ad sensum*. Similar views can be found on German genitival constructions. On the other hand, certain English pseudopartitives with *of* have been analyzed as headed by the substance noun (the approach starting with Akmajian and Lehrer (1976)), and both Langacker (1991) and Croft (1996) assume that reanalysis has taken, or is taking, place. However, none of them discusses the problematic new status of the preposition.

To approach the problem, let us first look at the relatively unproblematic prepositional pseudopartitives that are headed by the quantifying noun. An analysis of the structure of *tre fedd med kvitlauk* ‘three cloves of garlic’ is presented in figure 7.18. Most of the structure will be familiar from figure 7.11, which represents the structure of juxtapositional *tre fedd kvitlauk* ‘three cloves of garlic’.

Consider first the new element, the structure of the preposition *med* ‘with’ (bottom left-hand box), which has the same kind of structure as *over* in figure 7.17. I assume that the relevant sense has been chosen, namely that of containment: The preposition profiles a relation between two things, where one contains the other.

This is combined with the structure of the substance nominal *kvitlauk* ‘garlic’ (bottom right-hand box), which profiles a homogeneous mass. This mass corresponds to the landmark of the containment relation, i.e. the content. The preposition is the head of the construction, and the nominal is a complement (elaborating non-head); the composite structure (the box above the two) also profiles the containment relation.

The resulting structure is combined with the structure of the quantifying noun *fedd* ‘cloves’, which profiles a replicate mass of cloves. The correspondences holding between these two are complex. As usual with postnominal prepositional phrases, the profile of the modified noun corresponds to the trajector of the prepositional relation. That is, the replicate mass of cloves corresponds to the container. A replicate mass has two levels: the mass level and the level of the individuals; both levels are participants of the containment relation. The mass as a whole is the container of the quantified mass of garlic as a whole (bottom left-hand entity in the structure of the noun), while the individual cloves are containers of the individuated masses (middle right-hand entity). These parts of the quantifying-noun meaning correspond to the landmark of the prepositional relation (the content). What is unusual about this situation is that the meaning of the object of the preposition is an inherent (but schematic) part of the meaning of the noun that the prepositional phrase modifies.

THE STRUCTURE OF PREPOSITIONAL PSEUDOPARTITIVES

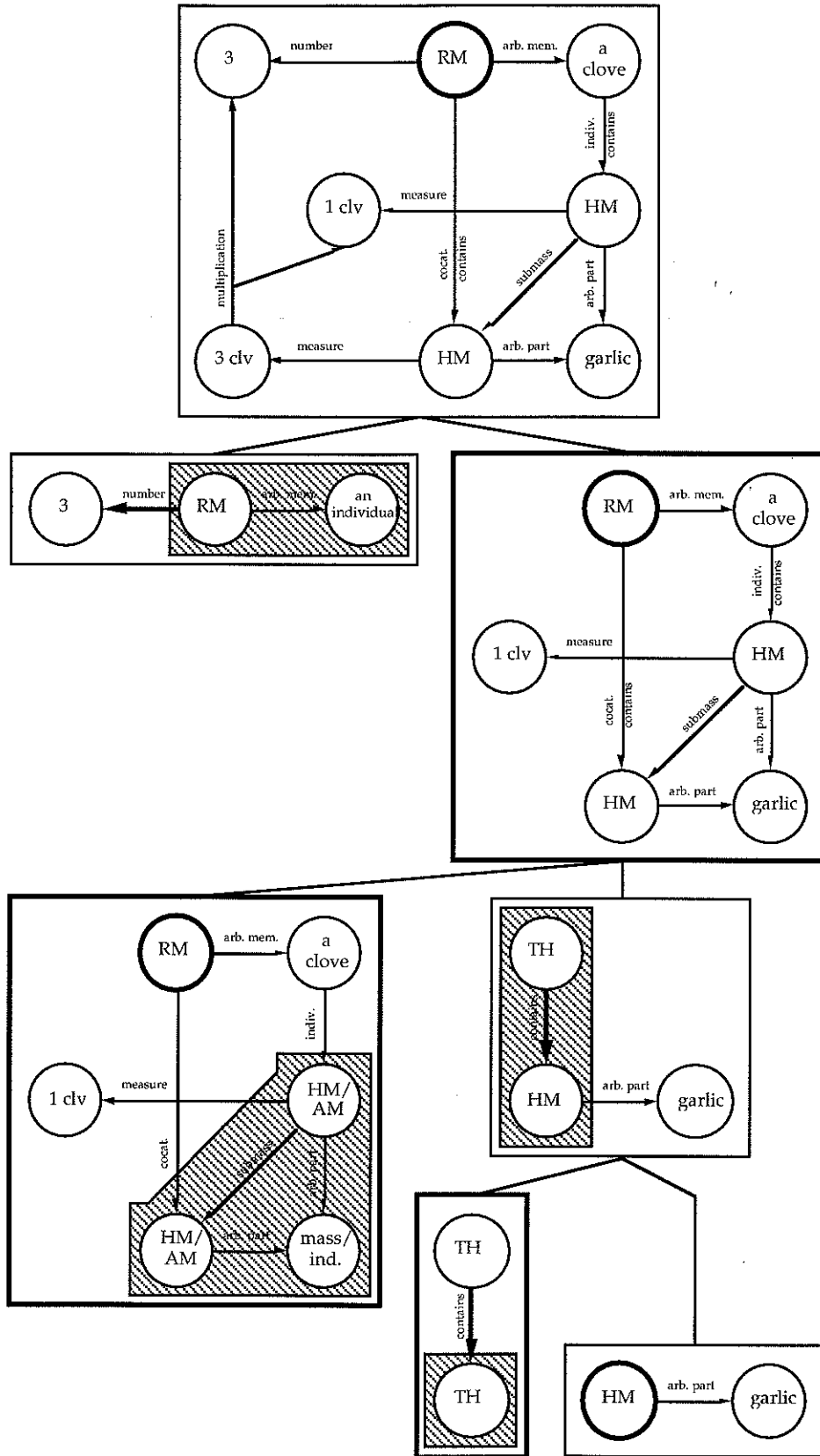


Figure 7.18. The semantic composition of a prepositional pseudopartitive headed by the quantifying noun

GRAMMATICAL STRUCTURE

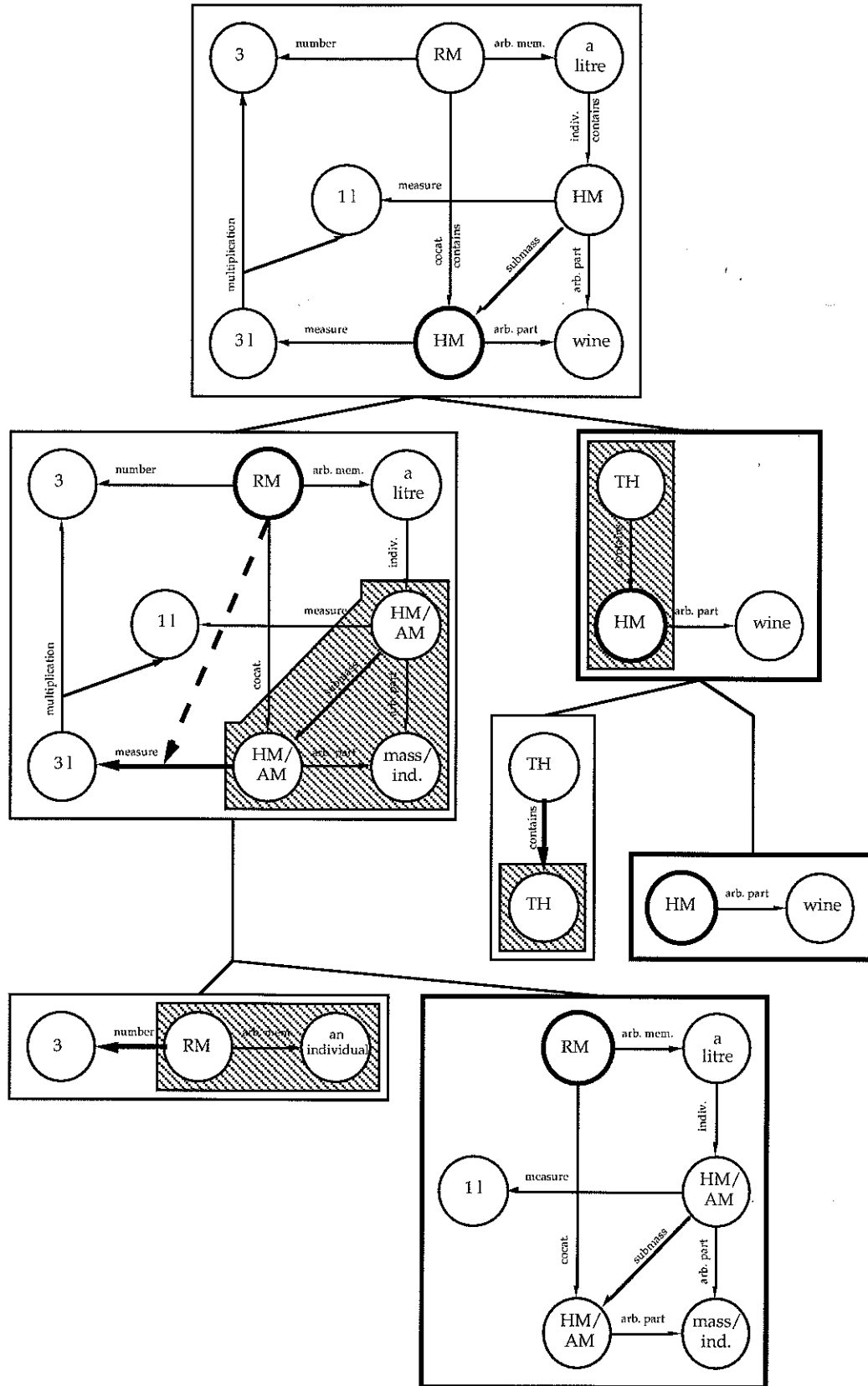


Figure 7.19. The semantic composition of a prepositional pseudopartitive headed by the substance noun

Since the noun is the head of the construction, the composite structure has the same profile: the replicate mass of cloves. And since the prepositional phrase is a non-head that both elaborates and is elaborated, it is simultaneously a complement and a modifier.

Finally, observe that the structure of the quantifier is combined with the rest. It profiles the relation between a replicate mass and the number 3, and the replicate mass corresponds to the profiled replicate mass of cloves of the co-component structure. The nominal part is the head and the quantifier a modifier; hence, the whole composite structure profiles the replicate mass of cloves. An emergent quantifier relation crops up here too: The unit 1 clv is multiplied by the number of cloves, and the measure of the whole mass of garlic emerges as 3 clv.

Now, let us look at how prepositional pseudopartitives that appear to be headed by the substance noun can be analyzed. I propose the structure given in figure 7.19 for *tre liter med vin* 'three litres of wine' as a possible analysis. The composition of *tre liter* 'three litres' (bottom and left-hand parts of the figure) is exactly as in the juxtapositional *tre liter vin* (cf. figure 7.10).

But consider the structure of the sequence *med vin* [with wine] 'of wine' (the three boxes in the middle right-hand part of the figure). The structures of the components *med* 'with' and *vin* 'wine' are identical with and parallel to, respectively, those of *med* and *kvitlauk* 'garlic' in figure 7.18. The homogeneous mass of wine profiled by the nominal corresponds to the landmark content of the prepositional relation; this is also parallel to what we saw in figure 7.18. But in pseudopartitives headed by the substance noun, the preposition is not assumed to be the head; rather, the composite structure profiles the same mass as does the nominal. Thus, the nominal is analyzed as the head, and the preposition as a modifier (elaborated non-head).

This preposition-marked substance nominal is combined with the quantifying nominal (middle left-hand box in the figure), which involves the same complex correspondences as the combination of the prepositional phrase and the quantifying noun in figure 7.18. The resulting composite structure profiles the same mass of wine as the substance nominal, which is the head. The quantifying nominal is a non-head that both elaborates and is elaborated; hence, it is simultaneously a complement and a modifier.

In this section, I have given an analysis of prepositional pseudopartitives headed by the quantifying noun and proposed a possible analysis of structures headed by the substance noun. But just as for juxtapositional pseudopartitives, the existence of two kinds of synchronic structures has been left unexplained. Further, the status of

the preposition in prepositional pseudopartitives headed by the substance noun remains to be clarified.

7.3.3 Head-marking prepositions

Given that the analysis in section 7.3.2 is accepted, what kind of element is the preposition? One possibility that comes to mind is to call it a case marker. "Case is a system of marking dependent nouns for the type of relationship they bear to their heads" (Blake 1994: 1; bold print removed). Akmajian and Lehrer (1976) and apparently Langacker (1991) assume that English expressions headed by the substance noun have the structure illustrated in (67).

(67) [a lot of] sharks

(68) [ein liter med] vatn

N a-M litre with water

'a litre of water'

If (67) were the correct structure, then *of* would have been a postpositional case marker, marking the dependent quantifying noun for its relation to the head substance noun. But I argued in section 7.3.1 that this is hardly the correct structure for English, and that the kind of structure illustrated in (68) is clearly incorrect for Norwegian.

While case is an example of dependent-marking, we appear here to be dealing with another type of marking of nominal constituents, namely an instance of head-marking. Dependent-marking and head-marking can be seen as alternative strategies for marking the relation between a head and a subordinate constituent (cf. Nichols 1986, Vincent 1993). In European languages, dependent-marking is much more widespread than head-marking. Examples of dependent-marking are case marking of subjects and objects, which shows their subordination and grammatical relation to the verb, as well as gender, number and case agreement of adjectives with the nouns that they modify, showing subordination and also carrying information about the noun. Head-marking is best known from the number and person agreement of finite verbs with their subject, showing that there is a subordinate subject and also carrying information about that subject. In the examples below, the marking is morphological, but the marker can also be an independent word.

The opposition can be illustrated with possessive constructions. In German, the possessive relation is marked with the genitive on the possessor phrase (cf. example (69)); this is dependent-marking. (Here and in the following examples, a superscript

H indicates the head and a ^D the dependent, while a superscript ^M indicates the marker of the construction. Only the most relevant information is provided in the glosses.) In Hungarian, however, one possible way to express the same meaning is by marking the head noun with a possessive suffix (third person singular) and leaving the possessor phrase unmarked for the relation (cf. example (70), taken from Tompa (1972: 183)); this is head-marking.

(69) der ^H[Hund] ^D[de-^Ms Herr-^Mn]

G the dog the-GEN master-GEN
'the master's dog'

(70) ^D[a gazda] ^H[kutyá-^Mja]

H the master dog-3SG
'the master's dog'

The head noun *kutyája* carries the information that the dog is owned and that the possessor is a third person singular.

Another example is adjectival modification of the type 'high mountain'. In German, we again find dependent-marking: The adjective agrees with the noun, as in example (71). In Persian, however, one uses the so-called *izafet* construction (cf. Windfuhr 1987: 117), where the head noun carries a suffix that indicates that it has a subordinate constituent (cf. example (72); taken from Nichols (1986: 58)).

(71) ein ^D[hoh-^Mer] ^H[Berg]

G a high-M&SG&NOM mountain(M)-SG&NOM/ACC
'a high mountain'

(72) ^H[kûh-^Me] ^D[bolând]

P mountain-IZ high
'a high mountain'

As Nichols (1986: 64) points out, it is typical of head-marking that the subordinate constituent bears no marking of its subordination and is therefore indistinguishable from an independent constituent. Note that *a gazda* in example (70) bears no sign of its subordinate possessor role; it is only its position in the head-marked construction which leads us to translate it as 'the master's' rather than 'the master'.

Returning to our prepositional pseudopartitives, we have the structure illustrated in (73). The quantifying nominal is not marked for its subordination, but the head substance nominal carries with it information that there is a quantifier of containment.

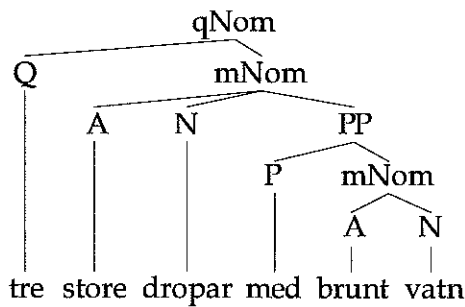


Figure 7.20. A prepositional pseudopartitive with a head quantifying noun (*dropar*)

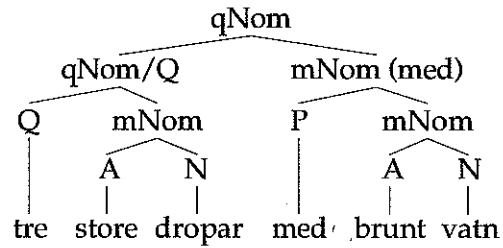


Figure 7.21. A prepositional pseudopartitive with a head substance noun (*vatn*)

- (73) $D[tre\ liter] H[Mmed\ vin]$
 three litre-(PL) with wine
 'three litres of wine'

Note that the changed syntactic role of the preposition does not affect the meaning of the preposition itself; the contribution of the preposition is the same in figures 7.18 and 7.19. Rather, the change is in the development of a new kind of construction, where the combination of a preposition and a nominal results in something that is not really a prepositional phrase, but a nominal – a nominal with a preposed head-marker. Constituent structures for the two alternative analyses of *tre store dropar med bruntn vatn* 'three big drops of brown water' are shown in figures 7.20 and 7.21.

The way I have treated the "real" preposition and the head-marking preposition resembles Langacker's (1991: 404–408) treatment of relational and nominal case markers.² Nominal case markers differ from head-marking prepositions in marking dependents rather than heads, but the two are similar in that the composite structure of marker and nominal is itself a nominal.

A typical preposition is a good example of a relational case marker and has a familiar structure: It profiles a relation whose landmark corresponds to the nominal profile of the object of the preposition, and since it is a head, the composite structure (the prepositional phrase) has the same relational profile. There is no difference between Langacker's approach and mine in this respect; the construction is illustrated in figure 7.22.

²The terminology in this area is rather confusing. Other terms for *relational case* are *concrete*, *semantic*, and *local case*; other terms for *nominal case* are *abstract*, *grammatical*, and *syntactic case*. Cf. Lyons (1968), Andrews (1985), Blake (1994).

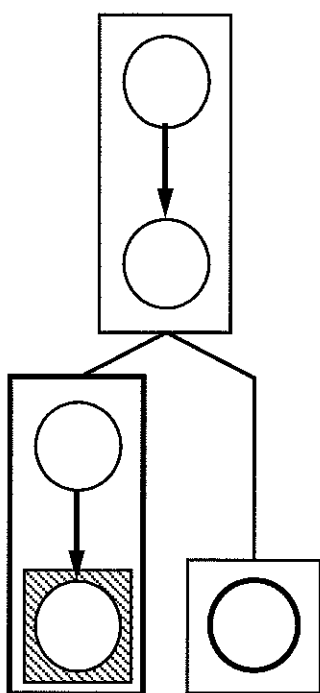


Figure 7.22. A relational case marker, Langacker (1991) and the present work

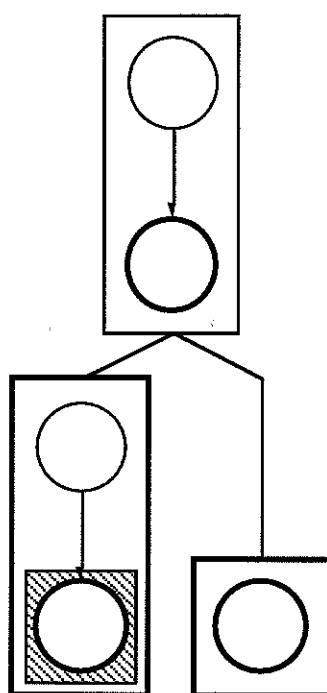


Figure 7.23. A nominal case marker, Langacker (1991)

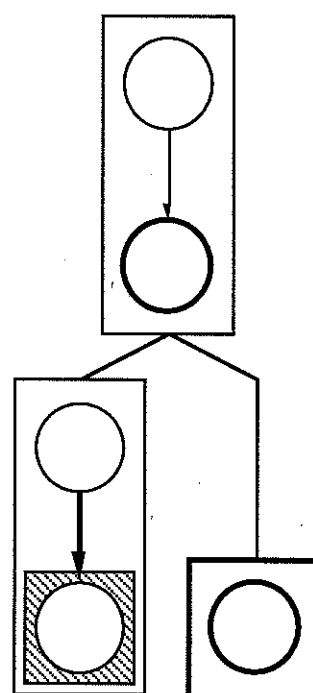


Figure 7.24. A nominal case marker, the present work

An example of a nominal case marker is the nominative case of a subject. Such a marker, according to Langacker, includes a relation in its semantic base, but it profiles one of the participants (a thing). This profile corresponds to the profile of the nominal constituent (the noun stem if we are talking about inflectional case). Both are profile determinants, as illustrated in figure 7.23.

In contrast, I would assume that a nominal case marker, like a relational case marker, profiles a relation whose landmark corresponds to the profile of the nominal constituent. But the nominal, rather than the case marker, is the head of the construction, which will therefore have the same nominal profile. This is illustrated in figure 7.24. Instead of assuming like Langacker that the two categories of case marker are semantically different in and of themselves, I assume that they are only different in the role they receive in the construction they are part of. (The difference between the two analyses is parallel to the difference between Langacker's analysis of coordination and mine.) Head-marking prepositions are similarly non-heads, the profile of the composite structure being shared instead with the nominal.

This approach makes it easier to account for the fact that the same morphemes are frequently found to do double duty as relational and nominal markers; the difference is not primarily in the meaning of the morphemes in question, but in the constructions that they enter into. My approach also corresponds well with the insight of modern grammaticalization theory that it is not morphemes in isolation that are grammaticalized, but morphemes in constructions.

7.4 Towards an understanding of the grammar of pseudopartitives

The preceding sections have left some central questions unanswered: Why are certain pseudopartitives headed by the quantifying noun and others by the substance noun? What makes expressions with secondary quantifying nouns as well as definite expressions less apt to be headed by the substance noun? How is prepositional head-marking developed? In this section, I try to develop a diachronic and pragmatic understanding of the syntax of pseudopartitives that may help answer these questions.

In section 7.4.1, I discuss the role of the diachronic sources of pseudopartitives, which are the input of later processes. Section 7.4.2 presents the pragmatic motivation for reanalysis, while section 7.4.3 accounts for the details of the mechanisms involved. In section 7.4.4, I discuss why certain kinds of pseudopartitives are more likely not to be reanalyzed or to exhibit a lag in the development. In section 7.4.5, I address the question of how new quantifiers may emerge.

7.4.1 Grammaticalization sources

The constructions that different languages employ to talk about a particular semantic field, such as pseudopartitivity and quantification more generally, tend to be derived from a very limited set of sources (cf. Heine 1993, 1997a, b). Knowledge about the typical sources in a field provides us with a basis for understanding how that field tends to be conceptualized in human languages. Further, the semantic and syntactic properties of a particular construction can often be explained with reference to the origin of the construction.

Koptjevskaja-Tamm (forthc.) shows that in languages where the source of pseudopartitives is clear, it is often an ablative construction. In addition, she points to comitative and genitival sources. I have investigated in detail the field of

pseudopartitivity in Norwegian, and my analysis has led to the conclusion that there are three grammaticalization sources: a genitival source, a comitative source, and an ablative source.

Juxtapositional pseudopartitives stem from a genitival construction. But the case marking of the substance nominal has been lost, so that the quantifying noun and the substance nominal are adjacent. I have argued that this adjacency is iconic for conceptual unity. *Med*-pseudopartitives stem from a comitative construction and have been derived via two kinds of associative meanings: containment and accompaniment. *Av*-pseudopartitives stem from an ablative construction and have been derived via a material meaning. In chapter 6, I attempted to show how these four conceptualizations of quantity (unity, containment, accompaniment, and material constitution) form the basis for an account of the range of each construction as well as its relations to the other constructions.

When a construction starts to be used about a semantic field which it has not previously covered, it is the result of creative innovation on the part of the language users. For instance, when speakers of Norwegian started to use containment *med*-pseudopartitives about volume-measured masses, they employed a construction that was already used about factual container–content relations and used it to refer to masses where there is no such relation in reality: The concept of a container served as the metaphorical source for the concept of volume, while the concept of a content was the source for the concept of a mass measured for its volume. Crucially, the conceptual organization of the relation between container and content was transferred to the relation between volume and mass. Expressions of the type container noun + *med* + content noun profile the container, while the content is part of the semantic base; the container noun is the head, and the content noun is subordinate. Therefore, when this construction was extended to volume, the quantifying noun was originally the head, while the substance nominal was embedded in a modifying prepositional phrase.

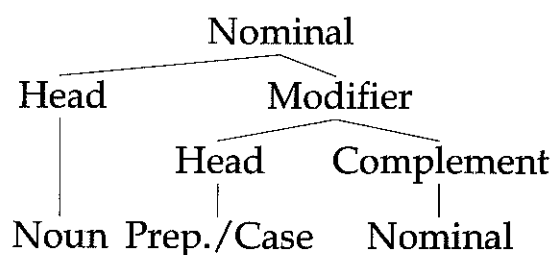


Figure 7.25. The structure of the sources of pseudopartitives

Common to all the pseudopartitives I have discussed in any detail is that they are derived from sources that are similarly structured; they involve the same syntactic asymmetry. The quantifying noun comes to be the head (at least to start with), and the substance nominal is part of a modifier headed by a preposition or a case marker. This is illustrated in figure 7.25.

In addition to the three main constructions, there is the minor construction where the quantifying nominal is genitival, namely in the context of certain numeral nouns in *-tal* 'number' and in certain uses of time nouns (cf. sections 5.2.1 and 5.2.4.3). This shows that the kind of origin represented in figure 7.25 is not the only one that is possible. In Japanese, one pseudopartitive construction appears to be rather parallel to Modern Norwegian genitival constructions, as shown in (74) (example constructed on the basis of Dunn and Yanada (1958: 51) and confirmed as correct by Benedicte M. Irgens (p.c.)).

- (74) Sanmeetoru no siroi kire o kaimasita.
 J three-metre GEN white cloth ACC buy-POLITE-PAST
 '(Someone) bought three metres of white cloth.', literally '... white cloth of three metres.'

When many pseudopartitives are headed by the quantifying noun, this must be seen in the light of their sources; their history is reflected in their synchronic properties. But other pseudopartitives are, as we have seen, headed by the substance noun in spite of their origin. That is, they have undergone change. In section 7.4.2, I discuss the reasons for such developments.

7.4.2 From head quantifying nouns to subordinate quantifiers

Wierzbicka (1986) pins down the difference in function between nouns and adjectives as one of classification/categorization vs. description. In the words of Croft (1991: 101), "nouns place their referents into a class, with an overall set of properties [...]", while "[a]djectives do not categorize the objects they describe; they simply attribute the property they denote to the object". According to the conceptual framework for grammatical categories developed by Croft (1990b, 1991), the classes of nouns, verbs, and adjectives have each their distinctive "prototype correlation of pragmatic function and semantic class" (Croft 1990b: 248). Nouns are associated with the pragmatic function of referring and the semantic class of objects, adjectives with the pragmatic function of modifying and the semantic class of properties. Ample

illustration of the difference between nouns and adjectives is provided in the works of Wierzbicka and of Croft.

The typical characteristics of nouns and adjectives are important for an understanding of the diachronic paths of pseudopartitives, because quantifying nouns and nominals are untypical of the classes of nouns and nominals. Functionally, quantifying nominals do the same kind of job as quantifiers, which are adjective-like. While adjectives typically attribute one property to those parts of a referent which are the basis for the classification contributed by the noun, quantifiers typically attribute one property to the whole referent. Consider for instance *three blue books*. This phrase categorizes the objects in a collection as belonging to the class of books, by means of the noun *books*. Further, it attributes to each of the books (and not the collection as such) the property of blueness, by means of the adjective *blue*. And it attributes the property of three-ness to the collection of books (and not to each book). In cognitive grammar, one can analyze the difference between the adjective and the quantifier as follows: The adjective designates a relation between each individual (trajector) in the replicate mass of books and the colour blue (landmark) (cf. Langacker 1987: 216–217). The quantifier, on the other hand, designates a relation between the replicate mass of books (trajector) and the number 3 (landmark).

Now consider numeral nouns and nominals. The phrase *three million cats* can be used to refer to something that is categorized both as a replicate mass of cats and as a replicate mass of millions. The two nominals are cocategorizing. Recall that a million has been analyzed as an individuation of a replicate mass of (schematic) individuals. The noun *cat* is a typical noun; it is used to refer to objects which are categorized as belonging to the class of cats. Such objects have many properties: They are animals with fur and a certain typical size, have four legs and a long tail, they like to eat fish, etc. Because we know that objects belonging to the class of cats typically have these properties, the noun *cat* is well suited for reference. The noun *million*, however, is untypical. It is used to refer to objects which are categorized as belonging to the class of millions. But as far as the meaning of the noun goes, such an object has no other property than being a way of looking at some collection of objects numbering 1,000,000 as an individual. Because the noun tells us so little about the object referred to, it is not well suited for reference. Or in the words of Croft (1991: 135): "A word denoting a quantity does not provide a useful kind label under which to open a cognitive file for a referent [...]." The substance noun is more useful in this respect.

It is well known that there are two major types of constructions for the combination of numeral and substance noun (Greenberg 1978): adjectival numeral (quantifier) + noun, and numeral + partitive noun. (These two types as found in

Russian and other Slavic languages are discussed by Corbett (1978a, b, 1993.) That is, the numeral either modifies the substance noun or takes it as its complement. The partitive marking is often the same as for possessor phrases, i.e. a genitival case form or adposition.

The two types of numeral constructions in Old Norse illustrate this distinction. Modern Norwegian, too, has numeral nouns, but the development of numeral noun phrases (cf. section 4.1.2) that are integrated in the quantifier slot has produced a situation where the whole numeral system exhibits some variety of the type adjectival numeral + noun. The construction where a numeral noun heads a definite nominal (the remnants of the old genitival construction) is close to the type numeral + partitive noun, but there is no partitive marking, and the construction covers only very limited parts of the numeral system (cf. section 4.4.1). The use of *av* 'of' after bare plurals (*millionar av kattar* 'millions of cats') is indirectly related to partitives, as I have argued in section 6.2.3. However, the use of *med* after head numeral nouns (*dei tre millionane med kattar* 'the three million (-s with) cats'; cf. section 4.4.2) represents a third kind of combination of numeral and substance noun: numeral + comitative noun.

The similarity of quantifying nouns to quantifiers and adjectives "accounts for the fact that numeral-noun constructions often change over time from syntactically noun-genitive (numeral_{noun} object_{genitive}) constructions to syntactically adjective-noun (numeral_{adjective} object_{noun}) constructions" (Croft 1991: 134). Croft's observation can profitably be reformulated so as to include pseudopartitives in general. The process can be split in two: reanalysis and grammaticalization. We may formulate two hypotheses.

Pseudopartitive reanalysis hypothesis: Pseudopartitives that are derived from sources with the quantifying noun as head and the substance nominal as subordinate will tend over time to be reanalyzed so that the substance noun becomes the head and the quantifying nominal subordinate.

Quantifier grammaticalization hypothesis: Quantifying nominals, especially subordinate ones, will tend over time to develop into quantifiers by losing properties typical of nouns and nominals and acquiring properties typical of quantifiers.

These are hypotheses about motivated processes whose actual occurrence we cannot predict; if the processes do occur, however, they will be partially explained as motivated. Both semantic and morphological/syntactic factors will influence the actual development. With regard to reanalysis, semantic factors include the meaning of the quantifying noun. The formal factors include the original subordination marking as well as agreement showing the head status of the quantifying noun. With

regard to grammaticalization, the complexity of the quantifying nominal is perhaps the major factor influencing the development.

Of course, the hypotheses cannot really be tested in this work, except against one single language. If they are correct, we would expect that pseudopartitives can undergo the described development or fail to do so. A development in the opposite direction, however, would be a problem for the hypotheses. What the hypotheses offer, is a background for the understanding of the processes that have produced the complex picture of the grammar of Norwegian pseudopartitives.

It is interesting in this context that genitival marking of substance nominals has been lost, giving rise to juxtapositional pseudopartitives, while genitival marking of quantifying nominals (cf. sections 5.2.1 and 5.2.4.3) has been replaced with an *s*-genitive. The former type is within the scope of the pseudopartitive reanalysis hypothesis, reanalysis takes place, and after that (as I have suggested in section 7.2.4) the genitival case marking is lost. The latter type is outside the scope of the hypothesis, there is no reanalysis, and the genitival case marking is kept as a marker of subordination.

7.4.3 The mechanism of reanalysis

I propose to regard the changes involved in the reanalysis of pseudopartitives as fundamentally semantic in nature. The central changes are, furthermore, essentially the same whether we are talking about reanalysis of juxtapositional, genitival, or prepositional constructions; in genitival and prepositional constructions there is an additional change in the status of the case marker or preposition. Let us therefore assume, for the sake of the discussion, that juxtapositional pseudopartitives were reanalyzed only after the loss of genitival case marking (contrary to my proposal in section 7.2.4); this allows us to contrast juxtapositional and prepositional constructions. If reanalysis did take place at the genitival stage, the changes involved will be exactly parallel to those assumed for prepositional constructions.

The changes involved in these reanalyses are exclusively profile shifts; there is no change in semantic content, only in which parts are profiled. In more psychological terms, therefore, we are simply dealing with figure-ground reorganization. The changes are: promotion of the profile of the substance noun and demotion of the profiles of the quantifying noun and the preposition (or case marker).

Consider first the shift that promotes the profile of the substance noun and demotes the profile of the quantifying noun. This is illustrated with the semantic structure of *tre liter (med) vin* 'three litres of wine' in figure 7.26. The only difference

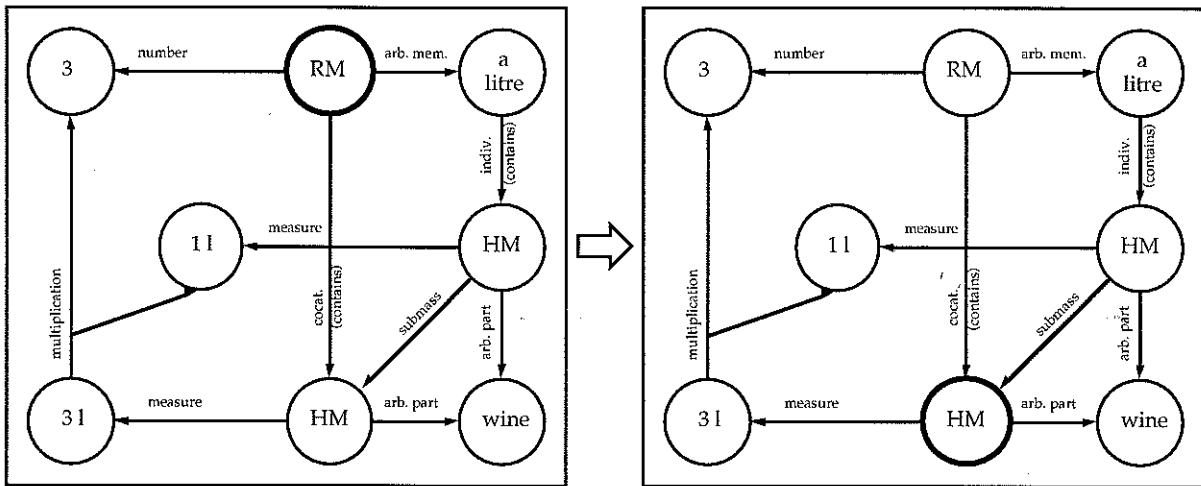


Figure 7.26. The main semantic shift in reanalysis

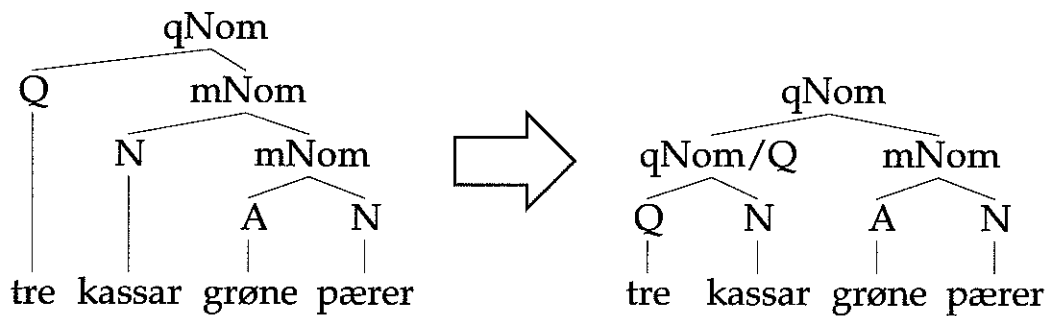


Figure 7.27. The syntactic reflex of reanalysis (juxtapositional pseudopartitives)

in the composite structures of the juxtapositional and the prepositional structure is the additional contribution of *med* in the latter, which is represented by putting the relation label for containment in parentheses. The left-hand structure represents a nominal headed by the quantifying noun *liter*; it profiles the replicate mass of litres. (It is parallel to the composite structures given for *tre fedd (med) kvitlauk* 'three cloves of garlic' in figures 7.11 and 7.18.) The right-hand structure represents a nominal headed by the substance noun *vin*; it profiles the homogeneous mass of wine. (It is parallel to the composite structures in figures 7.10 and 7.19.)

The two structures are identical, except for profiling. Reanalysis shifts the profile from the mass of the quantifying noun to the mass of the substance noun. And consider what this means: The profile is shifted from one way of categorizing a factual object to another way of categorizing the same object. That is, the shift is purely conceptual and hardly affects referential relations; the nominal can be used to

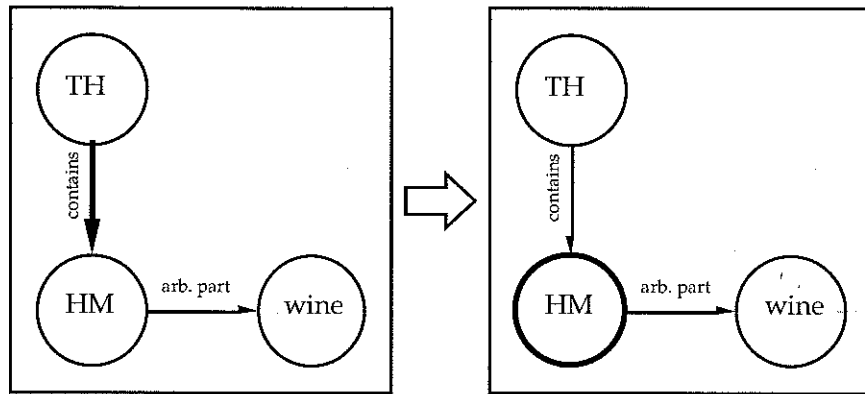


Figure 7.28. The preposition demotion involved in reanalysis

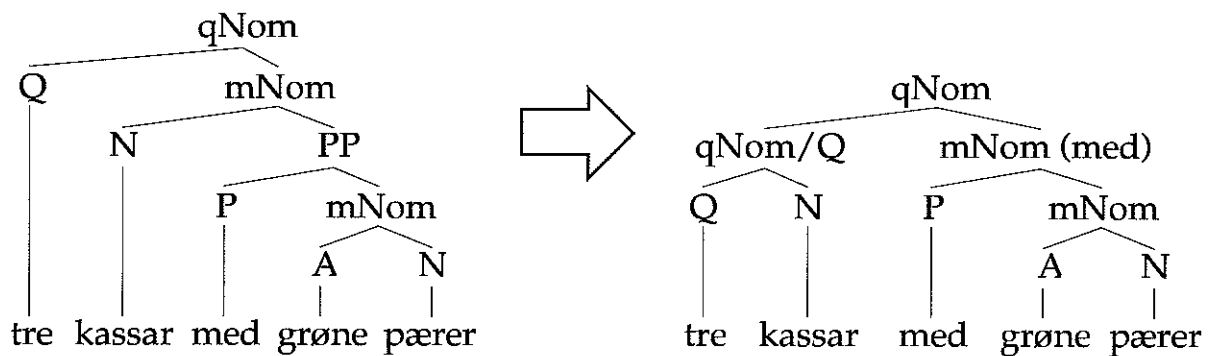


Figure 7.29. The syntactic reflex of reanalysis (prepositional pseudopartitives)

refer to the same kind of objects after reanalysis as before. The syntactic restructuring involved in juxtapositional pseudopartitives is represented in figure 7.27. It is primarily a rearrangement of constituency.

In prepositional pseudopartitives, the preposition designates a relation; for example with *med*, a relation of containment. The demotion of the preposition is represented in figure 7.28. In the sequence of preposition and substance nominal, the preposition is the profile determinant before reanalysis, so that the sequence is an ordinary prepositional phrase that profiles a relation and modifies the quantifying noun. After reanalysis, the substance nominal is the profile determinant; the sequence has become a preposition-marked head of the whole pseudopartitive. Nothing except profiling is changed. The syntactic changes involved in the reanalysis are shown in figure 7.29. The new structure is like the one of new juxtapositionals, except that the modified nominal is marked with a prepositional marker.

In both juxtapositional and prepositional pseudopartitives, the reanalysis is an example of condensation (cf. section 2.1.3): The quantifying nominal becomes a part of the substance nominal, which was originally a part of the quantifying nominal.

We can now return to the assumption that when adjectives and participles agree with the substance noun of prepositional pseudopartitives, we are dealing with a *constructio ad sensum* (cf. section 7.3.1). First, observe that the agreement “across” the preposition found in certain definite pseudopartitives shows that what we are dealing with cannot be only a matter of *constructio ad sensum* since the head status of the substance noun is incompatible with a subordinating role for the preposition. Further, consider what *constructio ad sensum* is: A constituent with a certain form associated with a certain meaning (say, *tre liter med vatn* ‘three litres of water’ with plural form and replicate mass meaning) is given a meaning that is somehow shifted away from its form-related meaning (for *tre liter med vatn*, to a homogeneous mass meaning, a kind of meaning typically associated with singular form). The new meaning, rather than the form, is then the basis for choosing the form of agreeing constituents like adjectives or participles (or finite verbs in languages with such inflection). The result is formal lack of agreement. As long as the form of the agreement trigger remains as it is, this can meaningfully be called *constructio ad sensum*, or semantic agreement (cf. Corbett 2000). But the agreement trigger may itself be restructured on the basis of the new meaning. That is the kind of semantically based reanalysis that I have discussed in this section. When such reanalysis has taken place, the phenomena of lack of agreement which have been categorized as *constructiones ad sensum* no longer exist. There is again ordinary agreement.

7.4.4 Lack of reanalysis

Pseudopartitives with secondary quantifying nouns and definite pseudopartitives have in part not been subject to reanalysis. In this section, I discuss the reasons for these exceptions. I also discuss briefly whether prepositional structures (and others with a subordination marker) are less likely to be reanalyzed.

The reason that structures with secondary and primary quantifying nouns are different is fairly obvious. The main motivation for reanalysis is that one achieves the profiling of an entity that is well suited for reference. Very abstract quantifying nouns like *million* and *liter* are not well suited, since they designate entities that are merely reifications of quantitative properties. Therefore, a shift to the profile of the substance noun is well motivated. More concrete quantifying nouns like *fedd* ‘clove’

or *bunke* 'pile', however, are much better suited for reference, because they designate entities referring to things with an object character (shape, structure, etc.). Therefore, a shift is less motivated. When such expressions are reanalyzed, this is probably motivated primarily by the suitability of emergent quantifiers (cf. section 7.4.5) to designate quantity.

The resistance of definite pseudopartitives against reanalysis has formal as well as pragmatic reasons. Let us look at these in turn. Reanalysis of definite pseudopartitives requires formal changes of the nominal itself that are not necessary in indefinite pseudopartitives (although reanalysis of the latter also leads to changes in agreement of predicative adjectives etc.). As mentioned in section 7.2.4, the *genitivus generis* started to be lost no later than the fifteenth century. When reanalysis began is uncertain. Starting in Old Norse times, the language was undergoing changes leading to a stronger marking of definiteness. The development of the definiteness suffix of the noun (from a demonstrative) began at least as early as the end of the tenth century (Indrebø 1951: 88), although it took several hundred years to reach its present range of uses. The modern definite article *den* developed from the demonstrative *sá* 'that' (whose inflection was highly irregular) (cf. Lundeby 1965, Dyvik 1979); the article agrees with the head noun for gender and number, and partly definiteness. And of course, there were agreeing demonstratives and possessives all along, as well as quantifiers and adjectives. Definiteness inflection and agreeing determiners explicitly pick out the profile of the nominal, as illustrated in (75) and (76).

(75) dei tre litrane vin
 N the-PL three litre-PL&DEF wine
 'the three litres of wine'

(76) min tre liter vin
 my-PL three litre(PL) wine
 'my three litres of wine'

Reanalysis involves profile shift, and this means that the definiteness markings would have to be changed: Determiners would have to agree with the substance noun, and the definiteness inflection would need to appear on the substance noun rather than on the quantifying noun, according to the patterns of the various definite nominal constructions. This has indeed happened in structures involving numeral nouns, as illustrated by (77) (old structure type) and (78) (new structure type). (Note also the different definiteness of the quantifier *ein* 'one'.)

- (77) den eine millionen kattar
 N the-M/F one-DEF million(M)-DEF cat-PL
 'the one million cats'
- (78) dei ein million kattane
 N the-PL one-M million(M) cat-PL&DEF
 'the one million cats'

Presumably, the reanalyzed definite nominals should be regarded as extensions from reanalyzed indefinite nominals rather than as direct modifications of older non-reanalyzed definite nominals. Such extensions to definite nominals naturally lag behind the reanalysis of indefinite nominals.

There is also a pragmatic reason why reanalysis has not taken place: Quantifiers are typically used when one introduces new referents and not when one speaks about known referents; that is, quantifiers are typical of indefinite rather than definite phrases. Suppose that a referent has been introduced with *tre kassar sand* 'three cases of sand'. The normal way to mention the referent again is to say just *sanden* 'the sand' or to use a pronoun. If, on the other hand, the amount is important, the use of the quantifying noun as a head is less unnatural, and one can more naturally say *dei tre kassane sand* 'the three cases of sand' or *dei tre kassane* 'the three cases'. The introduction of definite reanalyzed structures will therefore be delayed not only because of formal restraints, but because they are uncommon.

Finally, we must consider the role of subordination markers like prepositions and case. Are structures involving such markers more resistant to reanalysis than are juxtapositional structures? They presumably are, although I cannot justify this assumption empirically. After all, the prepositional marker starts out in constructions that relate its trajector to a profiled entity and its landmark to a part of the semantic base. This part of its constructional meaning has to be overridden, and at the same time, it is kept in an unchanged version in other constructions. It seems probable that these circumstances delay reanalysis.

7.4.5 Emergence of quantifiers

When reanalysis has taken place, the quantifying nominal has become a separate subordinate constituent. Its nominal profile is no longer essential, since it is the profile of the substance noun that is relevant in reference. Released from its nominal function, such a quantifying nominal is likely to begin to take on the properties of a

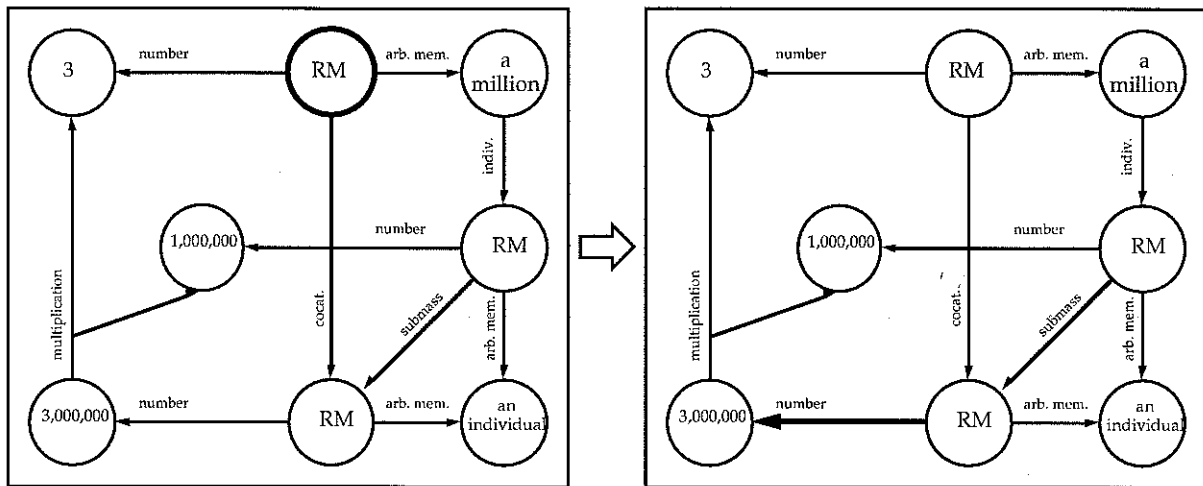


Figure 7.30. A new quantifier emerging by profile shift

quantifier. As a result, new quantifiers emerge. This implies, above all, a profile shift from a nominal to a relational meaning, but formal changes may follow.

The shift is best illustrated for numerals. A quantifying nominal like *tre millioner* 'three million(s)' starts as a nominal expression profiling a replicate mass of millions. This is illustrated in the left-hand part of figure 7.30. When this profile is no longer needed, the quantifying nominal can take on the kind of profile that ordinary numeral quantifiers have: the relation between the mass profiled by the substance noun and the quantity of that mass – the number 3,000,000. This new situation is shown in the right-hand part of figure 7.30.

Parallel shifts can take place for other kinds of quantifying nominals as well, not just those with numeral nouns. For instance, *tre liter* 'three litres' can shift its profile from a replicate mass of litres to the relation between the quantified mass (profiled by the substance noun) and the quantity of that mass – the measure 3 l.

Once the quantifying nominal has taken on the semantic character of a quantifier, it is more free than a head quantifying noun to start losing the formal characteristics typical of nouns and nominals. (Of course, head quantifying nouns may lose typical properties of nouns without having been shifted to a subordinate position, but we can expect such a development to be promoted by subordination.) This is simplification, a process that is typical of grammaticalization (cf. section 2.1.3). The properties of typical Norwegian nouns include the following:

- 1) They have inherent gender (masculine, feminine, or neuter).
- 2) They have different singular and plural indefinite forms. (Many neuter nouns do not have this property.)

3) They can be inflected for definiteness and used as heads of definite nominals.

If we look at the expressions involving numeral multiplicands, it is evident that there is a cline from nominal to quantifier – a grammaticalization path. The relevant data were presented in chapter 4, especially sections 4.1.2 and 4.4.1. The largest numeral nouns, *milliard* and *million*, have all of the three properties listed above. They are masculine, they have the normal four inflectional forms, and they can be used as nominal heads. The lower numeral nouns, *tusen* and *hundre*, do have gender (neuter). But they cannot normally be used as heads of definite nominals; they do not have commonly used definite forms. The Bokmål system for typical nouns leads us to expect the indefinite plural forms *hundrer* and either *tusen* or *tusener*. Outside the numeral system, the suffixed forms are found, but within the numeral system, the syncretistic forms *hundre* and *tusen* are used. In Nynorsk, this is what one expects for neuter nouns. The smallest multiplicand expression, *-(t)ti* ‘-ty’, was a masculine noun with a plural inflection in Old Norse: *tigr*, plural *tigir*. In Modern Norwegian, it has neither gender nor inflection – it is no longer a noun. It has coalesced with the quantifier that expresses the multiplier; the result is a set of compound quantifiers, e.g. *femti* ‘fifty’. As noted in section 2.1.3, coalescence often follows condensation in processes of grammaticalization.

The situation is not static. The larger numeral nouns seem to be moving in the quantifier direction. They are sometimes used with a plural meaning without any plural suffix, as in English. This is illustrated in example (79).

- (79) [??] Kornmangelen ... har variert fra én million tonn til over to million tonn.
 B-BT ... over two million-(PL) ton-(PL)
 ‘The lack of corn (grain) has varied from one million tons to over two million tons.’

To me, such expressions are ungrammatical. But it would appear that the lack of the plural suffix is a sign of a stronger integration into the numeral system.

To some extent, other quantifying nouns follow suit. For instance, the numeral noun *dusin* ‘dozen’ behaves similarly to *million*. And many unit nouns have no separate indefinite plural form (cf. section 5.2.4.4), although that would be expected on the basis of typical inflection patterns. Thus, the inventory of quantifying nouns exhibits several layers of grammaticalization.

Larger numbers are more likely to be designated by nouns (rather than by quantifiers) than are smaller numbers (cf. Greenberg 1978, Hurford 1987). To be more accurate, we are talking about one-morph numerals, including *tre* (a monomorphemic numeral quantifier) and *hundre* (a synchronically monomorphemic

numeral noun), rather than complex numerals. Norwegian fits perfectly into this picture. What is the reason for these differences?

One reason is described as follows by Croft (1991: 134), who sees this as involving a conflict between different conceptual focuses:

The individuals that make up the whole are more salient in smaller quantities, simply because there are fewer of them and more attention can be focused on each. [...] In larger quantities, the individuals are less salient by themselves, and the aggregate is more salient, by virtue of its size [...]. In that case, the numeral or quantifier is more likely to be conceived of as a unit in its own right, expressed as a noun or nounlike form [...].

The larger the number, the more natural it becomes to put the profile on the quantifying mass than on the substance mass.

Another, related reason is that nouns can be combined with quantifiers, and in the case of numeral nouns, this opens up the path to multiplication (cf. Hurford 1987). By means of multiplication, one can reach quite large numbers; cf. Norwegian, and many other languages, where addition alone takes us only to 19 and multiplication is employed for 20 (although covertly in the portmanteau expression *tjue*).

A third reason may be simply that the larger numerals tend to be younger. Numeral systems are developed in steps (cf. Hurford 1987), and smaller numbers are named before larger numbers. New nouns are put to use at different stages, and the younger the noun is as a numeral, the less time it will have had to move along the cline towards quantifiers. The age of the Norwegian multiplicand numerals differs strongly (cf. Ross and Berns 1992): *Ti*/(*t*)*ti*/(*t*)*ten* and *hundre* date back to Indo-European, while *tusen* is younger and common to the Germanic languages (and possibly Balto-Slavonic) only, and *million* and the even larger numerals are quite recent borrowings.

If the full definiteness system (cf. section 7.4.4) was developed before the numerals became subordinate (in indefinite nominals), we would expect modern expressions of the type that we find with *million* and *milliard*: *dei tre millionane kattar* [the-PL three million-PL&DEF cat-PL] 'the three million cats', but which is lacking for the smaller numeral nouns: **dei tre hundra kattar* [the-PL three hundred-PL&DEF cat-PL] 'the three hundred cats'. Here the numeral noun receives definiteness marking, and the article agrees with it (which becomes clear when the numeral noun is in the singular).

On the other hand, if the numeral nouns had already been integrated into subordinate numeral noun phrases, we would expect modern expressions like *dei tre millionar kattane* [the-PL three million-PL cat-PL&DEF] 'the three million cats' and *dei tre hundre kattane* [the-PL three hundred-(PL) cat-PL&DEF] 'the three hundred cats',

which is possible for all numeral nouns used in the numeral system. Here the substance noun is in the definite form, and the article agrees with it.

Thus, we may hypothesize that the smaller numeral nouns were well on their way into the numeral system at an early stage, possibly before the definiteness system was fully developed. This would help us explain the difference between these and the larger numeral nouns. I am not claiming that *hundre* and *tusen* have never been used as heads of modern definite nominals. But it would seem that their integration into the numeral system has brought along with it a reduction in "nouniness"; they were seldom used as referring expressions, and thus the definite form would be used less frequently. The larger numeral nouns came into the language at a later stage as full nouns and could be used both as head nouns (like prototypical nouns) and in numeral noun phrases (like older numeral nouns).

It is not only a question of time how far the development goes. It also crucially depends on the complexity of the multiplier. While *-(t)ti* is only combined with one-morph multipliers, *tusen* and the larger numeral nouns are combined with multipliers of considerable complexity. The same goes for most other quantifying nouns. It is of course unlikely that such expressions should ever reach the quantifier end of the continuum. But also numeral nominals with larger multiplicands may coalesce. For instance, in Spanish some multiples of 100 are formed regularly from a numeral for one of the numbers from 2 to 9 and the plural *cientos* 'hundreds' (compare for instance *dos* '2' and *doscientos* '200'), while others are quite irregular (compare for instance *cinco* '5' and *quinientos* '500').

The development sketched above involves the integration of multiplier (quantifier) and multiplicand (noun). The whole quantifying nominal coalesces. Another line of development can be found when multiplication is redundant because the multiplier is 1, or when the quantifying noun is not a unit counter and multiplication is not practicable.

The first type is seen with *hundre* and *tusen*, which cannot be used with the unstressed indefinite article *eit* 'a'; they are either used alone or with the stressed quantifier *eitt* 'one' (cf. section 4.1.2). This is the phenomenon of 1-deletion (cf. section 4.1.3 and Hurford (1987)). The quantifier end of the cline is here represented by *ti* 'ten', which can only be used alone (**einti* [one-ty]). The numeral noun *par* 'couple, two or three' can be seen to have partly become a quantifier (cf. Kinn 2000a). Consider examples (80) and (81).

(80) Studentar som har høve, er der eit par gonger i veka ...

N-BT ... a-N couple(N) time-PL ...

'Students who have the opportunity are there a couple of times a week.'

(81) [M]en dei par siste sesongane har han ikkje satsa så mykje som tidlegare.

N-BT ... the-PL couple last-PL season-PL&DEF ...

'But the last couple of seasons, he hasn't staked as much as before.'

Example (80) shows that *par* is a neuter noun. But in (81) it is a quantifier; the definite article agrees with the substance noun *sesongane*, not with *par*. It would not be possible to insert *eit(t)* 'a, one' in front of *par* in (81).

The second type, where multiplication does not work, is illustrated by the indefinite measure noun *masse* 'mass', which has partly become a quantifier with the meaning 'much, a lot'. Consider examples (82) and (83).

(82) Det er ein masse praktiske saker som må ordnast ...

N-OT ... a-M mass(M) practical-PL thing-PL ...

'There are lots of practicalities that must be taken care of.'

(83) Denne sigeren gjev oss masse inspirasjon ...

N-BT ... mass inspiration

'This victory gives us lots of inspiration.'

In (82), *masse* is used in the old way, with the indefinite article showing its nominal character; for instance, it has masculine gender. In (83), *masse* is a quantifier which could be replaced by *mykje* 'much'.

To conclude, reanalysis promotes the development of new quantifiers from quantifying nominals. This is a process of grammaticalization that makes nouns less "nouny". It involves the loss of typical nominal properties such as the ability to head nominals, inflection for definiteness and number, and gender. It also involves coalescence of quantifier and noun or the loss of the quantifier (especially *ein* 'a, one').

7.4.6 Summary

I have argued for a diachronic and pragmatic approach to Norwegian pseudopartitives. The sources from which the central pseudopartitive constructions are drawn are such that the quantifying noun will initially head the pseudopartitive. But quantifying nouns – especially primary ones – are not well suited for reference. The profile of pseudopartitives therefore tends to be shifted from the entity designated by the quantifying noun to the entity designated by the substance noun – a semantically based reanalysis. Since the referents of the nominals that these nouns head are coextensive, the reanalysis hardly alters the referential properties of the

pseudopartitive; it merely highlights a different categorization of the referent. The change in status for the preposition of prepositional pseudopartitives has also been accounted for. Further, this approach explains why structures involving secondary quantifying nouns are less apt to undergo reanalysis, and the deviance of definite pseudopartitives has been accounted for as a lag phenomenon whose reasons can partly be found in the formal properties of definite nominals. Finally, I have pointed to a grammaticalization path from quantifying nominal to quantifier that is evident in the context of Norwegian numerals, but is also recognizable for certain other quantifying expressions.

In short, quantifying nominals, which serve to express the quantity of objects, are first treated as referring to the objects themselves. Gradually, they are treated more and more like modifiers, the function of reference being taken care of by substance nominals. We are dealing with a natural semantic process, where constituents with quantifier-like meanings go from nominal syntax in the direction of quantifier syntax.

7.5 Conclusion

For quite some time, the headedness of juxtapositional pseudopartitives has been under discussion; it has been what I have called a "classic" problem. The synchronic solution adopted here apparently stems from Teleman (1969) and was continued in Delsing (1993): There are two kinds of juxtapositional pseudopartitives, some headed by the quantifying noun and some headed by the substance noun.

Prepositional pseudopartitives, on the other hand, have been regarded as unproblematic cases of nominals headed by the quantifying noun, because the preposition has been assumed to signal subordination. When predicate adjectives, for instance, agree with the substance noun, it has been regarded as *constructio ad sensum*. However, as is known from English, the status of the preposition is far from clear. I have shown that most of the data point to a similar analysis as for juxtapositional constructions: Some prepositional pseudopartitives are headed by the quantifying noun, others by the substance noun. The latter type is incompatible with a subordinating function for the preposition, and I have provided some evidence that casts serious doubt on the view that the preposition is a subordinator in all cases.

I have proposed cognitive-grammar analyses of the various kinds of Norwegian pseudopartitive constructions. Further, I have outlined an approach to pseudopartitives where they are seen in the light of diachronic sources and pragmatic forces. Because of their origin, many pseudopartitive constructions are, to

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begin with, headed by the quantifying noun. However, since (at least primary) quantifying nominals are not well suited for reference, such expressions tend to be reanalyzed so that the substance noun comes to head them (condensation). Since the quantifying nominal and the substance nominal are cocategorizing, the reanalysis hardly affects the reference of the pseudopartitive. We are dealing with a figure-ground reversal between two categorizations of one object. Another aspect of this process is the development of new quantifiers from quantifying nominals. Quantifying nominals tend to be simplified and to coalesce. This path of grammaticalization is particularly evident for numeral nominals, but can also be observed in other quantifying expressions. This approach regards pseudopartitive nominals as diachronically and synchronically flexible constructions which allow different solutions to the problem of referring to the quantitative properties of masses.

8

Conclusion

In this work, I have tried to shed light on the nature of pseudopartitives by discussing both juxtapositional and prepositional constructions. As a foundation for the discussion, I have provided an analysis of numerals and a taxonomy of quantifying nouns. I have further brought onto the scene the class of quantifiers in *-vis*, which has not previously been recognized in the literature (except in Kinn (1998)), but which provides valuable data on prepositional pseudopartitives.

My analysis of numerals in chapter 4 started with simple numerals and proceeded to numerals involving the arithmetical operations of addition and multiplication. Both kinds of numerals bear evidence of the employment of the metaphors for arithmetic discussed in Lakoff and Núñez (1997), which are part of a larger metaphorical system where a quantity is seen as an object. Further, the syntactic analysis of nominals involving numerals showed numerals to be subordinate constituents rather than heads. Significantly, this also holds for numerals involving numeral nouns, like *tre millionar* 'three million', which shows that quantifying nouns may be subordinate constituents of nominals, and hence that substance nouns may be heads.

In chapter 5, I proposed taxonomies of quantifying nouns based on their meanings and functions. The semantic taxonomy is based on three dichotomies: 1) collective vs. non-collective quantifying nouns, 2) good vs. bad unit counters, and 3) primary vs. secondary quantifying nouns. The functional taxonomy recognizes two bounding functions and one unbounding function. Seven classes of quantifying nouns were discussed in relation to these two taxonomies. Another central part of this chapter argued for the recognition of a subclass of the class of derived words in *-vis* as quantifiers. Semantic, syntactic, and morphological evidence was offered to support this view. Quantifiers in *-vis* are derived from noun stems of all the seven classes of quantifying nouns. A discussion of metaphors for quantity concluded the chapter. Building on evidence of the sources of quantifying nouns, I speculated that three metonymy-based metaphors may be expected to be reflected in grammatical

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structure. First, we may expect to find a material metaphor, where the quantity is treated as an object and the substance as its constitutive material. The second expected metaphor is the containment metaphor, where the quantity is conceived as a container and the substance as its content. Last, we may expect an accompaniment metaphor, where the quantity is treated as an object and the substance as another object accompanying it.

In chapter 6, I tried to determine what the relevant factors are for the choice of one pseudopartitive construction rather than another. It was argued that the construction of juxtaposition should be regarded as an icon of conceptual unity. In this construction, the quantitative categorization that the quantifying noun contributes is reduced in favour of the qualitative categorization contributed by the substance noun. A stronger focus on the quantitative categorization is associated with a stressed quantifying noun and more frequent use of prepositional constructions. Similar reasons were proposed for the preference for prepositional constructions in certain contexts, namely bare plurals and quantifiers in *-vis*, bare definites, and definiteness in general. Secondary quantifying nouns are followed by a preposition somewhat more often than are primary quantifying nouns, and this was attributed to the fact that the former are used about “good” objects, making them inherently more salient. Good evidence for the iconic nature of juxtaposition is found in the incompatibility of this construction with constituents that intervene between the quantifying noun and the substance nominal. In approaching the relation between pseudopartitives with *med* and *av*, I assumed that even highly abstract prepositions such as these are meaningful. Radial structures were proposed for both of them, showing that their meanings in pseudopartitive constructions can reasonably be assumed to be extensions from more concrete senses. The first relevant sense of *med* is an extension from a container–content sense and is employed in connection with the containment metaphor of quantity. The second is an extension from a concrete accompaniment sense and is employed in the accompaniment metaphor of quantity. These senses are both ultimately derived from a comitative source via associative senses. The relevant sense of *av* is an extension from a concrete material sense and is employed in the material metaphor of quantity. The ultimate source of this sense is an ablative meaning. Using these three concepts of quantity and the taxonomies of quantifying nouns and quantifiers in *-vis*, I showed how the distribution of *med* and *av* is motivated, although not fully predictable.

In chapter 7, I proposed synchronic analyses of both juxtapositional and prepositional pseudopartitives. I followed Delsing (1993) in assuming that some juxtapositional pseudopartitives are headed by the quantifying noun, others by the

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substance noun. Moreover, this approach was extended to prepositional constructions. Data pertaining both to the agreement of predicate adjectives and participles and to certain aspects of nominal-internal structure were provided to show that the subordinating function of the preposition in at least some pseudopartitives needs to be reconsidered. I further proposed a framework where pseudopartitives are seen in the light of language change and pragmatics. Although quantifying nouns start out as heads, they tend to become subordinate by reanalysis, a process of condensation. Such a reanalysis, it was argued, is a pragmatically natural development. Substance nominals are better suited for reference than are quantifying nominals, which favours a profile shift from the latter to the former. But reanalysis is less motivated in the context of secondary quantifying nouns and definiteness, for pragmatical and (mostly) formal reasons, respectively. Since the two nominals are cocategorizing ("weakly coreferential"), the reference of the pseudopartitive will hardly be changed. Once reanalysis has taken place and the quantifying nominal is subordinate, there tends to be simplification and coalescence; the quantifying nominal is on its way to become a quantifier.

The various pseudopartitives have been given synchronic analyses. But the present synchronic state of Norwegian is oddly diverse. However, when the grammaticalization sources of pseudopartitives and pragmatic forces are taken into account, a number of puzzles are solvable. A central part of this picture is the functional similarity and historical connection between quantifying nominals and quantifiers: There is a path of grammaticalization leading from the former to the latter type of expression. Thus, diachrony turns out to be a major explanatory factor, which underlines the need to see languages as historical products.

The radial structures of polysemous expressions, too, are historical products. Careful studies of grammatical morphemes have repeatedly shown that, far from being void of meaning, they have meanings that motivate their use. Many prepositions, including *med* and *av*, are typical in this respect. Their use in pseudopartitives is not fully predictable – there is much free choice and variation. But considering the meanings of both prepositions and quantifying expressions, the patterns of distribution and variation do make sense; they are motivated.

The explanations offered in this work are based on a conceptual rather than an objectivist semantics. In particular, expressions of quantity have been interpreted in terms of metaphor. For instance, I have argued that the strong preference for *med* after unbounding quantifiers of length and time must be understood in the light of the accompaniment metaphor. In this metaphor, a length and that which is measured for its length are conceptualized as two objects accompanying one another. This is

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not an objective relation; objectively, the length is a property of the measured object itself. The conceptualization of object and length is a matter of creative human categorization. Quantities are abstract phenomena that we manage to talk about by employing metaphor: The abstract is understood and referred to in terms of the more concrete.

I have not gone deeply into matters of human cognition, as I believe that linguists should be very wary of drawing conclusions about psychology on the basis of language. What I have done is to try to demonstrate that although the field of Norwegian pseudopartitives is complex and may appear bewildering, adopting central assumptions of cognitive linguistics makes it possible to create a considerable amount of orderliness in the field. A view of prepositions as meaningless elements and a strictly synchronic approach to linguistic structure would have made this kind of analysis impossible.

Appendix 1: Abbreviations etc. in glosses

For Norwegian and other languages:

- () 1) after a noun stem: inherent gender of the noun, 2) in -(PL): syncretism of the plural with the singular, 3) gloss of optional expression
- 1) separates stem-internal glosses of different expressions, 2) separates stem glosses from inflectional glosses – NB: not necessarily affixal
- . separates parts of the gloss of one expression
- & separates inflectional glosses
- / separates alternatives

Ø no preposition, i.e. juxtaposition

F feminine

M masculine

N neuter

M/F 1) syncretistic masculine/feminine form, 2) common (masculine/feminine) gender, but feminine in varieties with three genders

DEF definite (Indefinite is not glossed.)

PL plural (Singular is not glossed.)

REFL reflexive

POSS possessive

IMP imperative

INF infinitive

PAST past tense

PRES present tense

PRT perfect participle

Only for other languages:

3SG third person singular

3PL third person plural

ACC accusative

DAT dative

GEN genitive

NOM nominative

NON-N non-neuter

IZ *izafet* construction marker

POLITE marker of politeness towards the hearer

Appendix 2: Coding of examples

First part (language variety or language):

no first part: 1) both Nynorsk and Bokmål or 2) English

- B Bokmål
- D Dutch
- G German
- H Hungarian
- J Japanese
- N Nynorsk
- O Old Norse
- P Persian

Second part (sources) – newspaper and world wide web:

- BT *Bergens Tidende*
- X page on the world wide web; cf. appendix 3

Second part (sources) – novels:

- BA Briseid, Audun: *Kjedereaksjoner*. Gyldendal, Oslo, 1977.
- BG Brantenberg, Gerd: *Egalias døtre: en roman*. Pax, Oslo, 1977.
- BJ Bjørneboe, Jens: *Under en hårdere himmel*. Cappelen, Oslo, 1957.
- BK Bjørnstad, Ketil: *Vinterbyen*. Aschehoug, Oslo, 1977.
- BL Bjørkelund, Jan: *Ragnarokk!* Bladkompaniet, Oslo, 1977.
- CL Christensen, Lars Saabye: *Amatøren*. Cappelen, Oslo, 1977.
- DO Duun, Olav: *Ragnhild*. Norli, Oslo, 1931.
- EA Eriksen, Andreas: *Promenade*. Tiden, Oslo, 1937.
- FK Fasting, Kåre: *Det gode kjøbmansskap: roman*. Gyldendal, Oslo, 1937.
- FL Fløgstad, Kjartan: *Dalen Portland*. Samlaget, Oslo, 1977.
- GN Grieg, Nordahl: *Spansk sommer*. Gyldendal, Oslo, 1937.
- HA Hauge, Alfred: *Kvinner på Galgebakken*. Gyldendal, Oslo, 1958.
- HE Hoem, Edvard: *Gi meg de brennende hjerter 1: Melding frå Petrograd*. Samlaget, Oslo, 1978.
- HR Hovland, Ragnar: *Alltid fleire dagar*. Samlaget, Oslo, 1979.
- JA Jensen, Axel: *Ikaros: ung mann i Sahara*. Cappelen, Oslo, 1957.
- JG Johannesen, Georg: *Høst i mars: roman*. Gyldendal, Oslo, 1957.
- JJ Jensen, Jan H.: *Døden er stamgjest*. Bladkompaniet, Oslo, 1977.
- OT Obrestad, Tor: *Stå på!: roman om ein arbeidskonflikt*. Gyldendal, Oslo, 1976.
- SE Sundland, Egil: *Tjuv bankar på: roman*. Gyldendal, Oslo, 1960.
- SH Sande, Hans: *Lebensraum: legeroman*. Gyldendal, Oslo, 1980.
- ST Stigen, Terje: *Frode budbæreren: roman*. Gyldendal, Oslo, 1957.
- UR Ulstein, Ragnar: *Harpegjengen: roman*. Samlaget, Oslo, 1961.
- VV Vigerust, Vegard: *Guten som ville kjøpe Norsk Rikskringkasting: roman*. Gyldendal, Oslo, 1957.

Note: For some books, the publication year is different from the one provided on <http://kh.hd.uib.no/tactweb/nta-lst.htm>. The information above is taken from BIBSYS, the Norwegian academic library system. I do not know the reason for these discrepancies.

Appendix 3: Web page sources of examples

Chapter 4

Ex. (45): <http://195.1.175.175/okonomi/90088.html>

Chapter 6

Ex. (5): <http://www.samfundet.ntnu.no/itk/Dokumentasjon/unixback.html>.

Ex. (86): <http://www.aperitif.no/bartender/S/>

Ex. (100): <http://www.apollon.uio.no/apollon03-99/1.html>

Ex. (101): <http://dodrt.dod.no/vaalerbanen/00/vb2406kaa.htm>

Chapter 7

Ex. (39): <http://www.nrpa.no/Top/Rapport/97-1/Str797-1.htm>

Ex. (41): <http://www.futurepreview.com/Articles/norge2030-terje.html>

Ex. (42): <http://www.pensjonistforbundet.no/brosjyrer/program-innhold.html>

Ex. (44): http://www.helgeland.com/guido/helgeland_11.htm

Ex. (45): <http://www.bilogbaat.com/charter/opplkroat.html>

Ex. (64): <http://www.infm.com/xij/recommendation.htm>

Ex. (65): <http://www.standupforkids.org/bozeman.html>

Appendix 4: Noun forms included in searches

Noun	Meaning	Forms included in the search
Group nouns		
bunke	'pile'	indefinite: bunke, bunkar, bunker definite: bunken, bunkane, bunkene
bunt	'bunch'	indefinite: bunt, buntar, bunter definite: bunten, buntane, buntene
flokk	'flock'	indefinite: flokk, flokkar, flokker definite: flokken, flokkane, flokkene
knippe	'bunch'	indefinite: knippe, knipper definite: knippet, knippa, knippene
skokk	'crowd'	indefinite: skokk, skokkar, skokker definite: skokken, skokkane, skokkene
stabel	'pile'	indefinite: stabel, stablar, stabler definite: stabelen, stablane, stablene
stim	'shoal'	indefinite: stim, stimar, stimer definite: stimen, stimane, stimene
sverm	'swarm'	indefinite: sverm, svermar, svermer definite: svermen, svermane, svermene
Container nouns		
boks	'can, tin'	indefinite: boks, boksar, bokser definite: boksen, boksane, boksene
flaske	'bottle'	indefinite: flaske, flasker definite: flaska, flasken, flaskene
glas	'glass'	indefinite: glas, glass definite: glas(s)et, glas(s)a, glas(s)ene
kasse	'case, box'	indefinite: kasse, kassar, kasser definite: kassen, kassa, kassane, kassene
korg	'basket'	indefinite: korg, kurv, korgar, kurver definite: korga, korgen, kurva, kurven, korgene, kurvene
pakke	'packet'	indefinite: pakke, pakkar, pakker definite: pakken, pakka, pakkane, pakkene
sekk	'sack'	indefinite: sekk, sekker, sekkar definite: sekken, sekkene, sekkane
tønne	'barrel'	indefinite: tønne, tunne, tynne, tønner, tunner, tynner definite: tønna, tønne, tunna, tynna, tønnene, tunnene, tynnene
Indefinite numeral nouns		
antall	'number'	antall, antal
brote	'multitude'	brote, bråte
drøss	'multitude'	drøss
fåtal	'small number'	fåtal, fåtall
utal	'uncountable number'	utal, utall

References

The Norwegian letters *æ*, *ø*, and *å* (*aa*) have been alphabetized after *z* as the last three letters of the alphabet.

Abney, Steven Paul

- 1987 *The English Noun Phrase in Its Sentential Aspect*. Ph.D. dissertation, Massachusetts Institute of Technology, Cambridge, Massachusetts.

Akmajian, Adrian and Adrienne Lehrer

- 1976 NP-Like Quantifiers and the Problem of Determining the Head of an NP. In *Linguistic Analysis* 2 (4): 395–413.

Andrews, Avery

- 1985 The major functions of the noun phrase. In Timothy Shopen (ed.): *Language typology and syntactic description*. Vol. I: *Clause structure*, 62–154. Cambridge University Press, Cambridge.

Angelo, Thomas Anthony

- 1987 *What's a Bunch? Integrating and Applying Syntactic, Semantic, and Sociolinguistic Analyses to Explain the Partitive Construction in English*. Doctor of Education dissertation, Harvard University, Cambridge, Massachusetts.

Anttila, Raimo

- 1989 *Historical and Comparative Linguistics* (second ed.). John Benjamins, Amsterdam.

Babby, Leonard H.

- 1987 Case, Prequantifiers, and Discontinuous Agreement in Russian. In *Natural Language and Linguistic Theory* 5 (1), 91–138.

Battye, Adrian

- 1991 Partitive and pseudo-partitive revisited: Reflections on the status of 'de' in French. In *Journal of French language Studies* 1, 21–43.

Beito, Olav T.

- 1986 *Nynorsk grammatikk. Lyd- og ordlære* (second ed.). Det Norske Samlaget, Oslo.

Biermann, Anna

- 1982 Die grammatische Kategorie Numerus. In Hansjakob Seiler and Christian Lehmann (eds.): *Apprehension. Das sprachliche Erfassen von Gegenständen*.

REFERENCES

- Part I: *Bereich und Ordnung der Phänomene*, 229–243. Gunter Narr, Tübingen.
- Blake, Barry J.
 1994 *Case*. Cambridge University Press, Cambridge.
- Brendemoen, Bernt and Even Hovdhaugen
 1992 *Tyrkisk grammatikk*. Universitetsforlaget, Oslo.
- Brugman, Claudia M.
 1988 *The Story of Over: Polysemy, Semantics, and the Structure of the Lexicon*. Garland, New York.
- Buvet, Pierre-André
 1994 Détermination: les noms. In *Linguisticæ Investigationes XVIII* (1), 121–150.
- Cadiot, Pierre
 1997 Les paramètres de la notion de préposition incolore. In *Faits de Langues. Revue de linguistique 9: La préposition: une catégorie accessoire?*, 127–134.
- Campe, Petra
 1997 Genitives and *von*-datives in German: A case of free variation? In Marjolijn Verspoor, Kee Dong Lee, and Eve Sweetser (eds.): *Lexical and Syntactical Constructions and the Construction of Meaning. Proceedings of the Bi-annual ICLA Meeting in Albuquerque, July 1995*, 165–185. John Benjamins, Amsterdam.
- Chomsky, Noam
 1981 *Lectures on Government and Binding*. Foris, Dordrecht.
- Coleman, Robert
 1992 Italic. In Jadranka Gvozdanovic (ed.): *Indo-European Numerals*, 389–445. Mouton de Gruyter, Berlin.
- Cook, Haruko Minegishi
 1993 Schematic values of the Japanese nominal particles *wa* and *ga*. In Richard A. Geiger and Brygida Rudzka-Ostyn (eds.): *Conceptualizations and Mental Processing in Language*, 371–397. Mouton de Gruyter, Berlin.
- Corbett, Greville G.
 1978a Universals in the syntax of cardinal numerals. In *Lingua* 46, 355–368.
 1978b Numerous squishes and squishy numerals in Slavonic. In *International Review of Slavic Linguistics* 3, 43–73.
 1993 The head of Russian numeral expressions. In Greville G. Corbett, Norman M. Fraser, and Scott McGlashan (eds.): *Heads in grammatical theory*, 11–35. Cambridge University Press, Cambridge.
 2000 *Number*. Cambridge University Press, Cambridge.

REFERENCES

Croft, William

- 1990a *Typology and universals*. Cambridge University Press, Cambridge.
- 1990b A Conceptual Framework for Grammatical Categories (or: A Taxonomy of Propositional Acts). In *Journal of Semantics* 7, 245–280.
- 1991 *Syntactic Categories and Grammatical Relations. The Cognitive Organization of Information*. The University of Chicago Press, Chicago.
- 1996 What's a Head? In Johan Rooryck and Laurie Zaring (eds.): *Phrase Structure and the Lexicon*, 35–75. Kluwer Academic Publishers, Dordrecht.
- 1998 Linguistic evidence and mental representations. In *Cognitive Linguistics* 9 (2), 151–173.
- 2000 *Explaining Language Change. An Evolutionary Approach*. Longman, Harlow.

Cuyckens, Hubert

- 1993 The Dutch spatial preposition “in”: A cognitive-semantic analysis. In Cornelia Zelinsky-Wibbelt (ed.): *The Semantics of Prepositions. From Mental Processing to Natural Language Processing*, 27–71. Mouton de Gruyter, Berlin.
- 1997 Prepositions in Cognitive Lexical Semantics. In Dagmar Haumann and Stefan J. Schierholz (eds.): *Lexikalische und grammatische Eigenschaften präpositionaler Elemente*, 63–82. Max Niemeyer, Tübingen.

Daugaard, Jan

- 1994 Mængdehelheder. In Irène Baron (ed.): *NORDLEX-Projektet. Sammensatte substantiver i dansk*, 39–56. Institut for Datalogistik, Handelshøjskolen i København, Copenhagen.

Delbecque, Nicole

- 1996 Towards a cognitive account of the use of the prepositions *por* and *para* in Spanish. In Eugene H. Casad (ed.): *Cognitive Linguistics in the Redwoods. The Expansion of a New Paradigm in Linguistics*, 249–318. Mouton de Gruyter, Berlin.

Delsing, Lars-Olof

- 1993 *The Internal Structure of Noun Phrases in the Scandinavian Languages. A Comparative Study*. University of Lund, Lund.

Diderichsen, Paul

- 1957 *Elementær Dansk Grammatik* (second ed.). Gyldendal, København.

Dirven, René and Günter Radden

- forthc. *Cognitive English Grammar*. John Benjamins, Amsterdam. [expected to appear in 2002].

REFERENCES

Drossard, Werner

- 1982 Die Technik MASSE/MESSEN auf der Dimension der Apprehension. In Hansjakob Seiler and Christian Lehmann (eds.): *Apprehension. Das sprachliche Erfassen von Gegenständen. Part I: Bereich und Ordnung der Phänomene*, 98–111. Gunter Narr, Tübingen.

Dunn, C.J. and S. Yanada

- 1958 *Teach Yourself Japanese*. English Universities Press, London.

Dyvik, Helge J.J.

- 1979 Omkring fremveksten av artiklene i norsk. Språklig markering av referensielle forutsetninger. In *Maal og Minne* 1979 (1–2), 40–78.

Endresen, Rolf Theil

- 1988 Morfologi. In Hanne Gram Simonsen, Rolf Theil Endresen, and Even Hovdhaugen (eds.): *Språkvitenskap. En elementær innføring*, 76–140. Universitetsforlaget, Oslo.
- 1996 Kognitiv lingvistikk og kognitiv grammatikk. In *Norsk Lingvistisk Tidsskrift* 14, 97–103.

Enger, Hans-Olav

- 1998 *The classification of strong verbs in Norwegian with special reference to the Oslo dialect. A study in inflectional morphology*. Scandinavian University Press/Faculty of Arts, University of Oslo, Oslo.

Erben, Johannes

- 2000 *Einführung in die deutsche Wortbildungslehre* (fourth ed.). Erich Schmidt, Berlin.

Eschenbach, Carola

- 1995 *Zählangaben – Maßangaben. Bedeutung und konzeptuelle Interpretation von Numeralia*. Deutscher Universitäts-Verlag, Wiesbaden.

Fabb, Nigel

- 1994 *Sentence Structure*. Routledge, London.

Fauconnier, Gilles

- 1999 Methods and generalizations. In Theo Janssen and Gisela Redeker (eds.): *Cognitive Linguistics: Foundations, Scope, and Methodology*, 95–127. Mouton de Gruyter, Berlin.

Findreng, Ådne

- 1976 *Zur Kongruenz in Person und Numerus zwischen Subjekt und finitem Verb im modernen Deutsch*. Universitetsforlaget, Oslo.

REFERENCES

- Fladby, Rolf, Steinar Imsen, and Harald Winge (eds.)
 1974 *Norsk historisk leksikon. Næringsliv, rettsvesen, administrasjon, mynt, mål og vekt, militære forhold, byggeskikk m.m. 1500–1850.* Cappelen, Oslo.
- Fretheim, Thorstein
 1969 Case Grammar and the Preposition *med* in Standard Colloquial Norwegian. In *Tilegnet Carl Hj. Borgstrøm. Et festskrift på 60-årsdagen 12.10.1969 fra hans elever*, 30–48. Universitetsforlaget, Oslo.
- Fritzner, Johan
 1973 *Ordbog over det gamle norske sprog* (fourth ed.). Universitetsforlaget, Oslo.
- Faarlund, Jan Terje
 1974 Preposisjonsuttrykk innledet av *med* i moderne norsk. In *Norwegian Journal of Linguistics* 28 (1), 45–62.
 1988 *Morfologi. Bøyingssystemet i nynorsk og bokmål.* Det Norske Samlaget, Oslo.
- Faarlund, Jan Terje, Svein Lie, and Kjell Ivar Vannebo
 1997 *Norsk referansegrammatikk.* Universitetsforlaget, Oslo.
- Geerts, G., W. Haeseryn, J. de Rooij, and M.C. van den Toorn (eds.)
 1984 *Algemene Nederlandse Spraakkunst.* Wolters-Noordhoff, Groningen.
- Greenberg, Joseph H.
 1978 Generalizations About Numeral Systems. In Joseph H. Greenberg, Charles A. Ferguson, and Edith A. Moravcsik (eds.): *Universals of Human Language*. Vol. 3: *Word Structure*, 249–295. Stanford University Press, Stanford, California.
- Grinevald, Colette
 2000 A morphosyntactic typology of classifiers. In Gunter Senft (ed.): *Systems of Nominal Classification*, 50–92. Cambridge University Press, Cambridge.
- de Haas, Wim and Mieke Trommelen
 1993 *Morfologisch Handboek van het Nederlands. Een overzicht van de woordvorming.* SDU Uitgeverij, the Hague.
- Haiman, John
 1985 *Natural syntax. Iconicity and erosion.* Cambridge University Press, Cambridge.
- Hansen, Erik
 1971 Jensen er nede i postkassen med et brev. Konstruktioner med consubjectum i moderne dansk. In *Danske Studier* 66, 5–36.
- Harris, Alice C. and Lyle Campbell
 1995 *Historical syntax in cross-linguistic perspective.* Cambridge University Press, Cambridge.

REFERENCES

- Haugen, Odd Einar
 1998 *Grunnbok i norrønt språk* (third ed.). Ad Notam Gyldendal, Oslo.
- Heine, Bernd
 1993 *Auxiliaries. Cognitive Forces and Grammaticalization*. Oxford University Press, New York.
 1997a *Cognitive Foundations of Grammar*. Oxford University Press, New York.
 1997b *Possession. Cognitive sources, forces, and grammaticalization*. Cambridge University Press, Cambridge.
- Heine, Bernd, Ulrike Claudi, and Friederike Hünнемeyer
 1991 *Grammaticalization. A Conceptual Framework*. The University of Chicago Press, Chicago.
- Hellan, Lars
 1986 The Headedness of NPs in Norwegian. In Pieter Muysken and Henk van Riemsdijk (eds.): *Features and Projections*, 89–122. Foris, Dordrecht.
- Heltoft, Lars
 1996 Det danske nominals udtryks- og indholdssyntaks – et dependens-analytisk forsøg. In *Ny forskning i grammatik. Fællespublikation 3, Kollekollekollokviet 1995*, 7–34. Odense Universitetsforlag, Odense.
- Herskovits, Annette
 1988 Spatial Expressions and the Plasticity of Meaning. In Brygida Rudzka-Ostyn (ed.): *Topics in Cognitive Linguistics*, 271–297. John Benjamins, Amsterdam.
- Hewson, John
 1991 Determiners as heads. In *Cognitive Linguistics* 2 (4), 317–337.
- Holenstein, Elmar
 1982 Das Erfassen von Gegenständen in perzeptiver und sprachlicher Hinsicht. In Hansjakob Seiler and Christian Lehmann (eds.): *Apprehension. Das sprachliche Erfassen von Gegenständen. Part I: Bereich und Ordnung der Phänomene*, 15–25. Gunter Narr, Tübingen.
- Honti, László
 1993 *Die Grundzahlwörter der uralischen Sprachen*. Akadémiai Kiadó, Budapest.
- de Hoop, Helen
 1998 Partitivity. In *Glott International* 3 (2), 3–10.
- Hopper, Paul J.
 1991 On Some Principles of Grammaticization. In Elizabeth Closs Traugott and Bernd Heine (eds.): *Approaches to grammaticalization. Vol. I: Focus on theoretical and methodological issues*, 17–35. John Benjamins, Amsterdam.

REFERENCES

- Hopper, Paul J. and Elizabeth Closs Traugott
 1993 *Grammaticalization*. Cambridge University Press, Cambridge.
- Hurford, James R.
 1975 *The Linguistic Theory of Numerals*. Cambridge University Press, Cambridge.
 1987 *Language and Number. The Emergence of a Cognitive System*. Basil Blackwell, Cambridge, Massachusetts.
- Indrebø, Gustav
 1951 *Norsk målsoga*. Published by Per Hovda and Per Thorsson, John Griegs Boktrykkeri, Bergen.
- [*Íslendinga sögur*]
 1996 *Íslendinga sögur. Orðstöðulykill og texti*. Mál og menning, Reykjavík. [CD-ROM, text edited by Bragi Halldórsson, Jón Torfason, Sverrir Tómasson, and Örnólfur Thorsson]
- Iversen, Ragnvald
 1918 *Syntaksen i Tromsø bymaal. En kort oversigt*. Bymaals-lagets forlag, Kristiania.
 1932 *Bokmål og talemål i Norge 1560–1630. Vol. I: Utsyn over formverket*. Jacob Dybwad, Oslo.
 1972 *Norrøn grammatikk* (seventh ed.). Tano, Oslo.
- Jackendoff, Ray S.
 1968 Quantifiers in English. In *Foundations of Language* 4, 422–442.
 1977 *X' Syntax: A Study of Phrase Structure*. The MIT Press, Cambridge, Massachusetts.
- Jansson, Sam Owen
 1936 Mått, mål och vikt i Sverige till 1500-talets mitt. In Svend Aakjær (ed.): *Maal og Vægt (Nordisk Kultur XXX)*, 1–57. Albert Bonnier, Stockholm.
- Jespersen, Otto
 1924 *The Philosophy of Grammar*. George Allen & Unwin, London.
- Johannessen, Janne Bondi
 1993 *Coordination: a minimalist approach*. Dr.art. dissertation, University of Oslo, Oslo.
- Jones, T.J. Rhys
 1977 *Teach Yourself Living Welsh*. Hodder and Stoughton, Sevenoaks (UK).
- Kabata, Kaori and Sally Rice
 1997 Japanese *ni*: The Particulars of a somewhat Contradictory Particle. In Marjolijn Verspoor, Kee Dong Lee, and Eve Sweetser (eds.): *Lexical and Syntactical Constructions and the Construction of Meaning. Proceedings of the*

REFERENCES

- Bi-annual ICLA Meeting in Albuquerque, July 1995*, 107–127. John Benjamins, Amsterdam.
- Karlsson, Fred
 1975 *Finsk grammatik*. Suomalaisen Kirjallisuuden Seura, Helsinki.
- Katamba, Francis
 1993 *Morphology*. Macmillan, Basingstoke.
- Katz, Elisabeth
 1982 Zur Distribution von Kompositum und Nominalgruppe im Deutschen. Ein Beitrag zur Dimension der Apprehension. In Hansjakob Seiler and Christian Lehmann (eds.): *Apprehension. Das sprachliche Erfassen von Gegenständen*. Part I: *Bereich und Ordnung der Phänomene*, 112–129. Gunter Narr, Tübingen.
- Kemmer, Suzanne and Michael Barlow
 2000 Introduction: A Usage-Based Conception of Language. In Michael Barlow and Suzanne Kemmer (eds.): *Usage-Based Models of Language*, vii–xxviii. CSLI, Stanford, California.
- Kemmer, Suzanne E. and Hava Bat-Zeev Shyldkrot
 1996 The semantics of “empty prepositions” in French. In Eugene H. Casad (ed.): *Cognitive Linguistics in the Redwoods. The Expansion of a New Paradigm in Linguistics*, 347–388. Mouton de Gruyter, Berlin.
- Kinn, Torodd
 1994 *Prepositional phrases in Norwegian. Internal structure and external connections – an LFG analysis*. Department of Linguistics and Phonetics, University of Bergen, Bergen.
 1998 Drøssevis av forsømte avleiingar: ord på *-vis*. In *Nordica Bergensia* 19, 101–126.
 2000a Eit par tankar om *par*. In Øivin Andersen, Kjersti Fløttum and Torodd Kinn (eds.): *Menneske, språk og fellesskap. Festskrift til Kirsti Koch Christensen på 60-årsdagen 1. desember 2000*, 135–140. Novus forlag, Oslo.
 2000b Språk som sosiale objekt og forskjellen mellom noko og inkje. In Randi B. Brodersen and Torodd Kinn (eds.): *Språkvitskap og vitskapsteori. Ti nye vitskapsteoretiske innlegg*, 148–165. Ariadne forlag, Larvik.
- Knudsen, Trygve
 1967 *Kasuslære*. Vol. 2: *Dativ, genitiv*. Universitetsforlaget, Oslo.
- Kölver, Ulrike
 1982 Klassifikatoronstruktionen in Thai, Vietnamesisch und Chinesisch. Ein Beitrag zur Dimension der Apprehension. In Hansjakob Seiler and

REFERENCES

- Christian Lehmann (eds.): *Apprehension. Das sprachliche Erfassen von Gegenständen*. Part I: *Bereich und Ordnung der Phänomene*, 160–185. Gunter Narr, Tübingen.
- Koptjevskaja-Tamm, Maria
- forthc. 'A Piece of the Cake' and 'a Cup of Tea': Partitive and Pseudo-Partitive Nominal Constructions in the Circum-Baltic Languages. In Östen Dahl and Maria Koptjevskaja-Tamm (eds.): *The Circum-Baltic Languages: Their Typology and Contacts*. John Benjamins, Amsterdam. [expected to appear in 2001].
- Krifka, Manfred
- 1991 Massennomina. In Arnim von Stechow and Dieter Wunderlich (eds.): *Semantik. Ein internationales Handbuch der zeitgenössischen Forschung/ Semantics. An International Handbook of Contemporary Research*, 399–417. Walter de Gruyter, Berlin.
- Kristoffersen, Kristian Emil
- 2001 Semantic Structure of the Norwegian Preposition *mot*. In *Nordic Journal of Linguistics* 24 (1), 3–27.
- Krott, Andrea, R. Harald Baayen, and Robert Schreuder
- 2001 Analogy in morphology: modeling the choice of linking morphemes in Dutch. In *Linguistics* 39 (1), 51–93.
- Kvifte, Bjørn Harald
- 1978 *Den nye tellemåten – departementalt påfunn eller språkforbedring? Søkelys på tallreformen av 1951*. Cand.philol. thesis, Institutt for nordisk språk og litteratur, University of Oslo, Oslo.
- Lakoff, George
- 1987 *Women, Fire, and Dangerous Things. What Categories Reveal about the Mind*. The University of Chicago Press, Chicago.
- Lakoff, George and Mark Johnson
- 1980 *Metaphors We Live By*. The University of Chicago Press, Chicago.
- Lakoff, George and Rafael E. Núñez
- 1997 The Metaphorical Structure of Mathematics: Sketching Out Cognitive Foundations for a Mind-Based Mathematics. In Lyn D. English (ed.): *Mathematical Reasoning. Analogies, Metaphors, and Images*, 21–89. Lawrence Erlbaum Associates, Mahwah, New Jersey.
- Langacker, Ronald W.
- 1987 *Foundations of Cognitive Grammar*. Vol. I: *Theoretical Prerequisites*. Stanford University Press, Stanford, California.

REFERENCES

- 1988a An Overview of Cognitive Grammar. In Brygida Rudzka-Ostyn (ed.): *Topics in Cognitive Linguistics*, 3–48. John Benjamins, Amsterdam.
- 1988b A View of Linguistic Semantics. In Brygida Rudzka-Ostyn (ed.): *Topics in Cognitive Linguistics*, 49–90. John Benjamins, Amsterdam.
- 1988c The Nature of Grammatical Valence. In Brygida Rudzka-Ostyn (ed.): *Topics in Cognitive Linguistics*, 91–125. John Benjamins, Amsterdam.
- 1988d A Usage-Based Model. In Brygida Rudzka-Ostyn (ed.): *Topics in Cognitive Linguistics*, 127–161. John Benjamins, Amsterdam.
- 1991a *Concept, Image, and Symbol. The Cognitive Basis of Grammar*. Mouton de Gruyter, Berlin.
- 1991b *Foundations of Cognitive Grammar. Vol. II: Descriptive Application*. Stanford University Press, Stanford, California.
- 1992 The symbolic nature of cognitive grammar: The meaning of *of* and *of of*-periphrasis. In Martin Pütz (ed.): *Thirty Years of Linguistic Evolution. Studies in Honour of René Dirven on the Occasion of his Sixtieth Birthday*, 483–502. John Benjamins, Amsterdam.
- 1999 *Grammar and Conceptualization*. Mouton de Gruyter, Berlin.
- 2000 A Dynamic Usage-Based Model. In Michael Barlow and Suzanne Kemmer (eds.): *Usage-Based Models of Language*, 1–63. CSLI, Stanford, California.
- van Langendonck, Willy
- 1994 Determiners as heads? In *Cognitive Linguistics* 5 (3), 243–259.
- Lauritsen, Vibeke
- 1995 *Femognitti eller nittifem? Ei gransking av gjennomføringa av den nye teljemåten*. Cand.philol. thesis, Agder University College, Kristiansand / University of Oslo, Oslo.
- Lawrenz, Birgit
- 1993 *Apposition. Begriffsbestimmung und syntaktischer Status*. Gunter Narr, Tübingen.
- Leira, Vignleik
- 1992 *Ordlaging og ordelement i norsk*. Det Norske Samlaget, Oslo.
- Link, Godehard
- 1991 Plural. In Arnim von Stechow and Dieter Wunderlich (eds.): *Semantik. Ein internationales Handbuch der zeitgenössischen Forschung/ Semantics. An International Handbook of Contemporary Research*, 418–440. Walter de Gruyter, Berlin.

REFERENCES

Löbel, Elisabeth

- 1986 *Apposition und Komposition in der Quantifizierung. Syntaktische, semantische und morphologische Aspekte quantifizierender Nomina im Deutschen*. Max Niemeyer, Tübingen.

Lundeby, Einar

- 1965 *Overbestemt substantiv i norsk og de andre nordiske språk*. Universitetsforlaget, Oslo.

Lyons, John

- 1968 *Introduction to Theoretical Linguistics*. Cambridge University Press, Cambridge.

Lødrup, Helge

- 1989 *Norske hypotagmer. En LFG-beskrivelse av ikke-verbale hypotagmer*. Novus, Oslo.

Lønning, Jan-Tore

- 1987 Mass terms and quantification. In *Linguistics and Philosophy* 10, 1–52.

Menninger, Karl

- 1969 *Number Words and Number Symbols. A Cultural History of Numbers*. The M.I.T. Press, Cambridge, Massachusetts.

Nichols, Johanna

- 1986 Head-marking and dependent-marking grammar. In *Language* 62 (1), 56–119.

Nikiforidou, Kiki

- 1991 The meanings of the genitive: A case study in semantic structure and semantic change. In *Cognitive Linguistics* 2 (2), 149–205.

Nilsen, Don L.F.

- 1973 *The Instrumental Case in English*. Mouton, The Hague.

Næs, Olav

- 1972 *Norsk grammatikk. Elementære strukturer og syntaks* (third ed.). Fabritius, Oslo.

van Oirsouw, Robert R.

- 1987 *The Syntax of Coordination*. Croom Helm, London.

Olsson, Magnus

- 1997 *Swedish numerals in an international perspective*. Lund University Press, Lund.

REFERENCES

Paraschkewoff, Boris

- 1976 Zur Entstehungs- und Entwicklungsgeschichte der Bildungen auf -weise (Teil 1). In *Beiträge zur Geschichte der deutschen Sprache und Literatur* [Halle] 97, 165–211.

Payne, John R.

- 1985 Complex phrases and complex sentences. In Timothy Shopen (ed.): *Language typology and syntactic description*. Vol. II: *Complex constructions*, 3–41. Cambridge University Press, Cambridge.
- 1993 The headedness of noun phrases: slaying the nominal hydra. In Greville G. Corbett, Norman M. Fraser, and Scott McGlashan (eds.): *Heads in grammatical theory*, 114–139. Cambridge University Press, Cambridge.

Pokorny, Julius

- 1959 *Indogermanisches etymologisches Wörterbuch*. Francke, Bern.

Radden, Günter

- 1997 Die Konzeptualisierung emotionaler Kausalität durch Präpositionalphrasen. In Dagmar Haumann and Stefan J. Schierholz (eds.): *Lexikalische und grammatische Eigenschaften präpositionaler Elemente*, 47–62. Max Niemeyer, Tübingen.
- 2000 How metonymic are metaphors? In Antonio Barcelona (ed.): *Metaphor and Metonymy at the Crossroads: A Cognitive Perspective*, 93–108. Mouton de Gruyter, Berlin.

Rauh, Gisa

- 1997 Englische Präpositionen zwischen lexikalischen und funktionalen Kategorien. In Elisabeth Löbel and Gisa Rauh (eds.): *Lexikalische Kategorien und Merkmale*, 125–167. Max Niemeyer, Tübingen.

Ross, Alan S.C. and Jan Berns

- 1992 Germanic. In Jadranka Gvozdanovic (ed.): *Indo-European Numerals*, 555–715. Mouton de Gruyter, Berlin.

Rønhovd, Jarle

- 1993 *Norsk morfologi*. Ad Notam Gyldendal, Oslo.

Sandra, Dominiek

- 1998 What linguists can and can't tell you about the human mind: A reply to Croft. In *Cognitive Linguistics* 9 (4), 361–378.

Sandra, Dominiek and Sally Rice

- 1995 Network analyses of prepositional meaning: Mirroring whose mind – the linguist's or the language user's? In *Cognitive Linguistics* 6 (1), 89–130.

REFERENCES

- Sandøy, Helge
 1985 *Norsk dialektkunnskap*. Novus, Oslo.
- Schepping, Marie-Theres
 1991 The lexical meaning of the French preposition *contre*. In Gisa Rauh (ed.): *Approaches to Prepositions*, 225–252. Gunter Narr, Tübingen.
- Schlesinger, I.M.
 1979 Cognitive structures and semantic deep structures; the case of the instrumental. In *Journal of Linguistics* 15, 307–324.
- Schulze, Rainer
 1993 The meaning of (a)round: A study of an English preposition. In Richard A. Geiger and Brygida Rudzka-Ostyn (eds.): *Conceptualizations and Mental Processing in Language*, 399–431. Mouton de Gruyter, Berlin.
- Schütze, Carson T.
 1996 *The Empirical Base of Linguistics. Grammaticality Judgments and Linguistic Methodology*. The University of Chicago Press, Chicago.
- Seiler, Hansjakob
 1986 *Apprehension. Language, Object, and Order. Part III: The Universal Dimension of Apprehension*. Gunter Narr, Tübingen.
- Selkirk, Elisabeth
 1977 Some Remarks on Noun Phrase Structure. In Peter W. Culicover, Thomas Wasow, and Adrian Akmajian (eds.): *Formal Syntax*, 285–316. Academic Press, New York.
- Stampe, David
 1976 Cardinal Number Systems. In Salikoko S. Mufwene, Carol A. Walker, and Sanford B. Steever (eds.): *Papers from the 12th Regional Meeting. Chicago Linguistic Society*, 594–609. Chicago Linguistic Society, Chicago.
- Starke, Günter
 1973 Beiwörter auf “-weise”. In *Sprachpflege* 7, 140–144.
- Stassen, Leon
 1985 *Comparison and Universal Grammar*. Basil Blackwell, Oxford.
- Steinnes, Asgaut
 1936 Mål, vekt og verderekning i Noreg i millomalderen og ei tid etter. In Svend Aakjær (ed.): *Maal og Vægt (Nordisk Kultur XXX)*, 84–154. Albert Bonnier, Stockholm.
- Stolz, Thomas
 2001 To be with X is to have X: comitatives, instrumentals, locative, and predicative possession. In *Linguistics* 39 (2): 321–350.

REFERENCES

Svensson, Patrik

- 1998 *Number and Countability in English Nouns. An embodied model.* Swedish Science Press, Uppsala.

Sweetser, Eve

- 1999 Compositionality and blending: semantic composition in a cognitively realistic framework. In Theo Janssen and Gisela Redeker (eds.): *Cognitive Linguistics: Foundations, Scope, and Methodology*, 129–162. Mouton de Gruyter, Berlin.

Taylor, John R.

- 1988 Contrasting Prepositional Categories: English and Italian. In Brygida Rudzka-Ostyn (ed.): *Topics in Cognitive Linguistics*, 299–326. John Benjamins, Amsterdam.
- 1995 *Linguistic Categorization. Prototypes in Linguistic Theory* (second ed.). Clarendon, Oxford.
- 1996 *Possessives in English. An Exploration in Cognitive Grammar.* Clarendon, Oxford.

Teleman, Ulf

- 1969 *Definita och indefinita attribut i nusvenskan.* Studentlitteratur, Lund.

Timberlake, Alan

- 1977 Reanalysis and Actualization in Syntactic Change. In Charles N. Li (ed.): *Mechanisms of Syntactic Change*, 141–177. University of Texas Press, Austin.

Tompa, József

- 1972 *Kleine ungarische Grammatik.* Akadémiai Kiadó, Budapest.

Torp, Arne

- 1973 Om genitivsomskrivninger og -s-genitiv i norsk. In *Maal og Minne 1973* (3–4), 124–150.

Traugott, Elizabeth Closs and Bernd Heine (eds.)

- 1991a *Approaches to grammaticalization. Vol. I: Focus on theoretical and methodological issues.* John Benjamins, Amsterdam.
- 1991b *Approaches to grammaticalization. Vol. II: Focus on types of grammatical markers.* John Benjamins, Amsterdam.

Vandeloise, Claude

- 1992 Representation, prototypes, and centrality. In S.L. Tsohatzidis (ed.): *Meanings and Prototypes. Studies in linguistic categorization*, 403–437. Routledge, London.

REFERENCES

- Vangsnes, Øystein Alexander
 1999 *The Identification of Functional Architecture*. Dr.art. dissertation, University of Bergen, Bergen.
- Vannebo, Kjell Ivar
 1972 Gjenstandshelhetenes oppbygning i norsk. In *Maal og Minne* 1972 (3–4), 28–65.
- Vincent, Nigel
 1993 Head- versus dependent-marking: the case of the clause. In Greville G. Corbett, Norman M. Fraser, and Scott McGlashan (eds.): *Heads in grammatical theory*, 140–163. Cambridge University Press, Cambridge.
- Vos, Riet
 1999 *A Grammar of Partitive Constructions*. Doctoral dissertation, Tilburg University, Tilburg.
- Western, Aug.
 1921 *Norsk riksmåls-grammatikk for studerende og lærere*. Aschehoug, Kristiania.
- Wierzbicka, Anna
 1986 What's in a noun? (or: How do nouns differ in meaning from adjectives?). In *Studies in Language* 10 (2), 353–389.
- Wiese, Heike
 1997 *Zahl und Numerale. Eine Untersuchung zur Korrelation konzeptueller und sprachlicher Strukturen*. Akademie Verlag, Berlin.
- Windfuhr, Gernot L.
 1987 Persian. In Bernard Comrie (ed.): *The major languages of South Asia, the Middle East and Africa*, 108–131. Routledge, London.
- Zelinsky-Wibbelt, Cornelia
 1993 Introduction. In Cornelia Zelinsky-Wibbelt (ed.): *The Semantics of Prepositions. From Mental Processing to Natural Language Processing*, 1–24. Mouton de Gruyter, Berlin.
- Zwarts, Joost
 1997 Lexical and Functional Properties of Prepositions. In Dagmar Haumann and Stefan J. Schierholz (eds.): *Lexikalische und grammatische Eigenschaften präpositionaler Elemente*, 1–18. Max Niemeyer, Tübingen.