

## Norwegian Modals



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*by*

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*Kristin*

## List of abbreviations

DEF	definite article (suffix)
INF	infinitive
INFL	Inflection-projection (I)
IPP	Infinitive pro perfect
PART	particle
PASS	passive
PERF	perfect participle
PLUR	plural
PRES	present
PRET	preterite
PROG	progressive
REFL	reflexive particle
SUBJ2	past subjunctive (Konjunktiv zwei)



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# Chapter 1

## Introduction

### 1. Norwegian modals: main verbs and auxiliaries

The subject of this book are those linguistic elements in Norwegian the literature refers to as *modal verbs*, *modal auxiliaries*, or *modals*. For the most part, I will employ the term *modal*, as it is more neutral than the other two with regard to the categorial status of these linguistic elements.

The list of Norwegian modals serving as my (pre-theoretical) point of departure is determined by tradition. For every well-studied Germanic language, there is a canonical list of “proper modals,” determined by a long tradition going back to descriptive grammars. According to this tradition, the syntactically distinguishing trait of modals is their ability to take bare infinitival complements. However, an element is typically considered no less of a modal if it also takes all other kinds of complements, such as finite clauses or DP direct objects. Thus, according to this descriptive tradition, the class of modals includes elements with different properties, semantically and syntactically.

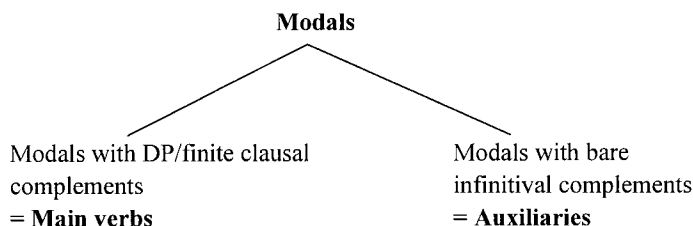
The confusion and lack of consensus surrounding the properties of modals stem from the failure to distinguish between modal auxiliaries and what I have dubbed modal main verbs. Modal auxiliaries take bare infinitival complements only. When a modal takes a DP direct object or a finite clause as its complement, it is no longer an auxiliary (a natural assumption, given wide-spread definitions of auxiliaries as dependent on the presence of a main verb complement).<sup>1</sup> It follows that the properties of modal main verbs should not be used to analyze the properties of modal auxiliaries or modals in general. In my view, any sound analysis of modal auxiliaries hinges on the distinction between modal main verbs and auxiliaries.

---

<sup>1</sup> There is an exception to this generalization: when a modal auxiliary takes as its complement a proform that semantically equals a verb phrase (a VP or IP), it is still an auxiliary, even though its complement is categorially a noun phrase (a DP). In a construction like *Jeg må dette* ‘I must (do) this’, the modal behaves like an auxiliary with respect to *do*-replacement in tag questions and ellipsis.

## 2 Introduction

Figure 1



When discussing *modals*, most authors aim to describe modal auxiliaries. However, the inventories of modals, typically inherited from traditional descriptive works, often include modal main verbs as some sort of stow-away, since modal main verbs have the same forms as modal auxiliaries.<sup>2</sup> Consequently, problems and confusion arise when the properties of modal main verbs are ascribed to modal auxiliaries. Distinguishing modal main verbs from modal auxiliaries hence brings a great deal of clarity to the picture.

My findings suggest that modal main verbs differ substantially from modal auxiliaries with regard to semantic and especially syntactic properties. Modal auxiliaries take bare infinitival complements and behave like raising verbs in most (though not all) respects. Modal main verbs take proper arguments (DPs and finite clauses) as direct objects and pattern with transitive lexical verbs with respect to *do*-replacement and passive formation. What they do have in common with modal auxiliaries is an overlapping lexical semantics. The main reasons for including modal main verbs in any investigation of modals are the fact that they are the lexical *Doppelgänger* of modal auxiliaries and the pressure of the descriptive tradition.<sup>3</sup>

My decision to include modal main verbs in the present investigation is only indirectly determined by tradition. The fact that modal main verbs have traditionally been considered modals is not reason enough to include them, if that leads to a confusion of terms. However, many authors have used the properties of modal main verbs to support analyses of modal auxiliaries, failing to distinguish between the two. An adequate response to such

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<sup>2</sup> This is not a problem for works exclusively concerned with Modern English modals, which take no complement besides bare infinitivals.

<sup>3</sup> Although there are also recent, more theoretically based works that seek a unified account for (what I call) modal main verbs and modal auxiliaries, e.g. the analysis of Dutch modals proposed in Barbiers (1995, 2002).

analyses thus requires a careful map of the entire landscape of modals; because of this, it becomes important to know the properties of modal main verbs and their position in this landscape.

Hence, in keeping with descriptive tradition, I have granted modal main verbs status as modals and allowed them into the revised inventory of Norwegian modals in Chapter 2, section 7. However, I emphasize that the properties of modal main verbs make them atypical representatives of the class of modals.

## **2. The central subjects of this investigation**

The literature on modals in Germanic languages is comprehensive: it covers a vast array of topics associated with these verbs and the debate never seems to fade. Some of the topics in this debate have been around for centuries (cf. Öhlschläger 1989: 19 ff.), reinvented and rephrased by new generations of linguists and philosophers. Thus, no contemporary work on Germanic modals can claim with any credibility to cover all aspects of this debate; at best, one can strive to shed some light on select aspects of the discussion.

The two main topics of this book, constituting the two major chapters, are the argument structure of Norwegian modals (Chapter 4) and their interaction with aspect and tense (Chapter 5). Chapters 2 and 3 present the preliminaries to the discussion in Chapters 4 and 5. Chapter 2 examines the morphological, semantic, and syntactic properties of Norwegian modals and offers a revised inventory of Norwegian modals, including an overview of their main readings. For comparison, I provide the inventories of modals in some closely related languages. Chapter 3 reviews 13 recent analyses of modals, starting with Roberts (1985) and Vikner (1988) as the earliest of these proposals and going all the way to van Gelderen (2003, 2004) as the most recent. With the exception of Picallo's (1990) paper, which deals with Romance modals, the proposals surveyed focus on modals in Germanic languages. In my review, I focus on what these proposals have to say about the two issues central to this investigation: the argument structure of modals and their possible insertion or merger point in a syntactic structure. The latter is a syntactico-centric take on how modals interact with major syntactico-semantic categories such as aspect and tense.

Chapter 6 offers a brief summary of what I consider the major achievements of the present work: it sums up the important empirical findings, generalizations, and theoretical innovations of this investigation.

### 3. The root-epistemic distinction

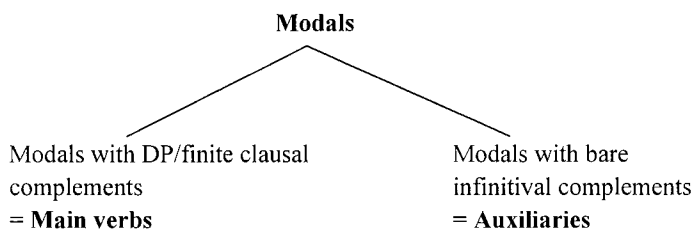
Almost every work on modals is, to some extent, concerned with the modal's ability to have two different readings. The *epistemic* reading qualifies the truth value of the proposition. The *root* reading denotes obligation, permission, or volition on behalf of a responsible agent. See (1), where the root reading is paraphrased in I, the epistemic in II.

- (1) a. *Jon må være på kontoret.*  
           Jon must be in office-DEF  
           ‘Jon must be in his office.’
- (I)       ‘Jon is obligated to be in his office.’
- (II)      ‘It must be the case that Jon is in his office.’

Cross-linguistically, modals and similar elements often display these two readings, and their ability to do so is considered a crucial and, in some works, defining property of modals. Thus, the root vs. epistemic distinction, established as the main opposition between modals by Hofmann (1976), has been an important topic in the modal literature.

In section 1, I stated that sometimes modals behave like transitive main verbs, notably when they take finite clauses or DPs as complements. A modal with a bare infinitival complement, I argue, is always an auxiliary (even if it takes DP or finite clausal complements in other cases); this assumption was illustrated in Figure 1, repeated here as Figure 2.

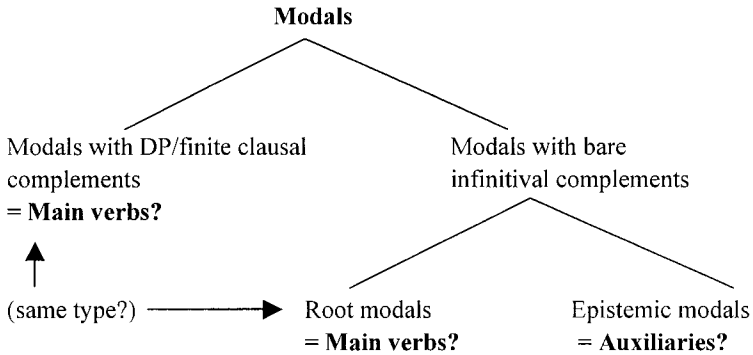
Figure 2





A recurring question in the literature on Germanic modals, however, has been whether (some or all) modals with a bare infinitival complement should be viewed as main verbs. More specifically, the discussion has revolved around the hypothesis that the set of modals that seem quite uniform in taking bare infinitival complements may still syntactically be two different categories—main verbs and auxiliaries. The aforementioned root vs. epistemic distinction is often considered the demarcation line, not only between the two types of readings, but also between two categorial syntactic types of modals.

Figure 3



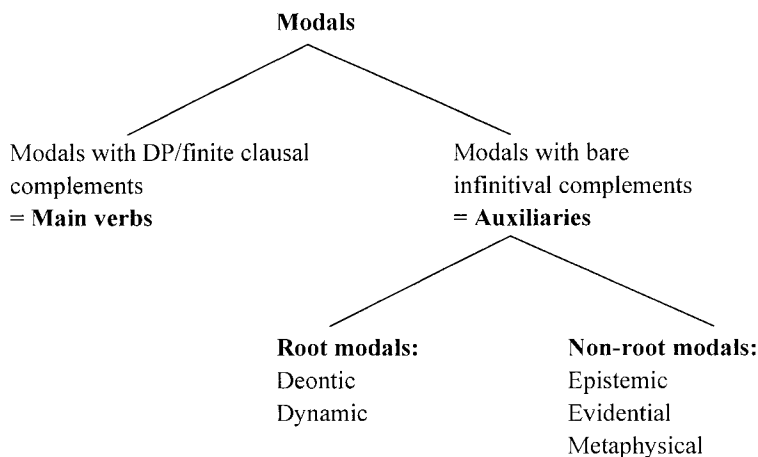
The two readings, root and epistemic, have often been claimed to covary with specific structural traits and, crucially, to differ with respect to a range of formal properties. These claims have given rise to a whole tradition of analyses, starting with Ross (1969). In this tradition, root modals are analyzed as some kind of control verbs (i.e. main verbs) and epistemic modals as raising verbs (e.g. auxiliaries). Accordingly, these analyses are known as “control versus raising” analyses.

I will examine and later reject the type of analysis suggested by Figure 3. According to my findings, both root and epistemic modals are modal auxiliaries, which is evident, for instance, from their behavior with respect to *do*-replacement in tag questions and ellipsis.

What has been called the *epistemic* readings of Germanic modals includes evidential and metaphysical readings (cf. below for a brief discussion of the terms). Thus, I will use the opposition *root* vs. *non-root* instead of the more familiar *root* vs. *epistemic*. Crucially, I use the term *non-root* for modals that “qualify the truth-value of a proposition;” these modals are

referred to as epistemic in many works.<sup>4</sup> Hence, my version of Figure 3 is presented in Figure 4.

Figure 4



Most syntactic works on modals use the opposition *root* vs. *epistemic*. Deviating from this practice thus deserves some justification. Although metaphysical modality (modality about the possible futures of a given situation) could easily be argued to be a variant of epistemic modality, one important reason to chose the cover term *non-root* for epistemic, metaphysical, and evidential readings is that many Germanic languages include at least one non-root modal with an *evidential* reading. As emphasized in many semantically based works on modals, epistemic modality is concerned with reasoning based on the speaker's (present) knowledge. Evidential modality, on the other hand, is concerned with the (speaker-external) evidence a speaker has for the truth of a given proposition (cf. Chapter 2, section 3 for a more detailed discussion of the terms). The relevant form of evidentiality in our case is hear-say or quotative evidentiality, which means that the speaker conveys a statement made by another party. This type of modality is actually not subsumed by the term *epistemic*. One important reason why authors ignore this fact is that none of the proper English modals have an evidential reading, and they have been center stage in modality research for

<sup>4</sup> In principle, even the modal main verbs on the left-most branch could be considered non-root, but I use the term non-root modal to exclude the modal main verbs.

many decades. However, the English compound *be supposed to* has an evidential reading in its non-root version; *John is supposed to be an architect* can mean that the speaker is reporting a claim, made by someone else, that John is an architect. This is exactly the reading we find with the German proper modal *sollen* and its Norwegian counterpart *skulle*.

In my analysis, modals include main verbs and auxiliaries. Modal auxiliaries include non-root modals—subsuming epistemic, metaphysical, and evidential modals—and root modals, subsuming deontic and dynamic modals. Each subtype of modal auxiliaries has particular syntactic and semantic properties. However, there is no convincing evidence that these subtypes belong to different categories syntactically; instead, I will argue that the differences can be explained on semantic grounds.

In this work, the question of the possibly different syntactic categorial status of root and non-root modals is rarely addressed explicitly. Nevertheless, it underlies the entire discussion. For instance, this question is relevant in addressing the alleged formal differences between root and non-root modals.

My findings suggest that most of the differences do not amount to sound generalizations. For instance, there are a variety of claims regarding the argument-taking properties of root and non-root modals; as mentioned above, these differences constitute the basis of many analyses in the Ross (1969) tradition. I address—and reject—these claims in Chapter 4. Root modals, just like non-root modals, can be construed as one-place (‘intransitive’, in Ross’ terms) predicates. Root modals differ from non-root ones in that they also allow a two-place construal; it is on this reading that root modals behave somewhat differently from non-root modals.

Furthermore, the claim that there is a finiteness requirement pertaining to non-root (or epistemic) modals but not to root ones is wide-spread. In Norwegian, even non-root modals may occur in non-finite forms (the infinitive and the perfect participle);<sup>5</sup> thus, this cannot be a universal constraint on non-root modals. There are also claims about the modal’s ability to interact with tense and aspect, depending on its reading as root or non-root. My findings show that the picture is a lot less clear than many authors, particularly within universalist approaches, have assumed. It is true that non-root modals are much less susceptible to tense alternations than their root counterparts, but contexts where such alternations are possible do ex-

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<sup>5</sup> The latter is not found in written standard dialects, but in northern and western dialects and in many other Germanic and Romance languages (cf. Chapter 5).

ist. However, different types of non-root modals (epistemic, evidential, and metaphysical) behave differently with regard to tense alternation.

It has also been widely claimed that root and non-root modals select for different aspect feature matrices of their complements: root modals allegedly select for dynamic (eventive) predicates only and non-root modals for stative predicates only (this is discussed in detail in Chapter 5). This claim is often supported with the assumption that root readings are impossible with progressive and perfect complements (which are in a sense stative aspectually). In (2a) the stative predicate gives rise to a non-root (epistemic) reading of the modal, in (2b) and (2c) the perfect and progressive complements, respectively, seem to yield no reading beside the non-root one (again, epistemic). However, note that when we add a purpose clause or a particular type of temporal adverbial, as in (2d), (2e), and (2f), the non-root reading becomes unnatural and the reading is root.

- (2) a. *Jon må virkelig like pannekaker.*  
Jon must really like pancakes  
'Jon must really like pancakes.'
- b. *Jon må ha spist.*  
Jon must have eaten  
'Jon must have eaten.'
- c. *The water must be boiling.*
- d. *Jon må virkelig like pannekaker*  
Jon must really like pancakes  
*for at svigermora skal like ham.*  
for that mother-in-law<sub>DEF</sub> shall like him.  
  
'Jon must really like pancakes  
for his mother-in-law to like him.'
- e. *Jon må ha spist før han kommer.*  
Jon must have eaten before he arrives  
'Jon must have eaten before he arrives.'
- f. *The water must be boiling*  
*when you pour it over the tomatoes.*

The analysis exploiting an ‘opposite selectional requirements’ approach can usually account for data like (2a), (2b), and (2c), but fails to account for data like (2d), (2e), and (2f). An analysis based on a universal ordering of syntactic heads, where the non-root (epistemic) modal has one fixed position above (i.e. preceding) the aspectual, and the root modal follows (and scopes under) the aspectual, faces the same issue. The data in (2) suggest instead that there is some kind of default-and-override system, where the stative, progressive, or perfect complement gives rise to a non-root reading of the modal by default. A root reading of the modal ensues when a purpose clause or a (future-denoting) temporal adverbial triggers an override effect on the semantic construal. It is hard to account for this ‘default-and-override’ pattern in a garden variety universalist approach; what we need is a more flexible system and in Chapter 5, I propose a compositional tense system for Norwegian.

There have also been recurring claims about the possible combinations of modals and other modals. This question has become particularly popular since the seminal work of Cinque (1999), who predicts that certain combinations and sequences ought to be possible and others not (but cf. also Thráinsson and Vikner 1995). My findings suggest that the range of possible combinations is in fact wider than predicted by Cinque; once again, the constraints seem to be semantically determined.

Only a few of the semantic and formal differences claimed to exist between root and non-root modals amount to sound generalizations for Norwegian modals, according to my investigations.

- (3) a. Only root modals take directional complements.
- b. Only root modals take a pseudoclefted complement.
- c. Only root modals take the definite VP-proform *dette* ‘this’ as a complement.
- d. A non-root modal will always scope over a root modal, if they occur in the same clause.

I argue in Chapter 5, section 6.2, that (3a) is explained on the assumption that directionals lack a potential truth value. Non-root modals target truth values and qualify them, but in a directional complement there is no tense element, hence no truth value to qualify.

(3b) and (3c) also concern the complement-taking properties of modals, in this case, the theta-properties of the modal. The correlate *det* ‘what’ of a pseudocleft complement and a definite VP-proform *dette* ‘this’ each occur

pies one argument role; in the constructions under consideration (4), the subject of the sentence (*Jeg* ‘I’ and *du* ‘you’) also depends on the modal for the assignment of a subject-role.

- (4) a. *Jeg må dette.*  
       I must this  
       ‘I must do this.’
- b. *Det du skal, er å sove.*  
       it you shall, is to sleep.  
       ‘What you must do, is to sleep.’

However, non-root modals can never be construed as two-place predicates (that is, not in a semantic level close to syntax); instead, they take the proposition, including the subject, as their one argument. Hence, they have no semantic role to assign to the subject. Root modals may be construed as two-place or one-place predicates, and only on their two-place reading may they take a pseudoclefted or a definite complement. It is plausible, then, that their complement-taking properties in some way depend on their ability to assign a semantic role to the subject. This could be argued to be a consequence of the semantic properties of root and non-root modals, not their categorial or syntactic status.

I have no satisfactory explanation for (3d). I have found no counterevidence to this generalization in any language included in this investigation. Neither have I found any convincing explanation for it (although an explanation rooted in the argument-taking properties of modals, such as the one in Thráinsson and Vikner (1995), takes us part of the way). It seems that we have to stipulate a universal relative order between non-root and root modals, along the lines of many (recent) universalist approaches. This subject is discussed in detail in Chapter 5.

#### 4. The framework

The general framework of this book is the (Chomskyan, generativist, structuralist) Principles and Parameters Theory, as outlined in Chomsky (1981, 1986a, 1986b, 1995a, 2000, 2001). No review of the general Principles and Parameters Theory (the P&P framework) is provided here. Readers unfa-

miliar with this theory may consult one or more introductory works such as Haegeman (1994), Radford (1997), or Adger (2003). Specific theoretical assumptions will be defined and discussed at relevant points in the discussion.

A fundamental assumption of the P&P research program is that the language capacity constitutes an autonomous component of the human brain, specific to all and only humans and part of the human genetic endowment. This designated component is often referred to as “Universal Grammar,” described in Chomsky (1980: 187) as follows:

What many linguists call “universal grammar” may be regarded as a theory of innate mechanisms, an underlying biological matrix that provides a framework within which the growth of language proceeds.... Proposed principles of universal grammar may be regarded as an abstract partial specification of the genetic program that enables the child to interpret certain events as linguistic experience and to construct a system of rules and principles on the basis of this experience.

However, the principles and generalizations proposed in this book are not formulated to refer to this “biological matrix” of language learning, though they should be translatable in principle into a language that refers directly to such biological phenomena. Moreover, the hypothesis of innateness has not played any part in the formulation of the principles and generalizations presented here; cf. Newmeyer (1998: 89).

To read the critical literature, one would think that there is some logical connection between the generativist research program and the need to posit a set of purely syntactic innate universals - a distasteful conclusion for so many. But innateness is a conclusion, not an assumption, and plays no role in the *formulation* of the principles. In other words, the question of the adequacy of such principles is independent of the question of where they ‘come from’. If somebody were able to show that they could be learned inductively, then well and good. The generative research program would not have to budge one centimeter.

It is also not a goal of this book to employ an extensive formalism to express generalizations that can be formulated accurately without any formalism at all. This is a conscious choice, as I agree with Jackendoff (1997: 4) that

an excessive preoccupation with formal technology can overwhelm the search for genuine insight into language; and a theory’s choice of formal-

## 12 Introduction

ism can set up... barriers to communication with researchers in other frameworks.... [On the other hand,] at a more methodological level, formalization permits one to be more abstract, rigorous, and compact in stating and examining one's claims and assumptions. And, as Chomsky stressed in a much-quoted passage from *Syntactic Structures*, a formalization uncovers consequences, good or bad, that one might not otherwise have noticed.

There is a tendency within the P&P framework for what Jackendoff considers an excessive preoccupation with formal technology and theoretical ontology. Sometimes, it is obvious to the reader that for certain authors, taking part in molding the emerging theory is more important than explaining and accounting for the linguistic data. Harris (1993: 11) states that

Noam Chomsky, in particular, says flatly and often that he has very little concern for language in and of itself; never has, never will. His driving concern is with mental structure, and language is the most revealing tool he has for getting at the mind. Most linguists these days follow Chomsky's lead here.

This is not the case in this proposal. I readily confess that I harbor a fascination for language and linguistic data, and I have selected parts of the P&P Theory with the explicit aim to account for and explain these data (a common tactic for linguists within our framework, one which gives rise to what one might be inclined to dub 'shopping linguistics'). Of course, this does not amount to rejecting the hypothesis that language reflects mental structures and cognitive capacities. Instead, I find this hypothesis to be most credible; it constitutes the context within which I conduct my linguistic investigations.

Newmeyer (1998:7) describes the field of linguistics as follows:

There are... two broad orientations in the field.... One orientation sees as a central task for linguists characterizing the formal relationships among grammatical elements independently of any characterization of the semantic and pragmatic properties of those elements. The other orientation rejects that task on the grounds that the function of conveying meaning (in its broadest sense) has so affected grammatical form that it is senseless to compartmentalize it. It is the former orientation, of course, that I have been referring to as 'formalist' and the latter as 'functionalist'.

I quote a number of functionalist works in this book. One important reason for this is that the literature on modals within this orientation is comprehensive. This is not surprising, as modals constitute a class of linguistic elements argued to illustrate the fundamental functionalist assumption: their



formal properties cannot be characterized independently of their semantic (and, in part, pragmatic) properties, independently of their root vs. non-root reading. Another important reason for my quoting a number of functionalist proposals is that there are many interesting observations and close-to-data generalizations in these works. To me, however, data are interesting and fascinating only in so far as they support or contradict specific syntactic hypotheses or trigger a line of thought leading to the formulation of new syntactic hypotheses and generalizations.

My choice of framework signals that my perspective in this book will be a comparative one. A large number of the works quoted discuss research conducted on languages other than Norwegian. Thus, modal auxiliaries, modal particles, and inflectional mood from various languages constitute important evidence and the background against which I study Norwegian modals. However, this book does not formulate specific parameters in Germanic languages relevant to the behavior of modals in these and other languages. This does not mean, for instance, that the theory of tense chains in Chapter 5 does not carry over to other Germanic languages. It is simply not tested on other Germanic languages. Thus, this is, first and foremost, an investigation of Norwegian modals.

## 5. The data

The data in this book come from a number of sources: books, newspapers, TV, radio, and my shameless eavesdropping on other people's conversations on the bus and in other contexts. After observing a piece of data, my next step is to test my judgments against those of a number of informants. Normally, any set of data would be presented to at least six or seven informants. Where grammaticality judgments differ significantly, I ask more informants. On two occasions, I distributed informant tests to a larger number of people; in one case (where the question regarded the modal properties of the non-root modal *ville* 'will'), 35 informants participated in the test. The informants range from linguists and highly educated individuals such as teachers and journalists to people with no linguistic training.

My claims about the English, German, Dutch, Faroese, Swedish, Danish, and Icelandic data are made on the basis of the existing literature as well as the grammaticality judgments and intuitions of native speakers of those languages. In some cases, I have tested specific hypotheses by presenting native speakers with a number of sentences illustrating a phenome-

non. These sentences were usually not provided in context, nor did I try to hide in any way what I was looking for.

In addition to consulting informants to test specific hypotheses, I have used the language resources on the internet. To test hypotheses on co-occurrence facts of Norwegian modals, I used *søk i norske tekster med IMS CWB* at the University of Bergen, a corpus containing approximately 14 million Norwegian words, mainly texts from newspapers.

My own intuitions and grammaticality judgments play a significant role in this book, especially when I translated sentences from other languages into Norwegian to investigate whether or not a certain generalization holds for Norwegian. However, even in many other cases, my own grammaticality judgments constitute the basis for specific hypotheses. Nowhere in the book do I present hypotheses that rest *solely* on my own grammaticality judgments, however. Thus, this book draws on a number of empirical sources beyond my own intuitions about Norwegian.

## Chapter 2

# Norwegian Modals: the Facts

### 1. Introduction

Within the tradition going at least as far back as Chomsky (1965), linguistic theory has faced two levels of adequacy. First, our theory (or grammar) of a given language should be *descriptively adequate*, i.e. generate all and only the grammatical sentences of the language and provide a principled account for native speakers' intuitions about the structure of these sentences. Secondly, our theory should be *explanatorily adequate*, i.e. account for a child's acquisition of the language. However, as pointed out by Davies and Dubinsky (2004: 154), linguists have come to recognize a third level of adequacy, *observational adequacy*:

[...O]bservational adequacy involves the not always trivial task of determining which are the well-formed expressions in a language, and which are not (and presumably being able to state whether the ill-formedness, where it occurs, is syntactic, semantic, or pragmatic).

It is truly no trivial task to describe the properties of modals in any language in an observationally adequate manner, in part because of diverging intuitions about the facts. In addition, a good description should include all and only the *relevant* data. A broader picture, on the other hand, serves to acquaint the reader with the domain of investigation, provides an overview, and a body of data for further explorations.

In this chapter, I will describe the broad landscape of Norwegian modals, including their morphological, semantic, and syntactic properties, in a theory-neutral way. Of course, any non-trivial description of linguistic elements inevitably employs terms and basic premises related to a set of theoretical assumptions; however, in the present chapter, I will try to avoid any commitment to a specific formalism or framework that would impede the accessibility of the insights I present.

As a first approximation, I define the class of Norwegian modals as being composed of five members (Faarlund et al. 1997: 527):

- |     |  |  |
|-----|--|--|
| (1) | <i>burde</i> 'should'<br><i>kunne</i> 'can'<br><i>måtte</i> 'must' | <i>skulle</i> 'will'<br><i>ville</i> 'want to/will' <sup>1</sup> |
|-----|--|--|

These modals have *root* and *epistemic* (*non-root*) readings. I discuss the terms *root* and *epistemic* in detail in sections 3.1 through 3.5. For now, the preliminary definition provided by Platzack (1979: 44) will suffice:

The epistemic sense...qualifies the truth value of the sentence containing the modal; the root sense...expresses necessity, obligation, permission, volition, or ability on behalf of an agent which usually, but not necessarily, is expressed by the...subject of the sentence.

The sentence in (2), for example, is ambiguous between a root reading—here an obligation reading, paraphrased in I—and an epistemic reading, where the modal qualifies the truth value of the sentence, paraphrased in II:

- (2) *Jon må være på kontoret.*  
 'Jon must be in his office.'  
 I. Jon is obligated to be in his office. (root reading)  
 II. It must be the case that Jon is in his office. (epistemic reading)

In sections 2 through 4, I consider the morphological, semantic, and syntactic properties of Norwegian modals. When possible, I postpone the theoretical discussion and focus on the empirical findings. However, in section 3, a discussion of semantic modality terms is provided to aid the understanding of the remainder of the chapter. My findings are summarized at the end of each section. In section 5, I summarize the observations and examine what characterizes Norwegian modals according to these findings. In section 6, I consider three potential new candidates for the class of modals and, as a result, I revise my inventory of Norwegian modals in section 7. The chapter concludes with a table of Norwegian modals and their prototypical readings and, finally, a brief inventory of the modals in other Scandinavian and Germanic languages.

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<sup>1</sup> The former is the root reading, the latter is the epistemic reading.

## 2. Morphological characteristics

In English grammars, modals are characterized as morphologically distinct from other verbs because they have no *-s* form for the 3rd person singular present tense (Palmer 1986: 33). Their German counterparts behave in much the same way: the lack of explicit agreement marking in 1st and 3rd person singular present tense indicative<sup>2</sup> is typically one morphological feature of Germanic modals (Öhlschläger 1989: 4).<sup>3</sup> As expected, Norwegian modals lack agreement marking too, but since Norwegian has no subject-verb agreement with any type of verb,<sup>4</sup> lack of agreement is not specific to modals. Thus, the single morphological property that separates modals from almost any other verb in Norwegian is their status as preterite-present verbs (Faarlund et al. 1997: 526).<sup>5</sup>

*Preterite-present* is the term used to describe a group of Germanic verbs of which modals constitute the major part. The term alludes to the fact that their “present forms...are traceable to strong preterites<sup>6</sup> even though their meaning is clearly present” (Bybee et al. 1994: 77). Although this is a diachronic language development, not likely to have any bearing on the way synchronic internalized language is organized in a language user,<sup>7</sup> one

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<sup>2</sup> Modern Norwegian does not productively employ a system of morphologically expressed mood oppositions such as indicative-subjunctive, though it does have a designated imperative form. Interestingly, the modals *skulle* and *måtte* productively take on a subjunctive-like function in certain constructions (see fn. 30).

<sup>3</sup> Two other morphological features of German modals (neither of which applies to Norwegian) mentioned by Öhlschläger (1989: 4) are that

i) the stem vowel changes from indicative present sg. to indicative present pl.  
ii) the stem vowel changes from infinitive to indicative preterite.

<sup>4</sup> In Nynorsk and some dialects, the passive participle may have agreement displaying a gender (neuter [N] vs. non-neuter [NN]) and number distinction:

(i) *Ho/Han vart skoten /Dyret vart skote/Dyra vart skotne*

S/he was shot-NN/The animal-N was shot-N/The animals were shot-PLURAL

<sup>5</sup> There is, however, an inconsistency in this work concerning the verb *burde* ‘ought to’: first, *burde* is listed as a weak verb (Faarlund et al. 1997: 485), class 2b, whereas later *burde* is a preterite-presentic verb (526).

<sup>6</sup> For the claim that the present form of these verbs is in fact the original preterite form, see Bybee, Perkins, and Pagliuca (1994: 77-78), Faarlund (1991: 63), Faarlund, Lie, and Vannebo (1997: 491), and Öhlschläger (1989: 4, fn.7).

<sup>7</sup> Andrew Carnie’s review of Newmeyer’s (1998) *Language Form and Language Function* posted on Linguist List on January 15, 2000, launched a long and heated debate between formalists and functionalists on this question. The trigger for this

might quite justifiably claim that the more tangible consequences of this diachronic shift in the paradigm of preterite-presents, and thus modals, synchronically set them apart<sup>8</sup> from other verbs (particularly strong verbs<sup>9</sup>) in the speaker's internalised vocabulary. In Norwegian, some of the consequences are the following:

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debate was the following statement: "Perhaps it is my MIT training showing through and blinding me to the obvious, but I simply fail to see how it is at all possible that a two-year old child has direct access to diachronic influences like OE word order or the great vowel shift. As far as I can tell, without time-machines or university degrees, infants only have access to what they hear spoken around them, which makes this approach psychologically incoherent." On January 21, Pavel Oratro objected to this post: "No functionalist makes the absurd claim that children practice a form of mental time-travel (though didn't Chomsky and Halle sort of say this in *Sound Pattern of English*?). What they do say is that language isn't fixed at the age of two. It keeps on changing. That means that the processes that cause language change are also functional in the language facilities of individual speakers. So the grammar of a speaker of a language exhibits diachronic change through his life." On January 23, Debra Ziegeler wrote: "While a Child's acquisitional paths of grammatical development may not coincide with complete accuracy with the paths of diachronic development of a grammatical item, the motivation for the development in either case may be similarly built on the pragmatic forces which mechanise the process of grammaticalisation, and create latent grammatical material out of existing lexical items. There is no question of the individual 'accessing' the diachronic developments.... The coincide of ontogenic grammaticalisation with diachronic grammaticalisation is not a factor of individual awareness; the parallels exist merely because the processes are similar, and the similarity appears to be created by similar levels of pragmatic inferencing with different contexts."

<sup>8</sup> Lightfoot (1974: 237; 1979) argues that the prerequisite for the categorical shift of pre-modals [category: verbs] into modals [category: aux] is the fact that these verbs were a morphologically identifiable class: "One can only assume that it was an accident that in this inflexional class [i.e. preterite-presents] only the pre-modals survived.... On the other hand, it does not seem possible to define a class of modals (and therefore of preterite-presents) on semantic grounds, and furthermore preterite-presents in different languages encompass a very wide range of verbs semantically ('hate', 'know', 'grant', 'be able', 'think', 'need', etc.). However, the crucial effect of the loss of the non-pre-modal present-preterites was that the pre-modals... became an identifiable class of verbs, with the unique characteristic that they did not have a fricative suffix for the 3rd person singular."

<sup>9</sup> Modals do morphologically differ from weak verbs, as the latter have no vowel shift from present to preterite while most modals (like strong verbs) do.

- (3) a. These verbs lack the ending *-er/-r* in the present tense.  
 b. The stem vowel changes from infinitive to present tense.  
 c. No change in stem vowel from infinitive to past tense.

This produces the paradigm in Table 1 for Norwegian modals. I have provided the ordinary strong verb *drikke* for comparison:

Table 1

Infinitive	Present	Preterite	Perfect	
<i>burde</i>	<i>bør</i>	<i>burde</i>	<i>burdet</i>	'should'
<i>kunne</i>	<i>kan</i>	<i>kunne</i>	<i>kunnet</i>	'can'
<i>måtte</i>	<i>må</i>	<i>måtte</i>	<i>måttet</i>	'must'
<i>skulle</i>	<i>skal</i>	<i>skulle</i>	<i>skullet</i>	'will'
<i>ville</i>	<i>vil</i>	<i>ville</i>	<i>villet</i>	'want/will'
<i>drikke</i>	<i>drikker</i>	<i>drakk</i>	<i>drukket</i>	'drink'

As can be readily observed, (3a) does not apply to *burde*, but here the *-r* belongs to the stem and is not an inflectional suffix. Furthermore, (3b) does not apply to *måtte* 'must' and *ville* 'want to'. With these exceptions, the properties in (3) are characteristics of modals in modern Norwegian. However, modals are not the only preterite-present verbs in Norwegian; the preterite-present verb *vite* 'know', for example, is not a modal, judging from its semantic and syntactic properties (Faarlund et al. 1997: 491).<sup>10</sup>

In contrast to the incomplete paradigm of modern English modals, Norwegian modals have an almost full formal paradigm of finite and non-finite forms. There are, admittedly, three striking gaps in this paradigm: all Norwegian modals lack present participles and almost all lack imperatives and passives. While these features are sometimes considered morphological properties of modals (Öhlschläger 1989: 59 fn 10; Palmer 1986: 33), there is some evidence that the gaps in the formal paradigm could, and should, be given a syntactic or semantic explanation. However, since we are at present concerned with the range of forms available to a Norwegian modal, these gaps deserve a place in a discussion of morphological properties of Norwe-

<sup>10</sup> Note however: *Han vet å komme seg fram* 'He knows (how) to advance himself'. Also, *ville* 'want to' is historically not a present-preterite verb.

gian modals, even if the explanations for them are semantic, syntactic, or pragmatic.

Lødrup (1996a: fn. 5) notes that

[modals]<sup>11</sup> lack present participles. In Norwegian, present participles are adjectives. The conditions for deriving them are not absolutely clear. However, the main rule seems to be that they can only be derived from verbs that take one syntactic argument” (Sveen 1990: IV.3).

If this is correct, it is reasonable to consider the lack of present participles a syntactic property of modals. As implied by the quote above, modals are part of a large group of verbs lacking present participles in Norwegian; this group also contains weather verbs, transitive verbs, and others.

Although modals do not generally passivize, two modals marginally undergo the s-passive<sup>12</sup> in Norwegian, *kunne* ‘can’ and *ville* ‘want to’ (data from Lødrup 1996a).

- (4) a. *Leksen må kunnes i morgen.*  
The lesson must can-PASSIVE tomorrow  
‘You should know your lesson by tomorrow.’
- b. *Dette må ikke bare ønskes, det må viles.*  
This must not only wish-PASSIVE, it must will-PASSIVE  
‘You must not only wish this, you must want it.’

The lack of an imperative form in modals is sometimes ascribed to a semantic (Faarlund et al. 1997: 590; Öhlsheläger 1989: 59) or a pragmatic constraint; it is seen as belonging to the language user’s knowledge of the world and stemming from an incompatibility between the lexical meaning of a modal and the task performed by an imperative form. For instance, the use of an imperative normally requires some amount of real-world control on the part of the addressee over the situation described by the verb. Modals, on the other hand, typically denote relations beyond the subject’s con-

<sup>11</sup> Lødrup talks about root modals, but non-root modals have the same property.

<sup>12</sup> The s-passive, unique to Scandinavian languages, is a morphological passive. Diachronically, it stems from a reflexive (or *middle*-like) form, where the *-s* at some point was a full-fledged argument. In addition, there are periphrastic passives, with an auxiliary *bli* ‘become’ preceding a perfect (passive) participle. Åfarli (1992) provides a detailed discussion of Norwegian passives. The periphrastic passive is impossible with modals, even with the two modals in (4).



trol (see Chapter 4, section 6, for a full description). This yields a semantic-pragmatic incompatibility between the lexical content of the modal and the communicative function of the imperative.

However, one modal, *kunne* 'know', seems to be more compatible with the meaning expressed by the imperative form and does occur in the imperative, as shown in (5):

- (5)                    *Kunn dette diktet til i morgen!*  
                          know this poem by to-morrow  
                          'Know this poem by tomorrow!'

Although the semantics of the modal *kunne* on a root reading allows the modal to occur in the imperative, no context, however farfetched, allows for an imperative that simultaneously yields an epistemic (i.e. non-root) reading of *kunne*, as shown in (6). This lends support to the hypothesis that controllability is a key ingredient in the felicitous use of an imperative. An epistemic reading denotes a particular propositional attitude on behalf of the speaker and is not under the control of the imperative's addressee. Thus, the lack of controllability is absolute in this case.

- (6)    a.            *Jeg vil ikke akseptere konklusjonen,*  
                          'I will not accept this conclusion,  
                          *med mindre det viser seg at Jon kan være tyven.*  
                          unless it turns out that Jon may be the thief.'
- b.            #*Kunn være tyven da, Jon!*  
                          #'May be the thief then, Jon!'

I mentioned earlier that Norwegian modals display an almost full paradigm of non-finite and finite forms. While this is typically the case for root modals in Germanic languages, it is much more controversial to ascribe the same property to epistemic modals. It has often been claimed (Plank 1984) that epistemic modals in Germanic languages occur in finite forms only, whereas no finiteness requirement applies to root modals. However, epistemic modals, as well as modals with other truth-qualifying readings such as *evidential* and *metaphysical* (see section 3.2 for discussion), most certainly occur in the infinitival form in Norwegian, as the data in (7) show.

- (7) a. *Nevøen påstås å skulle være morderen.*  
 nephewDEF claim-PASS to shall be the killer  
 'The nephew is claimed supposedly<sup>13</sup> to be the killer.'
- b. *Dette antas å måtte være en misforståelse .*  
 this supposePASS to must be a misconception  
 'One supposes that this certainly is a misconception.'
- c. *Denne tabben fryktes å kunne ha kostet dem oppdraget.*  
 this mistake fearPASS to may have costed them the job  
 'One fears that this mistake possibly made them loose the job.'
- d. *Dette anses å burde være et tilbakelagt stadium.*  
 this regardPASS to ought-to be an endured stage  
 'This is regarded as most likely a thing of the past.'
- e. *Forandringen forventes å ville øke salget.*  
 changeDEF expectPASS to willINF increase saleDEF  
 'The changes are expected to increase the sales  
 (in the future).'

In the same vein, Dyvik (1999) claims that the perfect (or past) participle is reserved for root modals (although he does note that epistemic modals occur as infinitives):

In the previous examples epistemic modals are never complements. Examples where they are seem possible, but then only as a complement of another epistemic modal.... From these syntactic facts it follows that epistemic modals only occur in finite forms (present and past tense) and the infinitive, while the past participle is reserved for the root modals.

At first glance, this seems to be a sound generalization for the standard dialects of Norwegian (*Bokmål* and *Nynorsk*); however, in the northern and

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<sup>13</sup> Stacking of these verbs sounds less idiomatic in the English translation, thus I have chosen to translate the Norwegian infinitival modal as an adverbial with a similar modal meaning. This should not be taken to mean that the modal in these examples has an adverbial-like or "less auxiliary-like" flavour in Norwegian.

western dialects,<sup>14</sup> there is no restriction ruling out the epistemic reading of a modal past participle, as shown in (8).

- (8) a. *Han har måtta arbeidd med det i heile natt.*  
 He has mustPERF workPERF on it all night  
 'He must have worked on it all night.'
- b. *Hu har kunna vorre her og forre igjen.*  
 She has canPERF bePERF here and leavePERF again  
 'She might have been here and left again.'

It is tempting to dismiss this type of data as a minor quirk of some obscure Norwegian dialects. However, I will return to these data in Chapter 5, section 2, and show that although data like these have received almost no attention in the literature, many languages in fact allow for epistemic readings of a perfect participle modal.

Norwegian modals also occur in counterfactuals. One typically uses a preterite form of the modal here, but a pluperfect construction with a preterite auxiliary *hadde* 'had' preceding the modal is also possible; in this case, the modal is a perfect participle. Crucially, the modal may very well get an epistemic reading under these circumstances.<sup>15</sup> Epistemic modals may occur in the apodosis, (9a), or the protasis, (9b).

- (9) a. *Dersom tyngdekraften ikke fantes,*  
 if gravityDEF not existed,  
 'If gravity had not existed,
- hadde det måttet være vanskelig å holde beina på jorda!*  
 had it mustPERF be hard to keep legsDEF on groundDEF  
 it would have to be difficult to stay grounded!'

<sup>14</sup> Some speakers of dialects closer to *bokmål* report that this restriction is lacking in their dialects as well. Vikner (1988: 7) presents the same type of data from Danish: *Der har måske nok kunnet være tale om en fejl-* there has maybe PART could-PERF be talk about a mistake, 'There might have been a mistake'. See chapter 5, sections 4.3 and 4.4.1, for more data, scope possibilities, and readings.

<sup>15</sup> Teleman et al. (1999: 292) offer data from Swedish, where a perfect participle modal gets an epistemic reading in an irrealis construction with this form.

- b. *Hvis jeg hadde kunnet være morderen, herr Holmes,*  
 if I had can-PERF be killer-DEF, mr.Holmes,  
 ‘If it were possible that I was the killer, Mr. Holmes,  
  
*hadde politiet arrestert meg for lenge siden.*  
 had police-DEF arrested me for long since  
 had the police arrested me long ago.’

To sum up, the morphological characteristics of Norwegian modals derive from their status as preterite-present verbs; this means that they lack the ending *-er/-r* in the present tense, their stem vowel (normally) changes from infinitive to present tense, and their stem vowel does not change from infinitive to past tense. These properties separate modals from almost all other verbs (the non-modal *vite* ‘know’ is a preterite-present).

Modals lack present participles, but so do some other verbs such as weather and transitive verbs. Certain modals marginally occur in the s-passive (*kunne* ‘know’ and *ville* ‘want to’) and the imperative (*kunne* ‘know’). Neither of these properties thus separates all modals from all other verbs. However, it is important to note that the modal *kunne* ‘can’ is the only modal compatible with the imperative and that only two modals, *kunne* ‘can’ and *ville* ‘want to’, may undergo passivization. These idiosyncrasies of the modals *kunne* and *ville* will be important to our investigation later on.

The finiteness requirement for epistemic modals, claimed by Plank (1984) to pertain to “probably all” Germanic languages, does not hold for Norwegian, as shown in (7). Finally, the generalization in Dyvik (1999) that epistemic modals do not employ a perfect participle does not hold for a number of non-standard Norwegian dialects, as the examples in (8) show, and even standard dialects allow for an epistemic (metaphysical) reading of the perfect participle modal in pluperfect counterfactuals, as shown in (9).

### 3. Semantic characteristics

In this section, I examine the semantic properties of Norwegian modals. To lay the groundwork for such an investigation, section 3.1 provides an overview of some central modality terms. Sections 3.2 and 3.3 address some lines of work I consider central to the debate concerning the semantic prop-

erties of modals in Germanic languages. Section 3.4 contains a list of prototypical readings of the individual Norwegian modals, and section 3.5 discusses some crucial semantic features of these modals.

### 3.1. A brief overview of some central modality terms

In section 1, I provided Platzack's (1979: 44) preliminary definition of the terms *epistemic* and *root*: "[t]he epistemic sense...qualifies the truth value of the sentence containing the modal; the root sense...expresses necessity, obligation, permission, volition, or ability on behalf of an agent which usually, but not necessarily, is expressed by the...subject of the sentence."

Since Hofmann (1976) coined the term *root*—as opposed to *epistemic*—modality, this dichotomy has been used to make generalizations about these two main groups of modals (or modal *meanings/senses, uses, or readings*, depending on the perspective). Hofmann himself argued that these "two senses in which modals may be used" (93) covary with specific structural properties, a standard assumption in subsequent generativist (and numerous other) studies on modals.

Many works focusing on the syntax of modals thus consider the dichotomy epistemic-root the major and syntactically most interesting division, and most authors in this vein make use of the dichotomy, possibly with certain subdivisions within each group (Dyvik 1999; Faarlund, Lie, and Vannebo 1997; Lødrup 1996a; Thráinsson et al. 2004; Thráinsson and Vikner 1995; Vikner 1988, to mention but a few studies on Scandinavian modals).

However, within the realm of philosophy and modal logic, modal expressions are given a much more fine-grained and sophisticated semantic description. Brennan's (2004: 3) excellent overview, for instance, lists a number of modality terms central to these fields:

These Greek terms [epistemic, deontic, and bouletic] re-entered philosophical and linguistic discourse in the twentieth century, and are used both by philosophers and linguists to describe the reasoning that lies behind the modal claim. 'Epistemic', from Greek *episteme* 'knowledge', means that the reasoning is based on knowledge; it is generally the case that the relevant knowledge is the speaker's knowledge. 'Deontic', from Greek *dei* 'it is right', means that the reasoning is based on some normative system. (The term 'deontic' is used by Mally 1926; von Wright 1951b led to its widespread use in philosophy.) 'Bouletic' means that the reasoning is relative to

desire, and in fact bouletic modal sentences always relate to the speaker's (purported) desires. 'Doxastic', from Greek *doxa* 'opinion, expectation, repute, glory', means that the modal reasoning is based on the speaker's beliefs. 'Alethic', [? from Greek *a-* 'not' + *lethe* 'forgetfulness, oblivion'], means that the modal reasoning is based strictly on logic. 'Dynamic', a term first introduced for referring to interpretations of modal sentences by von Wright 1951 (who attributes it to Peter Geach), means that the modal expression concerns an individual's actions or disposition.

It is possible to ascribe all these partly overlapping senses to one and the same modal, as shown in (10a – f). We could even argue that there is an *evidential* reading of this modal, where the reasoning is based of what evidence the speaker has for his or her claim, as in (10g):

- (10)            *John must be in his office now.*
- a.     Epistemic: The speaker reasons, based on knowledge accessible to him, that John is in his office now.
  - b.     Deontic: It is required, e.g. by society, that John be in his office now.
  - c.     Bouletic: The speaker has a strong desire that John be in his office now.
  - d.     Doxastic: The speaker strongly believes that John is in his office now.
  - e.     Alethic: The only logical possibility is that John is in his office now.
  - f.     Dynamic: John has an inner compulsion to be in his office now.
  - g.     Evidential: The speaker concludes, based on e.g. observable evidence (the lights are on in John's office /his briefcase is visible from outside) that John is in his office now.

Another term borrowed from the philosophico-logical vocabulary in the literature on modals is *metaphysical* modality. Iatridou (1990b) and Condoravdi (2002), for instance, distinguish metaphysical modality from epistemic modality. Iatridou states that "metaphysical predicates express the knowledge-independent state of the world" (e.g. *possible*, *probable*), whereas "epistemic predicates express the knowledge and belief of individuals and are thus time-sensitive just as states of knowledge" (e.g. *evidential*).

*dent, obvious*; it was evident to  $x$  at time  $t$  that  $p$ )<sup>16</sup> (Iatridou 1990b: 125). Condoravdi (2002: 61-2) agrees that “epistemic modality has to do with knowledge or information of agents,” whereas “metaphysical modality [e.g. counterfactual modality] has to do with how the world may turn out, or might have turned out, to be.” Note the two readings of (11).

- (11)            *He might have won the game.*  
           I.        He might have (already) won the game (# but he didn't).<sup>17</sup>  
           II.      At that point he might (still) have won the game  
                     (but he didn't in the end).

Brennan (1996) analyzes the “quantificational modal construction.” The term was coined by Carlson (1977), but the phenomenon, illustrated in (12), is mentioned at least as early as von Wright (1951a).

- (12)            *Lions can be dangerous.* (Leech 1969: 223)

This modal construction is sometimes called quantificational because it can be paraphrased as “some lions are dangerous,” or “sometimes, lions are dangerous.” According to Palmer (1986), von Wright would probably refer to this type of modality as *existential*, but terms such as *weak epistemic*, *potential*, and *theoretical possibility* are also evoked for this type of reading (Wärnsby, forthcoming, provides a discussion of this modality).

However, as far as many logicians are concerned, all modality is quantificational. Brennan (2004: 13) notes that

Since Aristotle, logicians have analyzed necessity and possibility as QUANTIFICATIONAL, necessity being a UNIVERSAL QUANTIFIER and possibility an EXISTENTIAL OPERATOR. Aristotle, like many others after him, held that modals quantified over times. Thus, ‘Socrates is necessarily mortal’ means that Socrates is mortal at all times, whereas ‘Possibly, Socrates is sitting’ means that at some time, Socrates is sitting. Not everyone takes the domain of quantification to be times; others have held that modal operators quantify over alternative histories (Gilbert of Poitiers, Duns Scotus), state descriptions (Carnap), possible worlds (Leibniz, Kripke, Montague), models (Kanger), model sets (Hintikka), indices (Montague), according to their

<sup>16</sup> See also section 3.2 for the terms *objective* and *subjective* epistemic modality.

<sup>17</sup> Condoravdi’s original example illustrates the fact that *may* is also possible on the first reading, but impossible on the second one.

view of the semantics of propositions. In general, the domain of quantification is taken to be whatever propositions are true of.

$$\Diamond\varphi = \exists\gamma \text{ such that } \varphi(\gamma)$$

$$\Box\varphi = \forall\gamma, \varphi(\gamma)$$

where  $\varphi$  is a property of objects of the type of  $\gamma$   
(for example,  $\varphi$  is a proposition and  $\gamma$  is a world).

$\Diamond\varphi$  encodes *possibility* and is expressed by linguistic elements such as *may p*, *be possible for e to v*, there exists the *possibility* that *p*, *e is v-able* (where *p* is a proposition, *e* is an entity, and *v* is a predicate). Likewise,  $\Box\varphi$  encodes *necessity* and is expressed by linguistic elements such as *must p*, *necessary for e to v*, there is a *necessity* that *p*, etc.

### 3.2. Two seminal formal semantic descriptions of modals

Lewis (1973: 4) is one of the authors holding that modals *qua* operators of necessity and possibility quantify over worlds; he claims that

A necessity operator, in general, is an operator that acts like a restricted universal quantifier over possible worlds. Necessity of a certain sort is truth at all possible worlds that satisfy a certain condition. We call these worlds accessible, meaning thereby simply that they satisfy the restriction associated with the sort of necessity under consideration. Necessity is truth at all accessible worlds, and different sorts of necessity correspond to different accessibility restrictions. A possibility operator, likewise, is an operator that acts like a restricted existential quantifier over worlds. Possibility is truth at some accessible world, and the accessibility restriction imposed depends on the sort of possibility under consideration. If a necessity operator and a possibility operator correspond to the same accessibility restriction on the worlds quantified over, then they will be a dual, interdefinable pair.

Kratzer's (1981, 1991, 2002) seminal work follows a similar approach. Formalizing the role of the *context* in fixing the interpretation of modal expressions, her work is described as "a watershed for linguistic treatments of modality" (Brennan 2004: 51), and as an unavoidable point of reference in any semantic description of modals.

Take, for example, the utterances of the sentences in (13), from Kratzer (2002): (13a) could be a felicitous (and true) claim at some point in time, but infelicitous (and false) at some later point in time because the speaker



has gained new evidence in the meantime, making (13b) a more correct description of the situation. This, says Kratzer, shows that at least two features are needed to interpret a modal: a conversational background, which contributes the premises from which the conclusions are drawn, and a modal relation, which determines the force of the conclusion.

- (13) a. *Der Kastenjakl kann der Mörder sein.*  
           the Kastenjakl can the murderer be  
           ‘Kastenjakl may be the murderer.’
- b. *Der Gausner-Michl muss der Mörder sein.*  
           the Gausner-Michl must the murderer be  
           ‘Gausner-Michl must be the murderer.’

Conversational backgrounds are important in this framework because an epistemic conversational background leads to an epistemic interpretation of modal expressions, whereas a deontic conversational background leads to a deontic interpretation of modal expressions.<sup>18</sup>

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<sup>18</sup> Kratzer (1991: 641): “A conversational background is the sort of entity denoted by phrases like *what the law provides*, *what we know*, etc. Take the phrase *what the law provides*. What the law provides is different from one possible world to another. And what the law provides in a particular world is a set of propositions. Likewise, what we know differs from world to world. And what we know in a particular world is a set of propositions. The denotation of *what the law provides* will then be that function which assigns to every possible world the set of propositions *p* such that the law provides that *p* in that world. And the denotation of *what we know* is that function which assigns to every possible world the set of propositions we know in that world. Quite generally, conversational backgrounds are functions which assign to every member of *W* a subset of the power set of *W*.” Two important kinds of conversational backgrounds are defined as follows in Kratzer (2002: 295-6): “*Epistemic Conversational Backgrounds: In view of what is known...* An epistemic conversational background is a function *f* which assigns sets of propositions to members of *W* [the set of all possible worlds] such that for any *w* ∈ *W* [any world which is a possible world]: *f*(*w*) [the conversational background] contains all those propositions which are established knowledge in *w*—for a group of people, a community etc. *Deontic Conversational Backgrounds: In view of what is commanded...* A deontic conversational background is a function *f* which assigns sets of propositions to members of *W* such that for any *w* ∈ *W*: *f*(*w*) contains all those propositions *p* such that it is commanded in *w* that *p*—by someone, by the Law etc.”

At any time, the evidence we have is compatible with a set of worlds each of which could be the real world. For instance, in (13a) we do not know who the murderer is (and so we do not know which world is the real world); if the only people on the planet are John, Mary, the butler, Gausner-Michl and Kastenjakl, as we start our investigation, there are at least five possible worlds, each with a different killer. These five worlds are *epistemically accessible* worlds. However, some of these worlds turn out to be more far-fetched than others, so Mary is a less likely killer than the butler, for instance, because Mary had an alibi. Kratzer introduces an ordering of the set of accessible worlds, an ordering provided by a *stereotypical background*, ‘in view of the normal course of events’. According to this ordering, the worlds closest to the ideal world are those that behave according to the normal course of events (for example, where a person cannot be in two places at once).<sup>19</sup> A sentence such as *Kastnjakl may be the killer*, containing the possibility modal *may*, which is taken to denote the existential quantifier, may thus be given an interpretation where at least one accessible world (which is as close as possible to the ideal world) is a world where Kastenjakl is the killer. The sentence *Gausner-Michl must be the killer*, containing the modal *must*, is given an interpretation where Gausner-Michl is the killer in all accessible worlds close to the ideal world.

The conversational background, which in this case is epistemic, determines for every world the set of worlds which are accessible from it; the given conversational background forms *the modal base*. The interpretation of modals, according to Kratzer (2002: 300), “depends on a modal base and an ordering source where either parameter may be filled by the empty conversational background.” Say we have an epistemic conversational background, an empty ordering source and a modal relation ‘necessary that p’. What we have is a “pure epistemic” interpretation: in all accessible worlds (with no ordering imposed on them),  $\Box$ (necessary that) p.

Kratzer’s analyses of modals have been very influential, and a range of Kratzer-style analyses of modals exist for various languages. On the other hand, many works on modals question the relevance of the logic concepts of modality for the corresponding linguistic ones. Brandt (1999: 28) expresses the view of numerous authors:

Many linguistic studies of modality include an introductory section discussing the notions of modality developed by philosophers or logicians and then

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<sup>19</sup> There are various kinds of ordering sources: sources of information that may be dubious or less reliable, but nevertheless form ordering sources for modal bases.

try to relate *linguistic* modality to *logico-philosophical* modality.... This approach we find to be essentially wrong or at best irrelevant.... [T]here is no a priori reason to expect that concepts relevant to philosophy and logic are relevant to linguistics and that their linguistic relationships reflect the logical ones.<sup>20</sup>

These authors often express their criticism through what Brandt dubs *the philosophical fallacy*. According to strict logic, (14a) should be a stronger statement than (14b) since the latter holds only for the actual world, whereas the former presumably holds for all accessible worlds. This does not correspond to our intuitions about the utterances, however (Lyons 1977: 808-9). In natural language, the non-modalized assertion in (14b) constitutes a stronger claim than the modalized assertion (14a) since in (14a) the speaker implicitly leaves open the possibility that he or she could be wrong, unlike in (14b).

- (14) a. *His father must be a carpenter.*
- b. *His father is a carpenter.*

Kratzer (2002: 306) explicitly addresses this type of data. Her response to the natural-language intuitions about the relative strength of the assertions in (14) is that *must* in (14a) does not express “pure epistemic necessity”; the ordering source is not empty. In this case, the speaker signals that he or she is not reasoning from established facts alone, but also from less reliable sources that function as an ordering source. The result is a slight ‘contamination’ of the pure epistemic reasoning based on facts.

It is by no means unprecedented in the literature on modals to evoke different grades or degrees of epistemic modality. Lyons (1977: 797-8), for instance, argues that

In principle, two kinds of epistemic modality can be distinguished: objective and subjective. This is not a distinction that can be drawn sharply in the everyday use of language; and its epistemological justification is, to say the least, uncertain.... It is nonetheless of some theoretical interest to draw the distinction between objective and subjective epistemic modality.

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<sup>20</sup> Bouchard (1995: chapter 1) and Chomsky (1975: 84) offer the more general version of this view: in spite of the fact that much work in logic has led to important insights into the use of language, it cannot “be argued that the study of formal (or semantic) properties of natural languages should model itself on the study of the formal (or semantic) properties of logic and artificial languages.”

Kratzer (2002) suggests that we have subjective (as opposed to objective) epistemic modality when the speaker cannot defend his claims on objective grounds, but where the reasoning is rooted in superstition, for example. Again, many authors refuse to accept the relevance of the distinction between subjective and objective epistemic modality for natural language. Palmer (1979: 7) maintains that

Epistemic modality in language is usually, perhaps always, what Lyons (1977: 792) calls ‘subjective’... it relates to an inference by the speaker, and is not simply concerned with ‘objective’ verifiability in the light of knowledge. Epistemic necessity, indicated by *MUST* is thus not to be paraphrased as ‘In the light of what is known it is necessarily the case that...’, but by something like ‘From what I know the only conclusion I can draw is...’

In the same vein, Drubig (2001), quoting Westmoreland (1998: 2), argues that all modals normally referred to as *epistemic* are in fact evidential markers—such as the non-root version of *must*—and that this modal

must be analyzed as an evidential marker labelling the proposition in its scope as a deduction. It relates a proposition  $\phi$  to some other information that serves as evidence for  $\phi$ .... [A]n expression such as *might*  $\phi$  is used to mean that the context contains causal factors that make  $\phi$  plausible. In general we may say: just as a question marker takes a proposition and derives a question, an epistemic modal takes a proposition and derives an evidentially labelled proposition.

Though evidentiality is typically thought not to exist as a full-fledged system of modality in Germanic, many authors have claimed that German employs two modals with evidential meaning (Palmer 1986: 71-2; 2001: 9), *sollen* and *wollen*. Both translate into the English ‘be supposed to’ (which in my view is also evidential), but *wollen* signals that the proposition is the animate subject’s own claim, whereas *sollen* implies that the claim is neither the speaker’s nor the subject’s, but a claim made by a third party, yielding the reading ‘hear-say’:

- (15) a. *Er soll steinreich sein.*  
           he shall stone rich be  
           ‘He is supposed to be filthy rich (so I’ve heard).’
- b. *Er will Schauspieler gewesen sein.*  
           he will actor been be  
           ‘He is supposed to have been an actor (so he claims).’

Evidentiality, then, does exist as a subdomain in Germanic modal systems. What is new about Drubig's (and Westmoreland's) approach is the claim that all "epistemic" modals (in English) are better analysed as evidentials.

What authors want to express by distinguishing between such non-root, or *deictic* (Diewald 1999), modal readings as alethic, metaphysical, (subjective and objective) epistemic and evidential, I believe, is the degree of speaker involvement in a judgement or qualification of a truth value. Thus, it is possible to place these terms on a spectrum, where *alethic* is the most reliable, least subjective, and least speaker-involved point. The opposite end of the spectrum is *evidentiality*, where the speaker signals what kind of evidence he or she has for the truth of the proposition; for example, the evidential/hear-say reading in (15) signals that *p* is something the speaker has heard from someone else, so not even the speaker is responsible for granting the truth of the proposition *p*.

Table 2

<b>Reading:</b>	alethic	quantificational; metaphysical; objective- epistemic	(subjective) epistemic	evidential
<b>What grants the truth of <i>p</i>?</b>	logical knowledge	abstracted empirical knowledge	speaker's knowledge	speaker's evidence

This table is simply intended as an aid for the reader and should not be taken to signal any commitment on behalf of the present work. The potential viability of this classification will be discussed in section 3.4.

### 3.3. A semantic field of modality

Considering how difficult it seems to be to isolate 'an area of meaning' encompassing all modals, the core inventory of modals in different languages is surprisingly similar from a semantic point of view.<sup>21</sup> This is also true of so-called *semi-modals* (Picallo 1990) and *quasi-modals*<sup>22</sup> (Hopper

<sup>21</sup> See section 7 for inventories of modals in some other Germanic languages.

<sup>22</sup> These terms are typically used for compounds that have some but not all of the properties of 'proper modals'; for example, *have to* is an English 'quasi-modal'.

and Traugott 1993: 48; Plank 1984: 320) in various languages; their semantic and conceptual similarity to verbs traditionally considered modal is usually an author's main argument for employing these and related terms. Even so, a "semantic field of modality" is typically extremely hard to formulate. One reason for this is that necessity, possibility, obligation, permission, volition, ability and speaker's judgment of the truth or likelihood of a proposition (Platzack 1979: 44) hardly constitute what is intuitively conceived of as a coherent conceptual-semantic field. The challenge, in Bybee's (1985: 191) words, is to "define the general conceptual domain covered by the category" of modals. Lightfoot (1974: 237) seems highly pessimistic with regard to the potential success of such a mission: "it does not seem possible to define a class of modals... on semantic grounds."

Nevertheless, several attempts have been made to find a conceptual domain common to both root and epistemic (or non-root) modals. In particular, this endeavour has been undertaken within the framework of force-dynamic analyses, i.e. in terms of (potential) forces and barriers (Boye 2005; Sweetser 1990; Talmy 1981, 1988). Thus, Sweetser (1990: 59) analyses the common traits of the English modal *may* as follows:

*May* is an absent potential barrier in the sociophysical world, and the epistemic *may* is the force-dynamically parallel in the world of reasoning. The meaning of epistemic *may* would thus be that there is no barrier to the speaker's process of reasoning from the available premises to the conclusion expressed in the sentence qualified by *may*. My claim, then, is that an epistemic modality is metaphorically viewed as that real-world modality which is its closest parallel in force-dynamic structure.

A method often chosen by authors in the quest for a single, coherent semantic field of modality is to focus on some (prototypical) subset of modals, a subset argued to share a conceptual domain. Particularly susceptible to this are modals denoting a point on a scale from necessity/obligation (*must*) to possibility/permission (*may*). Thus, investigating Danish modals, Boye (2005: 41) states that

Without claiming a one to one relationship between linguistic and philosophical-logical modality..., we may definitely observe a linguistic correlate to the latter. First, we find a range of linguistic items that share two characteristics central to philosophical-logical modality. 1) The meanings of these items may be paraphrased by terms such as necessity and possibility. 2) The meanings of these items often exist in a number of variants that correspond to the epistemic and non-epistemic (deontic and dynamic) meaning variants in modal logic.... Second, we find that these linguistic items are often

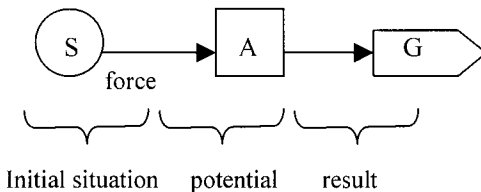
grouped together in formally delimited paradigms. Such paradigms, then, actually code the above-mentioned meanings as a semantic field.

Evidently, it is easier to establish a common semantic domain for deontic modals and their epistemic counterparts than for *dynamic* modals and their epistemic counterparts. Here *deontic* is taken to denote ‘modality of necessity or possibility of acts performed by morally responsible agents’ (Lyons 1977: 823; von Wright 1951); *epistemic* denotes necessity or possibility of situations in the real world, according to the speaker’s knowledge (Chung and Timberlake 1985: 246):

There is considerable parallelism between the epistemic and deontic modes. Both can be described in terms of alternative worlds.... As a morphosyntactic realization of this parallelism, modal auxiliaries in many languages, notably English, often have both epistemic and deontic senses.... The crucial difference between the two, then, is that the epistemic mode deals with a set of alternative worlds at a given time [the alternative worlds are those that could exist instead of the given world], while the deontic mode deals with a set of alternative worlds that develop out of a given world and time [alternative futures of a given world].

Boye (2005) also suggest that the semantic field of modality should be defined conceptually with reference to *force-dynamic potential*. This concept could be seen as designating a complex physical situation that may be split up into three causally related subsituations: a source S produces a force to affect an agonist A (subsituation 1), who is driven, but not compelled, towards a goal G, which gives the potential (subsituation 2) for the result where the agonist reaches the goal (subsituation 3; my figure, adapted from Boye 2005).

Figure 1



Diewald (1999) rejects the force-dynamic framework’s assumption that a barrier is necessarily a part of the semantic description of modals although the concept of barriers and forces may be a conversational implicature of modals in certain situations. However, she does use a feature [+/- reactive]

to capture a semantic difference between various modals in German, where [+reactive] encodes that a certain intention or wish is dependent for its realization on some other party's intentions, whereas [-reactive] encodes the independence of some other party's intentions.

Table 3

<i>Sollen</i>	<i>dürfen</i>	<i>wollen</i>	<i>möchte</i>	<i>müssen</i>	<i>können</i>
'be supposed to'	'be allowed to'	'want to'	'would like to'	'must'	'can'
- reactive	+ reactive	- reactive	+ reactive	- reactive	+ reactive

Surely, this feature resembles the concept of forces and barriers in force-dynamic approaches. Diewald also crafts her description of modals in terms of directed relations, similar to Boye's description above (Figure 1). Diewald considers the semantics of a deontic modal to be the result (the passive correspondent, so to speak) of a source (usually not represented) imposing a directive on a subject, who thus gets an experiencer role in this relation. But the subject also receives a second role, the agent role of the main verb relation.

Figure 2: Description of relations in *We must/can wait*.

Experiencer <sub>i</sub> <--> (modal --> Inner goal (= source <sub>i</sub> --> goal))
We (must/can ( we wait))

Diewald supports her analysis<sup>23</sup> with the fact that all German modals diachronically develop out of more simple experiencer verbs.<sup>24</sup> Within the functionalist<sup>25</sup> literature, the common domain of meaning for deontic and epis-

<sup>23</sup> The arrow pointing both ways between the modal and the experiencer signals that the relation does not have one particular direction, i.e. it does not originate in the subject with direction towards the modal, or vice versa.

<sup>24</sup> Roberts (1993: 315) claims that (pre-)modals in Middle English assign an experiencer role to their subjects.

<sup>25</sup> Newmeyer (1998: 7) states that "[t]here are...two broad orientations in the field.... One orientation sees as a central task for linguists characterizing the formal relationships among grammatical elements independently of any characterization of the semantic and pragmatic properties of those elements. The other orientation rejects that task on the grounds that the function of conveying meaning (in its broadest sense) has so affected grammatical form that it is senseless to compart-