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Søren Brandt

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Summary

The various usages of the set of *Danish modal verbs* form a semantic field whose *lexical* structure is defined by three independent features: (1) one indicating *possibility, predictability, or necessity*, (2) one indicating whether in the basic (dynamic) variant the source of the modality is inherent in the subject (*abilitive*) or external to the subject (*deontic*), and (3) one indicating whether the modal suggests the actualization of the predication governed by the modal (*directed, non-directed*). The *sense variant* structure is the same for all modals, maximally including dynamic, prospective, and epistemic senses.

Modal *sense variants* are often classified in logico-philosophical terms as epistemic, deontic, dynamic or futuristic (neither Danish nor English has a future tense, we claim); but we have considered deonticness a *lexical* feature and propose a tripartite variant structure. The three sense variants of »Peter skal bo i Paris«: 'Peter is reported / planned / obliged to live in Paris' are typical and occur for most Danish modals. In epistemic variants, only the main verb has a semantic subject; in prospective variants, only the modal has one; in dynamic variants, both verbs have (identical) semantic subjects. Since a sentence *must* have a syntactic subject, two optional semantic subjects together generate just the three variants we actually do find. Thus, our variant types are not a more or less arbitrary set of philosophical categories but form a grammatically motivated, coherent system which may also be applicable to the modal verbs in other languages.

A survey of the basic sense variants of the Danish modals is included, as is an account of the interactions between modality and other grammatical categories like negation, tense, and voice.

CHAPTER 1

Introduction

After presenting some general concepts of modality we describe the Danish modal verbs, their variants, and their usage, concentrating on the different »meanings« these verbs may express. Informally we distinguish between (1) the *basic meaning* of a word in isolation, (2) its typically contextually determined *sense variants* and (3) the *interpretation* of a sense variant in a specific non-linguistic situation.

We illustrate these distinctions by an example from Leon Uris' novel *Armageddon* (ch. 30), where a major has objected to a staff directive and general Hansen, failing to change the major's mind, must issue an *order*: »This is all beyond our hands and our scope, Sean. This is reality. You will report to Frankfurt in seventy-two hours...«. The verb *will* (1) has a basic meaning of predictability, caused by forces internal to the subject; it (2) is here used in its prospective (futuristic) variant, and in the actual situation it (3) is interpreted as an order.

The difference between *sense* and *interpretation* we relate to the difference between *ambiguity* and *vagueness*. The Danish sentence »Peter skal bo i Paris« 'Peter shall live in Paris' is ambiguous between three clearly different senses: it is reported that X, it is planned that X, Peter is obliged to X; but in the planning sense the negated sentence »Peter skal ikke bo i Paris« is vague between two not obviously different interpretations: it is not planned that X, it is planned that not-X.

In our description of modal verbs, their *basic meanings* are primarily determined by three factors: the *intensity* of the modality (possible, predictable, necessary), the *source* of the modality (internal or external to

subject), and the *orientation* of the modality (directed towards the actualization of the embedded predication or not so directed). These factors distinguish between *lexical items*, each of which may have *sense variants*, and we describe these in terms of a tripartite structure common to all the modals. As we deviate from established terminology we first summarize the concepts we use. That summary is primarily directed at those who have been brought up on the traditional terminology and explains what we do differently; thus it need not be studied in detail by newcomers to the field of modality.

Preview

Since the descriptive strategy we propose also seems to apply to the English modal system we present our overview using English data. Examining a typical description of the English modal verb usage (Palmer 1990) we find four basic types of meaning: *epistemic*, *deontic*, *dynamic*, *futuristic*. Briefly, epistemic modality expresses »a judgement about the truth of the proposition«, deontic modality is »used to express what is obligatory, permitted, or forbidden«, dynamic modality »is concerned with the ability and volition of the subject of the sentence« (Palmer 1990, 2, 3).

Most modal verbs have usages with all of the first three meanings but we note that some seem most commonly to occur in deontic usage and that other seem to favor the dynamic usage. If we classify the *verbs* as L[exically]-Deontic and L-Dynamic and the *occurrences* as U[sage]-Deontic and U-Dynamic and plot the usages mentioned by Palmer into a diagram we will get the following result, where # indicates a characteristic and typical usage and + indicates a less frequent or minor one:

		Epistemic	U-Deontic	U-Dynamic	Futuristic
L-Dynamic	CAN	+	#	#	
	WILL	+		#	#
L-Deontic	SHALL	+	#	+	+
	MAY	#	#	+	
	MUST	#	#	#	

The »hole« in this diagram (L-Dynamic, U-Deontic) makes it tempting to conflate the two columns designated *U-Deontic* and *Futuristic*, and the major objection to that is that futuristic WILL certainly cannot be said to have deontic meaning. We solve that problem by calling the merged usage column *prospective* instead of deontic, reserving the latter term for the verbs that are *lexically* deontic, and at the same time inventing the new name *abilitive* for what we just called the L-dynamic verbs.

We also switch the two boxes identifying the two non-epistemic usages of the (lexically) deontic verbs, merging U-dynamic and futuristic SHALL; this implies that our term *dynamic* does not have the same meaning as in earlier works but simply identifies the *basic* meaning variant of the modal. Dynamic modality is called *subject-oriented* by some authors (e.g. Davidsen-Nielsen 1986a) and it might be even better characterized by our invented term *focal* modality, since it focuses the modality with respect to the modal subject. Nevertheless, we have retained the most popular term.

		Epistemic	Prospective	Dynamic
Abilitive	CAN	+	#	#
	WILL	+	#	#
Deontic	SHALL	+	+	#
	MAY	#	+	#
	MUST	#	#	#

There is one objection to the proposed structure, viz. that the deontic usage of CAN is not *labeled* as deontic (all other previously deontic usages are still so designated by the row label). However, »It would even be possible to suggest that CAN is, in fact, never deontic in its basic meaning, that the only deontic possibility modal is MAY. On this view, CAN always expresses dynamic possibility, but to say what is possible is often to imply that the speaker will not object, *ie* that he gives permission. [Paragraph] There is no way of proving this right or wrong ...« (Palmer 1990, 72).

In our opinion the permission sense of CAN is not a *basic* sense variant of CAN but a (possibly lexicalized) *interpretation* of the usage of CAN in situations and contexts where the capability denoted by this

verb is questioned, negated, or simply established through the utterance where CAN occurs:

Can I pinch a ciggie? – Course you can. [...] (Palmer 1990, 71)

Our treatment of futuric WILL includes a rejection of the claim that English has a future *tense*. This agrees with Palmer (1990, 160-61), K.M. Lauridsen (1987, 103-12), and others, while Davidsen-Nielsen (1988, 1990) maintains the traditional view that futuric WILL and SHALL are *auxiliaries of future tense*. We do not disagree with Davidsen-Nielsen about the existence of future tense in general (e.g. in Romance languages): we only deny that English, Danish, and German has one. It is clearly possible to distinguish between dynamic and futuric usages of WILL, VILLE (Davidsen-Nielsen 1988, 15-16), but that does not prove that the futuric usage represents *tense*.

There is much more to the story, of course, than merely relabeling a diagram, and we immediately proceed to tell that tale; but we have offered the reader this lookahead to point out that our terms and concepts differ from the traditional ones: (1) we use *deontic* as a classifier of modal lexical items, using *abilitive* to denote the non-deontic ones, and (2) the traditionally »deontic« usages of lexical items are here called *dynamic*. Also, (3) we consider the *futuric* usage of modals as a prospective variant of the relevant verbs and not as an independent (perhaps non-modal) type of sense variant.

The three basic variant types are generally easy to distinguish from each other: epistemic modality applies to propositions, the other two to events or situations, and then prospective modality focuses on the event as a whole while dynamic modality focuses more on the subject. This summary description is based on constructions in the active voice; if a modality is dynamic in an active construction it is still dynamic in the corresponding passive, even if the active subject is not expressed here.

Although we have outlined our approach using English data and expect the suggested structure to be applicable to English and other Germanic languages, we shall not attempt to substantiate this claim in the following but primarily consider the Danish modals. When we occasionally mention the German modal verbs we have followed Calbert (1971, 1975) in including WERDEN; this point of view is well

justified by Vater (1975) but WERDEN is not universally accepted as a modal verb.

Technical Notes

This section documents some editorial conventions, particularly concerning our glossings, and some information about our data material. The first part is primarily relevant to readers unfamiliar with Danish.

Editorial Conventions

Lexical items are written in capitals, Danish and German ones using the infinitive, English the present tense form. The four central Danish modals are KUNNE 'can', MÅTTE 'may/must', SKULLE 'shall', and VILLE 'will'; occasionally we use the identifier MÅTTE-g (for *gerne* 'rather, well') for the MAY-meaning and MÅTTE-n (for *nødvendigvis* 'necessarily') for the MUST-meaning of MÅTTE. Besides the central modals, the following verbs also exclusively or partly have modal function: BEHØVE 'need', BURDE 'ought to', the almost untranslatable GIDE which we gloss as 'bother [to]', and TURDE 'dare'. When these words are mentioned in the text we do not gloss them, and the same goes for the auxiliaries VÆRE 'be', BLIVE 'be(come)', HAVE 'have' and FÅ 'get'.

Examples are usually only glossed (within single quotes); textual additions to the gloss may be added [in brackets], explanations with a preceding colon [:explanation]. Only when a glossing is not readily interpreted do we add a translation without quotes.

Infinitives and past participles of the Danish modals are glossed as English past tense forms, e.g. »Han har villet kunne gøre det« 'He has would could do it'; the context shows that *would* must represent a participle and *could* an infinitive.

Morphological passives of normally active verbs are indicated by the suffix -PASS while periphrastic passives with auxiliary BLIVE (which normally means *become*) are glossed as English passives with *be*. The reflexive pronoun *sig*, having no person/number distinctions and thus means 'him/her/it/oneself; themselves' is glossed as REFL, and the possessive reflexive forms *sin/sit/sine* are glossed as REFL-POSS. Note that

the preposition *til* and the infinitive marker *at* must both be glossed as *to*.

Quotations from works in the Scandinavian languages have been translated by the present author.

The notation ODS#nn refers to ODS usage (sense variant) definition number nn for the word being discussed, ignoring usage definitions representing obsolescent or archaic variants. It should be noted that we refer to the usage *definition* and do not imply that we would interpret and classify all the quotations in the same manner as the various editors have done.

Corpus Data

Much of the analysis presented is based on systematic excerpts from »the modern corpus« which is actually two independent Danish text collections: A one million word legal corpus containing 388 texts (Dyrberg et al. 1988) and a four million word general text corpus containing 200 texts from each of the years 1987-1990 (Bergenholtz 1990). Half of the general texts are fictional, one fourth from weekly magazines and one fourth from newspapers. The word counts are 1,030,287 for the legal corpus, 4,105,175 for the general corpus, or a total of 5,135,462 words.

Some of the texts – particularly in the legal corpus – include expressions or quotations from other languages or use pre-1948 orthography; other texts – particularly in the fictional parts of the general corpus – use creative orthography, including contracted forms, words run together and other anomalies. We have shown some statistical tabulations but have not aimed at any exact analyses, so we have only extracted forms in the currently authorized orthography.

In the extracts focusing on two or three cooccurring words we have only considered those cases where these words are neighbors. This means that we do not catch all cooccurrences of such word pairs or triples; but the number of extracts is still considerable, and we confidently assume the extracts to be representative.

In addition to an extract of all occurrences of a modal verb form we have made the following special extracts: (1) a modal form followed by a modal infinitive; (2) a past participle modal form; (3) a modal form followed by one of the perfect-forming auxiliaries HAVE 'have' or

VÆRE 'be', again followed by a word ending in *t* (hence a possible perfect participle verb form); (4) a modal form followed by the passive auxiliary BLIVE 'be(come)'; (5) a modal form followed by a word ending in a vowel and an *s* (hence a possible morphological passive form); (6) a modal form preceded or followed by *og, eller* or *men* ('and, or, but'). From extracts (3) and (5-6) we have manually deleted »false alarms« where the *t* or *s* did not belong to the desired verb form or the coordination was not with another relevant verb form, and from all extracts we have deleted accidental occurrences not representing (Danish) modals. The number of errors unavoidably caused by the manual procedure seems to be rather small.

In almost all cases our judgements have been based on one-line extracts containing a maximum of 58 characters with the modal form at the center. This has generally been sufficient to classify the modal usage involved, and dubious extracts have mostly been ignored, since we have not aimed at precise statistics but only tried to discover general tendencies.

In the corpus examples quoted in the following we have normally found it superfluous to add a source text reference, partly because we normally just use these examples to supplement our own intuitions and to illustrate quite well-known phenomena, partly because we often abbreviate or modify the contexts. In a few cases where we quote a particularly interesting example we identify the source text by an abbreviation of the form DJURnnnn for the legal corpus and DKyynnnn for the general corpus from the year 19yy; in both cases 'nnnn' is the text number as defined by the generators of the corpora.

The Notion of Modality

The term *modality* is not used with a generally accepted consistent meaning: for instance, some authors apply it to almost any kind of logical modification of a predication; others use it more restrictedly within this area, so we shall describe our usage here, summarized in the following table.

Expressions		Content	
Modulators	Mood forms	Mood	Modulation
	Modal expressions	Modality	

Following Perkins (1983) who introduced the useful term *modal expression* we use that for the morphemes expressing the semantic notion of *modality*, here particularly about *modal verbs*. Some authors conflate mood and (epistemic) modality to a single category on the content side and then distinguish between synthetic mood (our mood forms) and analytic mood (our modal verbs) on the expression side (Davidsen Nielsen 1990); but we agree with Palmer (1986, 21-23) that it is useful to maintain a clear distinction. Not just in Danish, but also more generally, mood only applies to (modifies) propositions while modality may occur with non-finite constructions and consequently must be considered a modifier of *predications* (the restricted morphology of the central English *modal verbs* has the effect that only *other modal expressions* like BE ABLE TO, HAVE TO, BE GOING TO, etc. enter into non-finite constructions in English). It may also been noted that in Italian, »the modal verbs may appear in different moods« (BLJensen 1997, 109); a fact supporting a general distinction between the two categories of modality and mood.

Another difference between modality and mood is that in Danish and related languages modal expressions are lexical (verbal, adverbial, nominal, or adjectival), or derivational (*-abel*, *-bar*, *-elig* 'able') while *mood forms* are verbal inflectional expressions of *mood*: indicative, imperative, or subjunctive (in Danish really the infinitive used with finite verb function in sentences with »optative syntax«), and the meaning differences between these forms seem to have little in common with that of the modal expressions; the semantic elements they *do* have in common might be called *modulation* as suggested in the table above.

Such common elements may be involved in some uses of the modal verbs in reported speech; when the original speech act employs imperative mood, for instance, SKULLE is used for reporting it:

Han sagde: Gå din vej!

'He said: Go your way [:go away]!'

Han sagde (at) jeg skulle gå min vej.

'He said (that) I should go my way [:go away]'.

Also, MÅTTE may be used for reporting imperatives of the verb *lade* 'let' which has a certain flavor of modality (permission) itself:

Han sagde: Lad hende komme!

'He said: Let her come!'

Han sagde (at) hun (gerne) måtte komme.

'He said (that) she (rather) might come'.

These seem to be the only clear cases of a relation between modal verbs and a mood form in Danish, but the modal verb VILLE *may*, but need not, be used to emphasize futurity in reported speech:

Han sagde: Jeg kommer imorgen.

'He said: I come tomorrow'.

Han sagde (at) han ville komme (imorgen).

'He said (that) he would come (tomorrow)'.

Han sagde (at) han kom (imorgen).

'He said (that) he came (tomorrow)'.

As the last example shows, the use of VILLE is not a requirement, even when there is no futuristic time adverbial; the context or situation will normally be sufficient to suggest the futuristic meaning. We do not find the occasional usage of modal verbs for reporting imperative mood or future time reference sufficient to posit a formal connection between modality, mood and tense.

Modal Verbs

Using the word *modality* in a wider sense, Nølke (1989, 48-50) distinguishes between *locutionary* and *illocutionary* modalities, where the former depends on the notion of truth-value and roughly correspond to

the linguistic counterparts of the modalities of modal logic: words like *obviously, hopefully, surely, perhaps* (ibid., 57); while the latter have to do with the communication conditions: words like *frankly, sincerely* (ibid., 51). Both of these types of adverbials express *non-asserted* modalities: they are characteristic by being unable to »be brought in as the direct focus« as in »*Peter has not frankly/probably left Paris«. The opposite, *asserted modalities*, present the modality as a new fact the speaker is ready to defend, i.e. to discuss, and Nølke is »not sure that there are any asserted illocutionary modalities«. Be that as it may, asserted locutionary modalities are expressed by »modal verbs and so on«.

We interpret these distinctions informally to mean that locutionary modalities are *predication modifiers*, taking predications into predications, while illocutionary modalities are *speech act modifiers*, taking speech acts into speech acts, and we might suggest that *moods* are operators taking predications into speech acts. This interpretation correctly predicts that a sentence may only have one mood and that, on the other hand, more than one modality may apply to a sentence, also correctly. In English, only one modality may be expressed by a modal verb but there is no such restriction in Danish.

As is usual, we restrict our treatment of modality to modulation of a *basic predication* with respect to possibility, predictability, necessity, permission, obligation, etc., and we introduce the word *contingency* as a cover term for all these. The basic predication must be *afactive*, i.e. not presupposed to be true or false; otherwise it is meaningless to express its contingency. This means that the modals are *non-factive* predicates in the sense of Kiparsky & Kiparsky (1970): it is part of their presuppositions that the truth value of their complement is not known.

The verbs expressing contingency in the modern Germanic languages always include a closed class of 6-12 lexical items, most of which are morphologically or syntactically different from other verbs, and we define a *modal verb* as a verb that (1) expresses contingency with respect to an *afactive* predication, and (2) differs morphologically or syntactically from non-modal verbs. Within the group of modal verbs we distinguish between *central modals* and *quasi-modals* where a central modal (3) is unmarked and unspecialized with regard to co-occurrence restrictions; as emphasized by Welke (1965, 22) it should apply to just about *any* verb, from which it follows that it must be com-

patible with just about any subject: »The fact that the modal verbs do not restrict their subject at all is very important for their characterization« (EHansen 1977, 2). Actually, we find it even more important that they do not restrict their *complement* at all.

Some authors, e.g. Davidsen-Nielsen (1990), sharpen condition (2) and insist that only *auxiliary* usages are to be graced with the title of *modal*, but that would eliminate certain types of Danish constructions, among others the pronominal, directional and proficiency complements (discussed in more detail in the section »Modal Complements« in chapter 4), e.g.

Det vil jeg ikke.	Jeg skal hjem nu.	Hun kan fransk.
'That will I not.	I must home now.	She can French'.

although they clearly express the same modalities as the analogous examples

Jeg vil ikke rejse.	Jeg skal komme hjem nu.	Hun kan tale fransk.
'I will not travel.	I must come home now.	She can speak French'.

The first – pronominal – type is of course easily interpreted predicationally; for the second type Erik Hansen (1972) has argued convincingly for an implicitly understood (not »omitted« as in traditional grammars) underlying predicator, specifically one with the same meaning as the verb *komme* 'come'; and a similar solution is possible with the third type where we suggest an implicit predicator meaning »having some mental relation to«, KUNNE then specifying that relation as proficiency – a subtype of ability. Klinge notes that this construction with KUNNE »occurs with a very limited set of complements« (1996, n. 2, 52-53) but does not characterize the restriction; Bech (1951, 27) may be taken to suggest that it has to do with intellectual activity but *know-how* is a more precise delimitation.

Since some Danish modals occur in sentences with no other verb form they cannot be auxiliaries in these constructions; but that is no good reason for considering such constructions non-modal, particularly since some of them use clearly *central* modal verbs. If – in analogy with these cases – we treat BEHØVE with non-verbal complement as

containing an implicit predicator meaning 'get' we might even interpret this verb as a truly modal verb.

Danish Modal Verbs

Unlike the English modals, Danish modal verbs are inflectionally quite ordinary (it is irrelevant that most of them are »preterito-presentic«: so is *vide* 'know') and have the set of forms expected from their semantics: the lack or extreme rarity of passives, imperatives, present participles, and predicative or attributive use of past participles may all be attributed to their meanings.

It is notable, however, that in contradistinction to the vast majority of Danish verbs the modals do not readily form derivatives or enter into compounds. The dictionary only contains the following words (and their derivatives and compounds) with possible relation to a modal: BEHØVE: *behov* 'need (sb.)'; BURDE: *tilbørlig* 'appropriate'; GIDE: *ugidelig* 'lazy'; KUNNE: *kunnen* 'ability', *kunst* 'art', *kundskab* 'knowledge', *kyndig* 'knowledgeable', *kanske* 'maybe'; MÅTTE: *måske* 'maybe', *formå* 'be able'; SKULLE: none; TURDE: none; VILLE: *vilje* 'will (sb.)', *bevilge* 'grant (vb.)', *bevilling* 'grant (sb.)', *indvillige* 'agree', *vilkår* 'condition', *villig* 'willing'.

Our condition (2) above to the effect that a modal verb must differ morphologically or syntactically from non-modal verbs cannot be considered relevantly satisfied by the minor morphological peculiarities of the modal verbs, and the fact that modal verbs are usually unstressed (EHansen 1977) is typical not only of modal constructions but also of many other ones. Thus the characteristics distinguishing the Danish modal verbs are syntactic. The primary one is that the modals govern bare infinitives rather than infinitives with the (conjunctive) marker *at* 'to', and the only other distinctive trait is that in echo constructions the central modals *cannot* be replaced by the pro-verb *gøre* 'do'. (Except for echo constructions Danish has nothing like English »do-support«; hence the Danish modals cannot be exceptions to it.)

What we consider the *central* modals, KUNNE, MÅTTE, SKULLE, VILLE never govern *at*-infinitives; nor does BURDE outside some formal legal contexts; and TURDE is extremely rare with *at*-infinitive (only one corpus example in 700 occurrences). GIDE only occurs with *at* in 7% of the corpus examples while BEHØVE need not use *at* but

does so in about 75% of the corpus examples. These verbs are the only ones we consider modal verbs in modern Danish: MONNE 'may' is archaic and the rare modal usages of FÅ 'get' are also old-fashioned. Swedish and Norwegian readers should thus be aware that Danish FÅ does *not* have the common modality usage of these languages.

These verbs are the only ones capable of taking a bare infinitive as their direct object, and the only other verbs governing bare infinitives have »accusative-cum-infinitive« (ACI) constructions, e.g. SE 'see', LADE 'let'; we claim that they take a noun phrase as object and the infinitive as object predicative (Brandt 1995, 21) but even if this particular syntactic analysis is rejected, their argument patterns evidently distinguish them from the modals.

In echo constructions the central modals KUNNE, MÅTTE, SKULLE, VILLE *must* be self-representing, BURDE, TURDE, GIDE, BEHØVE may or may not be; the probability of *gøre*-representation in my judgement increases in the sequence in which the verbs were just listed; for TURDE, GIDE this judgement is supported by Skyum-Nielsen (1971, 219, 228). He also broaches the idea that self-representation may be related to auxiliarity (1971, 279), and we might interpret obligatory self-representation to be primarily a (sufficient, not necessary) feature of auxiliary verbs; besides *gøre* itself the only other verbs that *must* be self-representing are the auxiliaries *have, være* 'have, be'; not even the passive and resultative auxiliaries *blive, få* 'become [:be], get' have to be self-representing.

Our conclusion is that a meaningful analysis of modal verbs in contemporary Danish must include the eight lexemes BEHØVE, BURDE, GIDE, KUNNE, MÅTTE, SKULLE, TURDE, VILLE. The four central modals could be considered *modal auxiliaries* but we do not consider this concept relevant for Danish. The main reason for including all eight verbs in the class of modals is that they form a semantic field.

A *semantic field* is not just any arbitrary set of related meanings a philosopher might invent, but a *maximal (non-extendible) set of linguistic signs with (1) a common semantic denominator and with (2) similar semantic and expressional characteristics*, and the modal verbs as we have delimited this class are similar in these manners, especially by participating in a common set of sense variants whose respective restrictions and other regularities are systematic within the group of modals, as we

shall show. On the other hand, no similar meaning variation seems to have been proposed for any verbs outside the group of modals.

Two other arguments for considering the Danish modal verbs as a semantic field are that they often are near-synonyms of each other in specific contexts with only slight, if any, differences in meaning, and that they occasionally alternate with the context:

Retten finder at det må/kan anses for bevist at ... (same meaning)
 'The-Court finds that it must/can consider-PASS for proven that ...'

Du {skal / behøver ikke} slå plænen. (alternation)
 'You {must / need not} mow the-lawn.'

A further argument is that they are often coordinated with each other and rarely with other verbs; the latter fact, of course, not unrelated to the fact that modals govern 0-infinitives while other verbs governing infinitives require the infinitive marker *at*. Nevertheless it seems noticeable that Skyum-Nielsen's and the modern corpora together attest 15 of the 28 possible coordinated pairs of modals, and that the unattested ones appear to be possible at least in adversative (*but*-) contexts (with negated BEHØVE, GIDE, or TURDE, all of which are low-frequency modals in the first place). The coordination data seem to confirm that the modal verbs form a semantically coherent set of verbs.

Frequency of the Modal Verbs

The central modal verbs are among the most frequent words in Danish. Totally, about 2% of the words in the modern corpus (5.1 million words) are modal verb forms (or cases of a few rare homographs); Skyum-Nielsen's 200.000 word corpus contains 2.5% modals (1971, 42) – the difference may partly be ascribed to a presumably larger diversity in the modern corpus and partly to the fact that our extracts omit contracted and obsolete forms (e.g. *ka'*, *ku'*, *kunde*).

The relative frequencies of the modals are quite similar in Skyum-Nielsen's study and in the modern corpora: the four central modals dominate with a total of 96-97% of the occurrences, and each of these modals occur in 95-99% of the individual corpus texts (whose average size is 4,320 words).

Ranged in frequency order, the occurrence data are as follows (the occurrences of BEHØVE only include the dominating use (75%) with infinitive complement or pronominal complement representing a verbal act):

	Skyum-Nielsen (1971)		Two large modern text corpora			
	Occurrences		Occurrences		Number of texts	
KUNNE	2,045	40.5%	40,469	38.8%	1,178	99.2%
SKULLE	1,084	21.5%	25,558	24.5%	1,165	98.1%
VILLE	1,098	21.8%	22,441	21.5%	1,120	94.3%
MÅTTE	674	13.4%	12,024	11.5%	1,148	96.6%
BURDE	117	2.3%	2,238	2.4%	680	57.2%
TURDE	17	0.3%	708	0.7%	461	38.8%
BEHØVE	(no data given)		527	0.5%	431	36.3%
GIDE	12	0.2%	405	0.4%	264	22.2%
Total	5,047		104,370			

CHAPTER 2

Dimensions of Modality

The modal verbs and their sense variants differ from each other in a number of respects, all related to the contingency they express, for instance its nature, its source, and its strength. We call these *dimensions* of modality and proceed to describe the major ones, beginning with those primarily serving to distinguish between lexical items. When we occasionally couch this description in terms of *lexical features* we do not imply a specific theoretic framework for the lexicon but simply use the features as handy names for semantic elements we have reason to identify across the modal lexical items.

Logico-Philosophical Modalities

Many linguistic studies of modality include an introductory section discussing the notions of modality developed by philosophers or logicians and then try to relate *linguistic* modality to *logico-philosophical* modality (Perkins 1983, 6-12; Palmer 1986, 10-13). This approach we find to be essentially wrong or at best irrelevant. What I sloganize as »the philosophical fallacy« is dangerous because there 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. As Karin Aijmer (1978) rightly notes: »There is not a direct relationship between the modal auxiliaries in natural language and the logical concepts, however«.

To give my own favorite example, logical necessity implies logical truth; but a different relationship holds in natural language where the assertion of necessity is a *weaker* statement than a categorical (non-modalized) assertion (Lyons 1977, 808-09): when a speaker says »Ophelia must be mad« he implicitly leaves open the possibility that he could be wrong; if he wants to exclude that from his message he must say »Ophelia is mad«. Thus, identification of logical and linguistic necessity is not only methodologically bad policy but demonstrably wrong:

Logically:	Necessarily(p)	= >	not Possibly(not p)
Linguistically:	Necessarily(p)	= >	Possibly(not p)

In his introduction Perkins (1983, 9-11) lists eight classes of logico-philosophical modalities, selecting three (renaming one in the process) to account for the more central modalities. These three types of what we may call *modal authority* he differentiates by the nature of the laws and principles giving rise to the modality:

- *Epistemic* modality is based on *rational laws*: laws of human reason, knowledge or belief.
- *Deontic* modality is based on *social laws*: laws of human institutions or social conventions.
- *Dynamic* modality is based on *natural laws*: laws of physics, psychology, etc.

This tripartition and the names of the modalities have been generally accepted since Palmer (1979), and Palmer later (1990, p. 36) describes this classification as »kinds of modality« (to be distinguished from the »degrees of modality« discussed later). Perkins's contribution was to formalize the tripartite classification in terms of the type of laws the modality is based on, but his approach may be criticized for being imprecise or vague and also for being an example of the philosophical fallacy.

As already mentioned we do not follow orthodox practice: not only do we use *deontic* as a classifier of lexical items and not as a general clas-

sifier of modal sense variants; but, more importantly, we do not consider modal authority to be a linguistically *basic* dimension of modality.

Modal Source

Some authors introduce terms like objective and subjective (subject-oriented) modality, usually to distinguish between cases where a modality is imposed by external factors and cases where it is internal to the situation. We find the terms rather overworked and hence prone to misinterpretation; but the distinction itself we propose to take as an essential dimension of modality.

We use the term *modal source* for what Bech calls »modalfaktor« (1951, 7) which he considers to be either extrasubjective and intrasubjective. Halliday (1970, 339) notes the same distinction, using the terms *extrinsic* and *intrinsic*, respectively, and the extrasubjective modal source is also rediscovered by Lyons (1977, 843): In deontic constructions »it is generally, though not necessarily, assumed that some person or institution has created the obligation or permission«, and this establishing entity is called a *deontic source*.

Following Bech, we suggest that *any* modality may have a cause, reason or source; but unlike him we do not include a *lexically* neutral category. Bech considers WILLEN intrasubjective, SOLLEN, DÜRFEN extrasubjective and MÜSSEN, KÖNNEN, MÖGEN neutral (1951, 4-5); in other words he only considers the modal factor distinctive within his »volitive« subsystem of the German modals (1949, 37-39).

Occasionally the modal source is expressly mentioned in a modal sentence:

Hvis du må for din mor, så tag med.

'If you may for your mother then take with [;join the party]'.

Du skal/bør gøre det for dit helbreds skyld.

'You shall/ought [to] do it for your health's sake'.

When we examine the lexical items for the modals in the Germanic languages in their basic, dynamic usage they clearly fall into two groups: the *abilitive* (intrasubjective) modals where the modal source is canonically inherent in the subject itself and the *deontic* (extrasubjective) modals where the modal source is canonically not inherent in the subject. Another way of expressing this is that abilitive modality is analogous to locational (static) adverbials and that deontic modality is analogous to directional (dynamic – in the non-modality-related meaning of this word) adverbials. This analogy should not be pushed to its limits, but it seems to allow one of the distinctions within the semantic field of modality to be expressed in terms applicable also to other lexical fields.

It is convenient also to introduce the notion of a *modal target* which may be taken to be the patients of the causal force emanating from the modal source. In sentences expressing dynamic modality the modal target is coincident with (for abilitives actually internal to) the sentence subject, but with non-dynamic modality the modal target need not coincide with the subject for the modal verb; we return to this question p. 40.

We classify the English, Danish, and German modals as follows (the items in a row have overlapping ranges of meanings but are not claimed to be translation equivalents):

	English	Danish	German
Abilitive	CAN	KUNNE	KÖNNEN
	DARE	TURDE	
		GIDE	MÖGEN
	WILL	VILLE	WILLEN
			WERDEN
	HAVE TO NEED	BEHØVE	
Deontic	MAY	MÅTTE	DÜRFEN
	SHALL		
	IS TO		
	OUGHT TO	BURDE	
	HAD BETTER		
	MUST	SKULLE	SOLLEN MÜSSEN

Typically, abilitive modals express (cap)ability or disposition, deontic modals permission or obligation; but when the modal source is unspecific »general circumstances« both types just express possibility, predictability or necessity. We have classified NEED and BEHØVE as abilitive since they denote need or requirement inherent in the subject; thus »ability« includes »disability«. Leech also finds NEED to express »the constraint that his [the subject's] own situation imposes upon him« and seems to suggest a similar meaning for HAVE TO (1971, 96, 97), but our classification of HAVE TO is merely tentative, as is the classification of all the German modals.

A similar classification of modal *meanings*, not of lexical items, is made by Hermerén (1978, 95-96) who proposes the types *internal* (= abilitive), *external* (= deontic), and *neutral* (= epistemic); but not all modal meanings are individual lexical items, and there are no lexically epistemic modal verbs: verbs like *believe*, *know* may be called epistemic but they do not express contingency and thus fall outside the definition of modality we use.

An epistemic meaning is a possible *variant* of the modals, using an *alternative modal source and target* instead of the lexically expected ones. Since an epistemic sentence expresses a judgement or assessment of the speaker's, based on his knowledge and beliefs, Calbert uses the appropriate designation *inferential* for the epistemic usage (1971, 97) but we have preferred to stick to the traditional term. In epistemic sentences the modal source will normally be some evidence or facts the speaker knows or believes to be true, and the modal target might be taken to be the speaker himself; but it is probably more appropriate to assume that epistemic expressions have *no modal target*.

Another case of an alternative modal source is the permissual use of CAN mentioned previously; this is also possible, but perhaps less common, with Danish KUNNE. Here the ability of the primary modal source is not initially inherent in the subject but is conferred on it by the alternative modal source giving permission.

We take the modal source to be the primary dimension of modality because it is a clear and distinctive feature of the basic lexical meaning of each modal, and it serves to divide the modal verbs in two fairly even-sized groups.

Modal Intensity

The second classificatory theme we propose will be called *modal intensity* which in actual practice is a continuous scale, but only three focal points on the scale are represented lexically. A similar scale with several degrees of »assuredness« is proposed by Hermerén (1978) while the tripartition is due to Perkins (1983) who uses the terms »does not preclude; is disposed towards; entails« to express the distinction between the degrees of force some laws and circumstances exercise on the basic predication. Also Palmer (1990, p. 36-37) uses three *degrees* of modality but does not give the intermediate one a name.

A tripartite division compatible with Perkins's is presented by K.M. Lauridsen (1987, 120-22) who suggests that *predictability* is the subtype of necessity that is essentially characterized by futurity. This does not sound terribly convincing since (non-predictive) necessity may also be futuric.

We employ the same terms as K.M. Lauridsen but suggest that the scale is defined by means of the two binary features \pm PREDICT and \pm REQUIRE where we assume that +REQUIRE implies +PREDICT so that the two features define only three types. It is formally conceivable that BEHØVE and NEED (and possibly HAVE TO) represent a fourth type: plain *requirement* [+REQUIRE,-PREDICT]; but this would mean that all necessity modals were deontic and all requirement modals were abilitive and the system would be redundant, so we stipulate only three levels of modal intensity. If we rearrange the table given above so that the modals are shown according to increasing intensity we get the following result:

	English	Danish	German
Possibility:			
Abilitive	CAN	KUNNE	KÖNNEN
Abilitive	DARE	TURDE	
Abilitive		GIDE	MÖGEN
Deontic	MAY		DÜRFEN

Predictability:

Abilitive	WILL	VILLE	WILLEN
Abilitive			WERDEN

Deontic	SHALL		
Deontic	IS TO		
Deontic		MÅTTE	

Necessity:

Deontic	OUGHT TO	BURDE	
Deontic	HAD BETTER		
Deontic	MUST	SKULLE	SOLLEN
Deontic			MÜSSEN

Abilitive	HAVE TO		
Abilitive	NEED	BEHØVE	

Our analysis is not identical to the one presented in K.M. Lauridsen's discussion of (some of) the Danish and English modals (1987, 123-146), primarily because she treats MÅTTE in two places: as a possibility and a necessity modal, and because she splits SKULLE into a predictability and a necessity modal. She also finds (1987, 140) that »Dynamic [i.e. abilitive] necessity does not seem to be expressed by the modals of this study« and further suggests that if this subcategory exists at all »it would perhaps be expressed by DARE/TØR and GIDE«, a conjecture contrary to all current meanings of these verbs.

We find abilitive necessity to be expressed by BEHØVE/NEED which we consider as basically (dis-)abilitive and only implicitly or derivatively deontic, for instance when they, within the field of modality, substitute for the deontic verbs SKULLE/MUST.

Modal Orientation

A third dimension of modality is what we call *modal orientation*, a concept due to Bech (1949) who distinguishes between »active« and »passive« modality: the active modals express the presence of a tendency towards the realisation of the predicational complement; the passive modals express the absence of a tendency towards the non-realisation of the predicational complement. A similar distinction is implicitly pre-

sent in Perkins's (1983) terms »does not preclude« (= Bech's passive) and »is disposed towards; entails« (= Bech's active).

Bech sees the main difference between SOLLEN and DÜRFEN as a difference between active and passive, and the same goes for the pair MÜSSEN and KÖNNEN. The modals WILLEN and MÖGEN are claimed to have active as well as passive variants.

Bech's description of the German modals has not won wide acclaim. In the discussion following Bjerrum's presentation (Bjerrum 1952, 74), the system was called »fictive«, and it has later been characterized as follows (Welke 1965, 119): »Es besteht der Eindruck, daß Bechs Analyse der Bedeutungen mehr durch das zu erreichende System bestimmt ist, als daß umgekehrt das System durch die Analyse als existent nachgewiesen wird«. Nevertheless, the distinction between two types of modality in the terms discussed here is clearly a valid one and it is only the stipulation of two variants of WILLEN and MÖGEN that seems dubious: we might classify WILLEN as active and MÖGEN as passive.

Although Bech's terms are quite descriptive, they are also used for other purposes, not only voice distinctions: Halliday (1970, 339) calls our abilitive modality »active modulation« and our deontic modality »passive modulation«, hence to avoid confusion we have replaced these terms by a distinction between *directed* and *non-directed* modality.

If we classify the Danish modals strictly according to Bech's definitions we find VILLE, BURDE, SKULLE, BEHØVE to be directed and KUNNE, TURDE, GIDE non-directed; MÅTTE is non-directed in its permission usage and directed in its necessity usage. Disregarding MÅTTE, modal orientation would then be predictable from modal intensity: possibility modals are non-directed, all others directed.

Instead of rejecting modal orientation as a relevant basic dimension due to its redundancy we prefer to relax its interpretation slightly and use it to distinguish between KUNNE on the one hand and TURDE and GIDE on the other; similarly a difference in orientation would account for the difference between BURDE and SKULLE. For English, Leech assigns a feature of *actuality* to all modals except OUGHT TO (1969, 208, 213) and although we do not use his system generally we might adopt his terminology on this point and define a modal verb as directed if it *suggests the actualization of the predication governed by the modal* and as non-directed if it does not.

This would make KUNNE, BURDE, BEHØVE non-directive and TURDE, GIDE, MÅTTE, VILLE, SKULLE directive. With respect to MÅTTE, the permission variant may be taken to be compatible with actualization, since otherwise the permission would usually be pointless, and the same may hold in English: in an example pair as »The pound can/may be devalued« *can* merely states a possibility while *may* also implies that a devaluation is rather likely. The solution we have preferred, however, is to consider permissional MÅTTE non-directed so that this feature is used to distinguish between *variants* rather than lexical items in this particular case.

Erik Hansen uses Bech's definitions and terms to distinguish between an active and a passive VILLE (1972, 11):

Jeg vil gerne have det at vide.

'I will rather have it to know'.

I would rather like to be told it. (Active)

I wouldn't object to being told it. (Passive)

In our terms, both these meanings are [+DIRECTED] (»active«). We agree, of course, that the sentence has both a volitive and a concessive reading; but we do not consider these readings to be different *variants* of VILLE but to be different *interpretations* of a single variant, and these interpretations are induced by different interpretations of the *complement*, i.e. as active and passive HAVE. In the passive interpretation, the complement is interpreted as *få det at vide* 'get it to know' which is also the natural expression of that meaning; the imagination must be stretched a bit to get that reading in the example with HAVE. In other words, we do not ascribe the difference to VILLE at all but to the different semantic role patterns of the complements and thus the different semantic roles the subjects play with respect to the complements.

The Space of Modality in Danish

The modal dimensions we have discussed are independent of each other and span out a semantic space with $2 \cdot 3 \cdot 2 = 12$ possible points of

which 7 are lexically represented in Danish. Using a feature notation already introduced in the discussion of modal intensity we may specify the Danish modals as follows (we have numbered the empty fields for easier reference below):

[PREDICT]	[REQUIRE]	[DEONTIC]	[-DIRECTED]	[+DIRECTED]
-	-	-	KUNNE	TURDE, GIDE
-	-	+	(1)	(2)
+	-	-	(3)	VILLE
+	-	+	MÅTTE <->	MÅTTE
+	+	-	BEHØVE	(4)
+	+	+	BURDE	SKULLE

As we see, one of the lines is empty in Danish, but field (1) seems to correspond to English MAY so that all six combinations of the three features [PREDICT, REQUIRE, DEONTIC] are lexically possible. The table implies that fields (2-4) could also represent lexical items, and field (4) seems to fit English HAVE TO while field (3) could be futuristic VILLE/WILL. At any rate, this table should not be taken to be definitive but only to illustrate a possible structure of modal systems.

Another possibility would be to drop the feature [\pm PREDICT] entirely and use something like the following feature specifications:

[REQUIRE]	[DEONTIC]	[DIRECTED]	Danish	English
-	-	-	KUNNE	CAN
-	-	+	VILLE, TURDE, GIDE	WILL
-	+	-		SHALL
-	+	+	MÅTTE	MAY
+	-	-	BEHØVE	NEED
+	-	+		HAVE TO
+	+	-	BURDE	OUGHT TO
+	+	+	SKULLE	MUST

This system has a rather pleasing appearance and brings modality back to the traditional polar field of possibility and necessity [\pm REQUIRE], but we do not adopt it. The primary objection is that modal intensity really seems to have three levels and not just two, and the lexical description should explicitly indicate this.

Sense Variants

The distinction between basic meanings and sense variants has by William Diver been compared to the phonologists' distinction between phonemes and their various phonetic realizations: Just as the latter may be noticeably different in different phonological contexts, so may »the distinctive meanings that form the relevant units of a system as the Scale of Likelihood [our modal intensity] may be expected to appear as noticeably different meanings when combined with other meanings to form the sentences of the language« (1964, 342). One might be tempted to speak of lexical »modemes« and their realizations as variant »modes«; but the »modemes« are probably mainly constituted by more generally applicable lexical features and do not form an »-emic« system on their own.

In a recent paper, Klinge criticizes the »strong tradition .. which assumes that modal auxiliaries are highly polysemic« and further claims that »the impact of context on modal meaning is rarely explicitly and systematically pursued in the literature on modality« (1996, 35). Klinge is partly unfair – as he implicitly documents in a note referring to five »monosemic« frameworks (1996, 52, n. 1) – and partly beating a dead horse: a monosemic or »core meaning« approach (e.g. Perkins 1983) is now generally accepted in linguistic studies of modality and it is not necessary to argue against the »traditional approach«.

But it is also clear that not all modal sense variation can be attributed to the impact of (syntactic, intra-sentential) context: most modals *are* polysemic; but they are so in systematically analogous ways in several Germanic languages; hence in cross-linguistic comparisons like (Davidson-Nielsen 1990) it is useful to apply a set of notional concepts as *tertium comparationis*, describe how these notions are expressed in each language and how these expressions correspond to each other. This may give the reader an impression of fairly unstructured systems of modalities but does not commit the author to the point of view that the individual meanings are independent and unrelated within each individual language.

Davidson-Nielsen notes that »we have found it very difficult to devise a reasonably clear semantic analysis of modality on which a full description of mood usage in the two languages can be based« (1990,

7). So have I, indeed, but by (1) considering *all* usages of the modal verbs, (2) recognizing deontic modality as a *feature of lexical items* and not of usage variants, (3) introducing an *intermediate modal intensity* between possibility and necessity, it has become possible to specify the basic meanings of different modal lexical items in terms of a few linguistically justified features, and we now proceed to describe the major sense variants of the lexical items in a coherent system.

Variants of Modal Authority

We recognize the validity of the established use of three types of logico-philosophical modalities which may be seen as different types of *modal authority*. This notion is a simplified revision of Perkins's analysis (1983, 28-29) where he sees a modality as being conditioned by a system K of organized belief and a set of circumstances C under which the system is relevant, positing the following possibilities for K and C (the first one for CAN, the other two for both MAY and MUST):

K	C	
Natural laws	An empirical circumstance	(Perkins 1983, 34)
Social laws	Deontic source	(Perkins 1983, 37)
Rational laws	Evidence	(Perkins 1983, 37)

Apparently each value for K determines a specific value for C and vice versa, so the distinction between these two components is redundant, and Perkins later (1983, 58, n. 16) identifies the three K/C pairs with dynamic, deontic, and epistemic modality, respectively. On the other hand, he does not explicitly suggest specific values for K or C in relation to the modals WILL and SHALL but notes that with volitional WILL »the circumstance referred to by C is seen as being intrinsic to the referent of the subject« and that with habitual and futuristic WILL »C refers simply to unspecified empirical circumstances« (1983, 45, 46).

We have retained the tripartition of types of modality but replaced Perkins's and others' deontic modality by *prospective*, hereby getting WILL and SHALL on an equal footing with the other modals. Instead of the pairs K and C we just assume the modality to be established by

three different modal authorities which seem to be characterized by different relationships between the modal target and the subject of the modal verb.

Thus the modal target – the element the modality crucially affects – is in dynamic usages identical to the subject of the modal verb. Prospective usages, on the other hand, do not insist that the subject of the modal is identical to the modal target, and in epistemic usage we have suggested that the modal target could be the speaker making the epistemic judgement, but this is not necessarily true, and we prefer the simpler alternative that epistemic modality has no modal target at all. The different variants of the modals are thus distinguished as follows:

	Modal target = modal subject	Modal target empty
Dynamic	Yes	No
Prospective	No	No
Epistemic	(No)	Yes

In addition, we have *lexically* classified the modals into *deontic* and *abilitive* lexemes based on the *dynamic* variant where – by the table above – the modal target and the subject coincide:

	Modal source = modal target (= modal subject)
Abilitive	Yes
Deontic	No

Thus we normally distinguish between three characteristic sense variants of each modal verb and repeat that our terms *epistemic*, *prospective*, *dynamic* designate characteristic *types of variants* of lexical items. As we shall see, most Danish modals may occur in those three variants.

The three variant types differ primarily with respect to the extent of the subject involvement in the modality, and we suggest that the variant system expresses what we may call *modal strength* with respect to the subject. The prospective and dynamic variants – sometimes called *root modals* – are more like each other and are both clearly distinguished

from the epistemic variant, which may be said to take a proposition as its argument while the other two take events. The epistemic variant may be paraphrased by *It is possible/necessary that (SUBJECT do VERB)* and the dynamic one by *It is possible/necessary for (SUBJECT to VERB)* while the prospective one is not naturally paraphrased in any of these ways.

The difference between the prospective and the dynamic variants lies in the way the subject is involved in the modality: with the dynamic variant the subject is either the direct source of the modality or is directly affected by the source of the modality: capability, compulsion, volition, and obligation all involve dynamic meaning while eventuality, prediction, plan, and permission involve prospective meaning. The distinction between these two sense variants may be hard to perceive in some cases, and they often gradually fade into each other. The basic notion, however, is that dynamic modality is *subject-oriented* while the other two variant types are *event-oriented* or *situationally oriented*, and the epistemic variant then applies to this situation as a truth-valued proposition while the prospective variant applies to this situation in terms of its actualization.

In the following chapter we describe the three variant types of the Danish modals and we illustrate each type by a different interpretation of the same Danish sentence, e.g., here using the modal SKULLE 'shall':

Epistemic: *Han skal bo i Paris* = He is reported to live in Paris.

Prospective: *Han skal bo i Paris* = He »is planned to« live in Paris.

Dynamic: *Han skal bo i Paris* = He is obliged to live in Paris.

One way of formalizing the difference between these three variants would be to describe them as different syntactic constructions: the epistemic variant takes two internal arguments which together express a predication with the main verb as a predicative and the sentence subject as its subject; the prospective variant heads a verb phrase with two internal arguments corresponding to an indirect object (the sentence subject) and a direct object (the main verb); and the dynamic variant takes an external argument (the sentence subject) and an internal ob-

ject argument (the main verb). This solution however, does not seem very attractive.

In another framework one might suggest (Brandt 1992, 63-64) that in the epistemic variant the subject is only the subject of the main verb (the modal has no subject, so the internal argument »raises« to sentence subject); in the prospective variant the subject is only the subject of the modal (which functions as a modifier of the main verb and forms a complex verbal expression together with it); and in the dynamic variant the sentence subject is simultaneously the subject of the modal verb and the main verb. Symbolically, we may represent the three variant types as follows, where argument-takers are put in brackets, arguments in parentheses:

Epistemic	[skal] ([bo i Paris] (Peter))
Prospective	[skal bo i Paris] (Peter)
Dynamic	[skal] ([bo i Paris] (Peter)) (Peter)

The idea of a technical distinction between an intransitive (here: epistemic) and transitive (here: dynamic) version of the modals goes back at least to the late sixties (see Kiparsky (1969) for historical references, also Perlmutter 1970 for an elaboration on this topic), and in modern terms we might distinguish between the epistemic and the prospective variants by assuming the first to be an »unaccusative« intransitive and the second to be an »unergative« intransitive construction.

A slightly different approach which, however, also results in a tripartition of modalization, is taken by the Dik (1989) tradition of Functional Grammar (FG) as exemplified by Kees Hengeveld (1987) who distinguishes between *inherent* modality expressed by a predicate, *objective* modality expressed by a predicate operator or an embedding predicate, and *epistemological* modality expressed by a predication operator, an embedding predicate, or an adverbial. Ignoring the precise meanings of the FG-technical terms involved, it is clear that this conception corresponds to our tripartition between dynamic (= inherent), prospective (= objective), and epistemic (= epistemological) modality, and it may suggest a technically viable description of the syntactic differences between the three modes of modalization. We shall not pursue this question here.

CHAPTER 3

Danish Modals and Their Variants

In the following sections we survey (in alphabetical order) the Danish modals and their characteristic sense variants. As English translation equivalents we only indicate the one or two most common ones.

For each verb we include a subsection where we have applied our proposed main variants to the data in the 27-volume Danish dictionary *Ordbog over det Danske Sprog* (1918-54); but not all the examples are quotations from ODS, and in many cases we have abbreviated the quotations and modernized the orthography, and the symbol | is used to indicate the end of a line of poetry. The extent of the coverage is not reflected by numerous examples; only a few typical ones and some borderline cases are presented.

ODS was published over a period of 36 years and has had many different authors. Consequently, the articles have been edited according to sometimes quite different principles: Skyum-Nielsen (1971, 276) notes, for instance, that KUNNE in ODS is treated somewhat differently from the other modals. Therefore we here state the author and date for each of the articles in question.

Verb	Author	Date of printing (not publishing)
BEHØVE	Holger Hansen	August 19th, 1919
BURDE	Kr. Sandfeld	July 7th, 1920
GIDE	Peter Skautrup	March 14th, 1924
KUNNE	Paul V. Rubow	June 15th, 1929
MÅTTE	Johs. Brøndum-Nielsen	January 15th, 1932

SKULLE	Johs. Brøndum-Nielsen	January 27th, 1940
TURDE	Aage Hansen	June 11th, 1948
VILLE	Johs. Brøndum-Nielsen	March 17th, 1952

The Lexeme BEHØVE

The English equivalent is normally *need* but in modal usages *have to* is also a common translation.

Main Variants

Although modal BEHØVE is always explicitly or implicitly negated or non-assertive we designate its sense variants by the unnegated meaning element the verb alone represents.

Peter behøver ikke at drikke.
'Peter need not to drink'.

1. Epistemic (hypothesis): It need not be true that Peter is drinking even though he is sitting with a glass in his hand: he may just be admiring it.
2. Prospective (requirement): It is not necessary for the hearer to give Peter anything to drink, because I'll be doing that when Peter gets home.
3. Dynamic (need): Peter doesn't need to drink to get in high spirits: he is always the soul of a party even when sober.

BEHØVE is not a typical modal but is used for modal negation in cases where the corresponding assertive modal verb would typically be SKULLE (with predicational negation), and examination of the corpus data shows that the modal usage is the dominant one, accounting for about 75% of the occurrences, and many of the nominal complements are nouns related to verbs, e.g. *hjælp* 'help, aid'. Infinitive complements of BEHØVE most often take the infinitive marker *at*, but about 25% of the occurrences are bare infinitives.

In addition to the forms common with other modals, BEHØVE also

has a morphological passive *behøves* which is considered substandard (childish) with infinitive complement. The corpus has a single example

Græsset .. behøves aldrig mere at blive slået.
'The-grass .. need-PASS never more to be mowed'.

The other eight corpus occurrences of *behøves* all have nominal complements; but the common pronominal complement *det* 'that, it' typically refers to a contextually preceding infinitive and the construction expresses the same kind of pronominalized modality we find with other modal constructions.

A: Vi skal slå plænen. – B: Det behøves ikke.
'A: We must mow the-lawn. – B: That need-PASS not'.

The (partial) recognition of BEHØVE as a modal verb is a fairly recent phenomenon, possibly first broached by Erik Hansen (1977). Skyum-Nielsen (1971, 233) notes that previous Danish grammatical literature did not include BEHØVE among the modals, and consequently he has not excerpted examples with this verb, a fact he seems to have regretted. Niels Davidsen-Nielsen (1990, 36) after some discussion states that »In this book we shall .. interpret epistemic *behøve* as an auxiliary« and also includes this verb among his »semi-auxiliaries« expressing compulsion (p. 196ff.). Also Helle Østkjær Jensen (1987) explicitly treats BEHØVE, while K.M. Lauridsen (1987) generally seems to ignore it.

Dictionary Definitions

The modal usages of BEHØVE are all in ODS#1.2. The epistemic variant is shown in the example suggesting the triple discussed above but originally with a habitual meaning of *drikke*.

Fordi en mands næse er rød, behøver han ikke at drikke.
'Because a man's nose is red need he not to drink [:be a drunkard]'.

In the prospective usage it is *the action as such* that is unnecessary and this variant is often semantically close to the epistemic. The following example may not only be paraphrased by »It is not *necessary* for anybody

to tell me ...« but also – with little change of meaning – by »It is not *necessary that* anybody tells me ...«; but we consider the first paraphrase as the technically appropriate one:

Ingen behøver at fortælle mig, hvor urimeligt et håb det er.
'Nobody need to tell me how unreasonable a hope that is'.

The dynamic variant is characterized with a lack of need *in the subject itself* (which need not be animate). Some examples (the first one with 0-infinitive) are

Vi behøver ikke nøjes med minderne.
'We need not satisfy-PASS with the-memories'.

Badeværelset behøver ikke at blive gjort rent idag.
'The-bath-room need not to be made clean [:cleaned] today'.

The Lexeme BURDE

The English equivalent is *ought to* or *should*.

Main Variants

- Peter bør bestå eksamen.
'Peter ought [to] pass [the] examination'.
1. Epistemic (conformity): Peter may be expected to pass easily since we know how good he is.
 2. Prospective (propriety): Peter deserves to pass, considering the excellent presentation he just made: the obligation is not on Peter but on the examiners who ought to let Peter pass.
 3. Dynamic (duty): Peter had better pass, otherwise his father will thrash him: the obligation is on Peter.

As in English, the word may carry a connotation that the obligation will or may not be fulfilled. Leech formalizes this by assigning his feature +ACTUALITY to all English modals except OUGHT TO (1969, 208, 213), and we have distinguished between BURDE/OUGHT TO

and SKULLE/MUST by considering the former to be non-directed, i.e. *not* suggesting the actualization of the complement predication.

Dictionary Definitions

ODS only mentions two variants: the prospective one is ODS#2.1 and the dynamic one is ODS#2.2. Erik Hansen also notes that ODS does not include any »suprasegmental« variant but suggests examples like the following for such a variant (1972, 23):

Det bør blive regnvejr i morgen.
'It ought to become rain-weather to-morrow'.

3 plus 4 bør give 7.
'3 plus 4 should give 7'.

Når patienten har fået penicillin, bør feberen gå ned.
'When the-patient has got penicillin should the-fever go down'.

To my ears the first example sounds rather unnatural (unless negated) while the second one perhaps only appears contrived because the calculation is so simple. At any rate we clearly have some epistemic uses of BURDE.

In the prospective type (ODS#2.1) the speaker expresses the propriety or suitability of a *situation* which ought to obtain:

Der burde have været roser.
'There ought [to] have been roses'.

The suitability or duty expressed by the dynamic variant (ODS#2.2), on the other hand, devolves directly on the subject, most often an acting animate being:

Man bør adlyde Gud mere end menneskene.
'One should obey God more than the-humans'.

An example like the following is ambiguous:

Hunden bør adlyde mig.
'The-dog ought [to] obey me'.

The obligation may be on the dog (which will not be fed if it disobeys) or it may be on the owner or trainer of the dog (who must bring it about that the dog becomes obedient).

The Lexeme GIDE

There is no close English equivalent of this informal word which means 'be inclined to', typically negated and meaning »don't really wanna« and implying a tinge of being idle or lazy. (Characteristically, there is not a single example of GIDE in our legal corpus.) Here, we gloss GIDE (inadequately) by *bother to*, which at least suggests some of the informal flavor of GIDE. Only two usages (ODS#2-3) are non-archaic, and we consider both of them as dynamic.

Main Variant

Jeg gider ikke læse lingvistik idag.

'I bother not [to] read linguistics today'.

In this usage (ODS#2) GIDE is most often negated or used in questions or hypothetical constructions; in assertive contexts it usually means »no objection«. Skyum-Nielsen (1971, 259-70) treats the other usage (ODS#3) as »supra-segmental« (epistemic) but there is no basis for this: in both cases the inclination is based on the subject's mental state, be it a weak inclination as in the example above or a stronger desire:

Jeg gad nok vide, hvor hun er henne.

'I bothered rather [to] know where she is at'.

I'd *really* want to know where she is.

In the »desire« construction GIDE is rarely used in non-assertive contexts. It most often governs *vide* 'know', but the corpus contains one occurrence of each of the verbs *høre, se, smage, æde* 'hear, see, taste, devour'. It is notable that the putative »variant« of GIDE denoting desire *only* occurs in the past tense form with present-time reference; the appropriate analysis must be that this usage represents the common

phenomenon of using (tentative) past tense modal forms to express present-time weakened modality.

It is no objection to this analysis that we also find expressions as *Hvis jeg gad* .. 'If I bothered to' with the typical inclination meaning of *gad*, because conditional constructions allow past tense forms of *all verbs* to express a weak hypothesis; this is not a particularly modal phenomenon: In *Hvis vi vandt* 'If we won', the past tense form *vandt* obviously does not represent a special hypothetical »variant« of *vinde* 'win'.

Consequently we describe GIDE as exclusively dynamic, expressing (weak) inclination or absence of disinclination; the »stronger« usages being induced by the remaining text in the sentence.

The classification of this verb as a modal has been questioned (Diderichsen 1962, AaHansen 1961, 1967/3), and Erik Hansen (1977) suggests that GIDE has never really become a modal, an opinion we do not share although the word has a somewhat marginal status.

Skyum-Nielsen reports two examples where GIDE's close synonym *orke* 'be able to; have strength to' is used with 0-infinitive (1971, 246) but rightly concludes that they are atypical usages idiosyncratic to a specific author.

Historically, GIDE used to take a participial complement, now only surviving in the expression *gad vidst* 'would known [:I'd like to know]', occasionally (mis-)spelled *gad vist* (4 out of 14 corpus occurrences), but now more commonly expressed *gad vide* without explicit subject but implied *jeg* 'I' (26 corpus occurrences). The development of this verb is also said to include its »acquiring an infinitive with *at*« (EHansen 1977, 3); but the process must be slow: only 7% of the corpus examples where GIDE governs an infinitive include the infinitive marker, 93% have bare infinitives.

The Lexeme KUNNE

The English cognate is *can*, but the translation equivalent is often *may*.

Main Variants

Peter kan bo i Alaska.

'Peter can live in Alaska'.

1. Epistemic (conjecture): It is conceivable (and likely, perhaps) that Peter lives in Alaska, but we really don't know.
2. Prospective (eventuality): It is possible for Peter to live in Alaska, since there is lots of room up there.
3. Dynamic (capability): Peter is capable of living in Alaska despite the harsh winters, because he is used to them from Canada.

Basically, the epistemic variant is concerned with the possible truth of the embedded predication, representing a proposition; the other variants are concerned with the possible realization or occurrence of the embedded predication, representing a future event or state.

Dictionary Definitions

ODS#14 is the only epistemic usage definition, exemplified by the type

Hun kan vel være et par år ældre end jeg.
'She may probably be a couple [of] years older than I'.

We would also interpret expressions of disbelief like

Den påstand kan ikke være sand.
'That claim can not be true'.

as epistemic: they express a logical inference and are better paraphrased with *possible that* than with *possible for*: *?It is not possible for that claim to be true.

ODS#1-5, ODS#8 and ODS#16 are dynamic, denoting ability, capability, volition, or subjective disposition. The remaining – ODS#6-7, ODS#9-13, ODS#15 – are prospective, denoting possibility, eventuality, or permission. In most cases the determination of the relevant variant type is easy, as when the following from ODS#2 is judged to be dynamic (capability):

Stolt kan hun væven træde | og harpen kan hun slå
'Proud can she the-loom tread and the-harp can she beat'

Similarly the negated usage (ODS#16):

Soldaten kunne slet ikke lade være, han måtte kysse hende.
'The-soldier could at-all not let be, he must [:had to] kiss her'.

ODS#8 represents the usage referring to what is (not) appropriate in a given situation and might also be considered prospective:

Sådan kan en retskaffen mand ikke handle.
'Thus can an honorable man not act'.

Det kan ingen forbyde mig.
'That can nobody forbid me'.

Some prospective examples from ODS#7 and ODS#13, respectively, are

Hvad du ikke er, det kan du blive.
'What you not are, than can you become'.

Hvor kan man plukke roser | hvor ingen roser gror?
'Where can one pick roses where no roses grow'.

The Lexeme MÅTTE

The normal English equivalent is *may/must*. The verb FÅ 'get' has some rare modal usages (ODS#5.2) but it means the same as MÅTTE and is considered a stylistic (formal) alternative which we do not discuss separately since it only occurs in a few idiomatic expressions and calques of these. Both words can be translated as either *may* or *must*.

Main Variants

Peter må bo i Paris.
'Peter may/must live in Paris'.

1. Epistemic (conclusion): We may conclude that Peter lives in Paris, since his letters come from there.
2. Dynamic (compulsion): It is necessary for Peter that he lives in Paris, perhaps because his sweetheart lives there or because he has a formal obligation to do so.
3. Dynamic (permission): Peter is allowed to live in Paris.

In addition to these three, MÅTTE has another less frequent and rather formal, but characteristic variant only occurring in dependent clauses:

.. de bøger hun måtte købe.

'.. the books she {might/had to} buy'.

2. Dynamic (compulsion): The books she very much wanted to buy.
3. Dynamic (permission): The books her parents allowed her to buy.
4. Prospective (supposition): The books she might happen to buy in the future, if any.

As this example shows, the suppositional (hypothetical, potential) variant is only contextually *restricted*, but not a contextually *determined* variant, in which case we would just consider it a subvariant of the permission type and only posit three *main* variants.

Some Danish grammarians (EHansen 1972, 1977; Skyum-Nielsen 1971) may be taken to suggest that MÅTTE is better considered two lexemes as in English and German: MÅTTE-g[erne] 'may-rather' corresponding to *may* (and German *dürfen*) and MÅTTE-n[ødvendigvis] 'must-necessarily' corresponding to *must* (and German *müssen*); but the Danish dictionaries rightly treat these putative lexemes as sense variants of a single one.

In a recent paper, Heltoft & Jakobsen (1996, 210) state in passing that »lexically, the core system of Danish modal verbs consists of the following four modal verbs (note the homonymy in the case of *måtte* between a possibility reading and a necessity reading):« and then lists KUNNE, MÅTTE[-g], MÅTTE[-n], and SKULLE. They do not substantiate their claim and present no arguments or data supporting it – which is not their errand in that context, anyway: they simply state it as a presumed fact; but it is not supported in any of the literature on Danish modals.

The fact remains that MÅTTE is somewhat of an enigma, since its characteristics make it difficult to develop a simple description of modality in Danish, irrespective of whether it is based on a single lexeme MÅTTE or on two. We shall return to the question in the concluding discussion in this report; for the moment we just note that per-

missional MÅTTE[-g] only seems to have prospective and dynamic variants while compulsional MÅTTE[-n] only seems to have epistemic and dynamic variants.

Dictionary Definitions

The epistemic usage is in ODS#5.1 and the dynamic compulsion one in ODS#3.2 and ODS#5.2, both representing the *must* translation, denoting necessity, respectively from logical causes (epistemic) and from physical or social causes (dynamic), in which case the modal is often emphasized. The epistemic (conclusion) variant is exemplified by

Jeg vidste, på hvad lag i heden jeg omtrent måtte finde mig.
 'I knew on what area in the-heather I approximately must locate REFL'.
 I knew approximately where on the heather I would have to be.

The second modal in the example from KUNNE above is characteristic of the dynamic compulsion usage:

Soldaten kunne slet ikke lade være, han måtte kysse hende.
 'The-soldier could at-all not let be, he must [:had to] kiss her'.

The prospective and dynamic permission usages represent the *may* translation, denoting possibility or eventuality (ODS#3.1) or permission (ODS#4). The first group includes

.. de børn, hun i tiden måtte få med [kongen].
 '.. the children she in the-time [:future] might get with the-king.

and the more common permission type may be represented by the following examples of which the first (ODS#4.2) is rather similar to the previous one, but is considered by the dictionary editor as exemplifying »permission«, presumably with Providence, Destiny, or God as modal source.

Da hun lå syg .., ønskede jeg, at hun måtte leve.
 'When she lay ill .. wanted I that she might live [:survive]'.

Jeg [bad] om tilladelse til at måtte indbyde ham.
 'I asked for permission to to might invite him'.

Helle Østkjær Jensen (1987) operates with four main variants of MÅTTE: (1) necessity/conclusion, (2) permission, (3) desire, (4) eventuality, the latter two corresponding to ODS#3.1 and ODS#4.2, respectively. Here, we do not consider her (2) and (3) as independent major variants but rather as contextually or situationally determined subvariants of the permission type where the »permitter« is imaginary.

A further variant type might be claimed to be represented by common expressions like the following, noted by Lihn Jensen (1998, 121) who, however, inexplicably only relates its occurrence in indirect speech representing a non-modalized »Hav det godt« 'Have it nice':

I må have det godt.
 'You must have it well'.
 Have a nice time.

Here *må have* 'must have' expresses a wish or desire on behalf of the speaker and not a compulsion on behalf of the hearer, and it might be feasible to consider this usage an example of the otherwise unattested prospective variant of compulsional MÅTTE. The modal here cannot be permissual MÅTTE, since the expression is incompatible with its characteristic adverb *gerne* 'rather' but compatible with *endelig* 'definitely', one of the characteristic adverbs of compulsional MÅTTE (p. 140). We consider this usage of MÅTTE a contextually and situationally determined interpretation of dynamic, compulsional MÅTTE and not as an independent sense variant.

The Lexeme SKULLE

The English cognate is *shall* but the translation equivalent is normally *must*, *have to* or *be (going) to*.

Main Variants

Peter skal bo i Paris.
 'Peter shall live in Paris'.

1. Epistemic (report): Peter is reported or claimed to live in Paris: people say so.
2. Prospective (plan): According to our or his own plans, Peter is (going) to live in Paris. In either case this is not an *obligation* on Peter.
3. Dynamic (obligation): By the nature of things, Peter has to live in Paris. The obligation devolves on Peter (who could be a elected official who has to live in his district).

Some of the usages of SKULLE are sometimes claimed to be *promises* and possibly considered self-inflicted obligations as presumably done by Palmer who calls promises deontic (1990, 70). Here we only classify a usage as dynamic when it implies some degree of actual obligation rather than just being an emphatic expression with a *meaning* of plan or arrangement, possibly used with intended *interpretation* as the speaker's commitment to this plan.

A different opinion is presented by Niels Davidsen-Nielsen (1990, 96) who states that SKULLE has »four fairly clear main uses«: report, obligation, compulsion, and arrangement. His and our *report* correspond to each other, his *compulsion* corresponds to our *obligation* and his *arrangement* to our *plan*. This leaves his *obligation* which we would subsume under our *plan*, albeit a plan where the speaker commits himself to it being carried out (the English texts are Davidsen-Nielsen's translations):

Det skal blive gjort.

It shall be done.

Forestillingen skal blive spillet i morgen.

The performance shall be played tomorrow.

As we read him, Davidsen-Nielsen supports his analysis by the fact that his (*self-*)*obligation* examples use the periphrastic *blive*-passive while his *arrangement* examples use the morphological *s*-passive; but it is actually not unusual for a Danish verb to occur in both constructions, and since these constructions have different meanings (that is why we have two; see also the section on Danish passives p. 106), it is not at all sur-

prising that a combination of modal and s-passive has a different meaning than a combination of modal and blive-passive. There is no reason to ascribe this difference to two different variants of the modal, and we take the *plan* usage of SKULLE to be the typical prospective one, Davidsen-Nielsen's (*self-*)*obligation* usage being induced by linguistic and extralinguistic context.

Dictionary Definitions

As usual, ODS has only a single epistemic variant (ODS#3.2):

Langt højere, ædlere, finere sprog | skal findes på fremmedes tunge.
'Far higher, nobler, finer languages shall [:are claimed to] exist on foreigners' tounge'.

Most of the many other usage definitions involve the prospective variant and we have only classified a usage definition as dynamic when it implies some degree of obligation, requirement, propriety etc. The prospective variants are found in ODS#2.2-2.3, ODS#4.1-4.2, ODS#4.4, ODS#5.1-5.2 and the dynamic ones in ODS#1, ODS#2.1, ODS#3.1, ODS#4.3 and ODS#5.3.

In the prospective variant, VILLE is often an alternative to SKULLE, for instance in some promises. The difference is that with VILLE the speaker just makes a prediction while with SKULLE he makes a real promise. He need not even be able to do anything to make the promise come true, he just morally guarantees that it *will* come true, as may be the case in the second example below:

Jeg skal få ham til at spytte .. rødt.
'Jeg shall get him to spit .. red'.

Du skal nok få Ulla med dig.
'You shall certainly get Ulla with you'.

A characteristic usage of the planning variant is in suggestions, which become weaker when the past tense form is used:

Skulle vi ikke tage derud og se lidt nærmere på den.
'Should we not take [:go] out-there and look [a] little closer at it'.

We have classified ODS#4.3 as dynamic since it expresses appropriateness or requirement. One of the examples is the shop-keeper's question to a new customer:

Hvad skulle det være?

'What should it be?'

What do you want.

It seems that the shop-keeper here concerns herself with the *requirements* of the customer and that she does not merely inquire about his *plans or intentions*. This specific example might, however, be reclassified, perhaps because it does not readily admit the near-paraphrase with BURDE which is otherwise typical for the dynamic (obligation) variant of SKULLE.

Another example from the same usage definition clearly falls in our dynamic group; this and the following all have near-paraphrases with BURDE.

En kogt rødspætte skal vende den grå side op.

'A boiled plaice shall turn [:have] the grey side up'.

More central expressions of obligation are found in examples like

Man skal æde gås Mortensaften.

'One must eat goose [on] [Saint-]Martin's-eve'.

Ret skal være ret.

'Right shall be right'.

The Lexeme TURDE

The English translation equivalent is normally *dare*, but some usages correspond to *can*, *may*. In present-day language there are only two clearly distinct sense variants: an epistemic and a dynamic one.

Main Variants

Armstrong turde være den første mand på månen.

'Armstrong dared be the first man on the-moon'.

1. Epistemic (assumption): One dare [:may] safely assume that Armstrong was the first man on the moon.
2. Dynamic (boldness): Armstrong showed daring, boldness or courage by being willing to become the first man on the moon.

Erik Hansen claims (1977, 2) that »infinitive with *at* after TURDE now is gaining hold«; but this claim is unsupported by the corpus data: Only one case with infinitive marker is found among 700 occurrences of TURDE, and *at* after TURDE must be considered informal at best.

The corpus includes a single, literary example of TURDE with sentential complement, presumably only induced by the coordination with VILLE where such constructions are grammatical:

Jeg aner ikke .. om jeg overhovedet vil eller tør at det skal ske.

'I guess not [:haven't the slightest idea] .. whether I at-all will or dare that it shall [:is to] happen'.

In modern language the epistemic variant rarely occurs at all and when it does it is in the past tense form with present-time reference. Of the 320 occurrences of past tense *turde*, only 9 represent the epistemic usage, and of the 330 present tense forms *tør*, none represent this usage. Since past tense *turde* never seems to represent weak present-time modality it would be technically feasible to posit only a single variant of TURDE (as we do for GIDE p. 48) and claim that the putative epistemic usage is just a specialized non-temporal usage of the past tense form.

There are two arguments against this solution, however: first of all, the epistemic past tense is not similar in meaning to the dynamic sense of TURDE: there is no obvious element of daring or boldness involved in this variant; and secondly, the present tense form has been used epistemically in older language and we do not feel certain that this usage is impossible now:

Det tør/turde vel fremgå af tallene at ..

'It dare/dared well [:presumably] appear from the-figures that ..'

Some of the non-epistemic occurrences of TURDE might be claimed

to represent a particularly weak, non-daring usage worthy of being promoted to independent variant status, e.g. *Jeg tør nok sige at ..* 'I dare rather say that ..' and *Tør man spørge?* 'Dares one ask?'; but this would be a mistake, since the basic meaning stays the same: it is just the *amount* of courage involved that distinguishes these cases from an example as *Jeg tør godt sige Chomsky imod* 'I dare rather say Chomsky against [:disagree with C.]'.

Dictionary Definitions

In the epistemic usage (ODS#5) TURDE is now rather old-fashioned and rare outside a few stock expressions like

Græd ikke, børnlille, det turde være løgn altsammen
'Cry not, children-small, it dared be lies everything'.
Don't cry, little ones, the story might be pure invention.

Otherwise, the epistemic variant mostly occurs in older (scientific) writing where it occasionally has animate subject

N.N. tør sikkert være født i et bondehus i ...
'N.N. dare surely be born in a farmhouse in ...'
We may safely assume that N.N. was born in a farm house in ...

In such examples the modal source is the writer and not N.N.: it is the writer who »dares« to present a point of view. On the other hand, the non-epistemic usage (ODS#1-4, ODS#6-7) always mentally involves the subject and we have consequently classified this usage as dynamic, although the amount of »daring« required to TURDE something is often negligible, particularly in the (old-fashioned) passive constructions:

At formen skyldes labialisering, tør anses for givet.
'That the-form cause-PASS labialization, dare consider-PASS for given'.

We dare take it for granted that the form is caused by labialization.

In modern language TURDE involves courage or boldness, greater or smaller:

Jeg tør ikke flyve.

'I dare not fly'.

Hvem skal du sammen med, tør man spørge?

'Who shall you together with, dare one [:I] ask?'

Who are you going/traveling with, if I may ask?

Two Lexemes TURDE?

The two variants of TURDE are so different that it would not be unreasonable to claim that they have become different lexemes. The TURDE of assumption differs from the TURDE of boldness in at least three areas in addition to the difference in meaning: (1) It has a quite archaic flavor; (2) in modern Danish it is almost exclusively used in the past tense form with present-time reference; (3) its past tense form is pronounced [torde] or [turde] with non-silent D while the D is almost invariably silent in the past tense form of the variant designating boldness, pronounced [tore, ture].

Here we have opted for the monolexemic description; but nothing important hinges on this: the description of the Danish modals would be essentially the same if we posit two *lexemes* instead of two *variants*.

The Lexeme VILLE

The English cognate is *will* which is also the normal translation equivalent.

Main Variants

Peter vil hjælpe dig.

'Peter will help you'.

1. Prospective (prediction): Peter will help you today (even if he'd rather not), since it is his turn. This variant includes the so-called »futuric« use of VILLE.
2. Dynamic (volition): Peter will (wants to) help you even if you would prefer that he (the silly kid) didn't.

We do not find it appropriate to propose an epistemic variant of VILLE. A putative epistemic reading of the example here could be: »Peter may safely be expected to help you, since he always helps people«; but the difference between this reading and the prospective one given above primarily lies in the reason for the prediction and the strength of the prediction: it is a question of vagueness but not of true ambiguity.

For English Palmer notes (1990, 57) that the distinction between epistemic and prospective usage is not sharp. The WILL and VILLE of predictability discussed by Davidsen-Nielsen (1990, 161-66) might be a candidate for a clear case of epistemic WILL in English; but similar examples for Danish are hard to come by, and we have not been able to find any clear cases of epistemic VILLE.

Dictionary Definitions

We consider ODS#2.3, ODS#3, ODS#4, and ODS#5.1-5.2 to be prospective and ODS#1, ODS#2.1-2.2, and ODS#5.3 to be dynamic. ODS#1 includes the most obviously volitional types, most often with human or animate subject

Vil De hilse fruén.

'Will You greet the-lady'.

Please give my regards to Your wife.

and it is hard to see why a quite analogous example is relegated to ODS#5.3:

Ville De ikke være så god .. at låne mig denne bog?

'Would You not be so good [:kind] .. to lend me this book?

Among the volitives we also find examples with non-human subjects

Benene ville ikke bære hende.

'The-legs would not carry her'.

Saksen ville ikke klippe.

'The-scissor[s] would not cut'.

and we also classify ODS#2.1-2.2, expressing opinion or report, as volitive:

Ligeledes ville han vide, at tyske og danske tropper ...

'Likewise would he know that German and Danish troops [:soldiers] ...'

N.N. vil i Jylland have hørt en variation af sagnet.

'N.N. will in Jutland have heard a variation of the legend.

We do not find it necessary to present many examples of the variant expressing prediction (including futurity); but we note that part of ODS#1.3 seems to be predictive and not to involve the volition of the hearer:

Du vil ikke fortryde det.

'You will not regret it'.

We may also mention the common predictive expression

.. det vil sige .. Abbreviated: d.v.s. or dvs.

'.. that will say ..' = that is, i.e.

The possibly epistemic usage is generally found in ODS#4.2 and would be most discernible when speaking about the present time: »Peter will be (sitting) in his office (now)«, which may not be quite impossible in Danish: »Peter vil være på sit kontor nu«; but ODS only notes this usage in connection with the future (in ODS#5.1 and clearly prospective):

Du vil finde mig i mit logis i degneboligen.

'You will find me in my lodgings in the-parish-clerk-residence'.

A characteristic example from ODS#4.2 is

Nyordningen .. vil være kendt af de fleste.

'The-reform will be known by the most [people : the majority]'.

which has present-time reference; it may still, however, be interpreted as a prediction of what will be found to be the case if the facts were investigated and need to be interpreted as an epistemic inference.

Marginal Modal Expressions

The major auxiliaries and copulative verbs in Danish enter in some modal constructions which we briefly present here, although we do not consider them (central) elements in the Danish modal system. Both

subtypes have been discussed in more detail elsewhere (Brandt 1995, 28-32).

Auxiliary Modal Infinitives

Corresponding to English IS TO, HAVE TO, the Danish auxiliary verbs all have more or less rare modal constructions: VÆRE, BLIVE, and HAVE 'be, be(come), have' may govern an infinitive with *at* 'to' while FÅ 'get' now governs a 0-infinitive; we ignore the latter, archaic type.

The difference between VÆRE, BLIVE on the one hand and HAVE on the other hand is that the first two are used for passive modal constructions, HAVE for active ones. The passive constructions are formal, with BLIVE almost exclusively restricted to legalese, and they have less formal equivalents where a modal verb governs a passive verb form:

Kirken var at se i det fjerne.

'The-church was to see [:visible] in the far [:far away]'.
 (The church was visible from far away.)

Kirken kunne ses i det fjerne.

'The-church could see-PASS in the far'.
 (The church could be seen from far away.)

In modern language this abilitive construction is no longer common and is usually replaced by *være til at* 'be to to' as discussed in the next section, »Modal Predicatives«. In current Danish VÆRE AT is always deontic and usually strongly so, being used performatively in court orders, judgements, and regulations (the English *will* in the gloss should be read deontically):

Bestemmelsen er/bliver at forstå på den måde at ..

'The-provision is/becomes to understand in that way that ..'
 (The provision is to be understood in that way.)

The provision {is to/will} be understood to mean that ..

Bestemmelsen skal forstås på den måde at ..

'The provision must understand-PASS in that way that ..'
 (The provision must be understood in that way.)

The difference between VÆRE and BLIVE in this construction could be taken as a difference between present (VÆRE) and future (BLIVE), and this is sometimes the case; but both verbs also occur with the same (present) time reference and then the difference may be that BLIVE often suggests that the sentence states a conclusion or inference.

The modal constructions with HAVE are not always formal: only the first example is formal, the second one is (some people would say: a little old-fashioned) natural spoken language:

Ansøgeren har at godtgøre bestemmelsens gyldighed.
'The-applicant has to prove the-provision's validity'.

Du har (bare) at gøre hvad der bli'r sagt.
'You have (just) to do what there is said [:as you are told]'.

HAVE AT 'have to' is always strongly deontic, brooking no objection, and consequently it is never questioned or negated. Its meaning is similar to a very emphatic SKULLE.

Modal Predicatives

The two most common predicative verbs in Danish, VÆRE and BLIVE, may be used together with the preposition *til* 'to' to express passive ability or possibility, again with more idiomatic near-synonymous expressions with modal plus passive verb form:

Kirken er lige til at se ude i det fjerne.
'The-church is just to to see out in the far [:far away]'.

Kirken kan lige ses ude i det fjerne.
'The-church can just see-PASS out in the far'.

Den bil er/bliver ikke til at reparere.
'That car is/becomes not to to repair'.
That car {cannot/will not be able to} be repaired.

Den bil kan ikke repareres.
'That car can not repair-PASS'.

In our terms the difference between VÆRE and BLIVE may be said to be that VÆRE is dynamic, BLIVE prospective. BLIVE implicitly refers to the future while VÆRE does not insist on a future meaning.

While the constructions without *til* 'to' discussed in the preceding section are rather formal and partly old-fashioned, the constructions VÆRE/BLIVE TIL are quite idiomatic, bordering on being slightly informal, and they are quite common in spoken language. This is pre-

sumably because they represent a passive meaning without using passive forms or constructions.

A recent development of *VÆRE TIL* is that the construction has come to (optionally) accept a noun phrase complement and to mean »be interested in; be inclined to«, often with respect to sex, food, drink, or entertainment. This type of construction is active, not passive, and roughly corresponds to the modal verb *GIDE*.

Jeg er kun til herrer.

'I am only to gentlemen'.

I only sleep with (gentle)men.

Jeg er til rødvin i aften.

'I am to claret tonight'.

I'd like claret tonight.

Jeg er ikke til at sidde alene hjemme en hel aften.

'I am not to sit alone at-home an entire evening'.

As the last example shows, this sense of *VÆRE TIL* also accepts an infinitive complement (with infinitive marker *at*); at any rate it is clearly modal.

Sense Variants of Marginal Modals

Unlike the eight modals in the main modal system the five marginal modal expressions do not show any tripartite meaning variation. We would classify all (modern Danish) usages as follows:

<i>VÆRE AT</i>	Deontic, predictive, dynamic
<i>BLIVE AT</i>	Deontic, predictive, prospective
<i>HAVE AT</i>	Deontic, necessitive, dynamic
<i>VÆRE TIL AT</i>	Abilitive, possibilitive, dynamic
<i>BLIVE TIL AT</i>	Abilitive, possibilitive, prospective

Thus, the difference between *VÆRE (TIL) AT* and *BLIVE (TIL) AT* is seen as a reflection of the difference between dynamic and prospective in both cases; and the difference between *VÆRE/BLIVE AT* and *VÆRE/BLIVE TIL AT* is seen as a reflection of the difference between deontic predictive modality without *til* and abilitive possibilitive modality with *til*, where we would assign the basic difference to be the one between deontic and abilitive modality.

Overview of Sense Variants

The following table summarizes the sense variants of the Danish modal verbs as we have discussed them in the sections above.

	Epistemic	Prospective	Dynamic
KUNNE	Conjecture	Eventuality	Capability
TURDE	Assumption	+	Boldness
GIDE	+	+	Inclination
MÅTTE	+	Supposition	Permission
	Conclusion	+	Compulsion
VILLE	+	Prediction	Volition
BURDE	Conformity	Propriety	Duty
SKULLE	Repport	Plan	Obligation
BEHØVE	Hypothesis	Requirement	Need

For completeness we also present a set of suggested Danish terms where we have deliberately chosen only native words for the individual cells in the table. As with the English terms we have avoided the words for possibility and necessity to reserve them for general technical usage.

	Epistemic	Prospective	Dynamic
KUNNE	Antagelse	Gennemførlighed	Evne
TURDE	Formening	+	Dristighed
GIDE	+	+	Tilbøjelighed
MÅTTE	+	Forestilling	Tilladelse
	Følgeslutning	+	Fornødenhed
VILLE	+	Forudsigelse	Vilje
BURDE	Ventelighed	Tilbørlighed	Forpligtelse
SKULLE	Påstand	Plan	Pligt
BEHØVE	Formodning	Påkrævhed	Behov

Two or Three Sense Variants?

Above we have demonstrated that most Danish modal verbs seem to exhibit three sense variants and that the differences between these vari-

ants may be described in similar terms for all the modals. It remains to discuss why not all descriptions of (Danish) modal verbs favor such a tripartite division of variants but only operate with a binary distinction between two classes, variously named:

1. *Epistemic*, objective, inferential, suprasegmental
2. *Root*, non-epistemic, subjective, non-suprasegmental

It should be clear that our tripartition is simply the result of a further binary division of the latter (root) type of modality into a prospective and a dynamic variant type, and this implies that there need not necessarily be any substantial difference of opinion between the present report and older works operating with a bipartitional scheme.

Furthermore, some authors exclude the dynamic variants from their study or relegate them to a more peripheral position, since they are not considered to be expressions of semantic *modality* (or mood) according to a logico-philosophical delimitation of what modality must be like. Contrary to such points of view we base our analysis on the clearly distinguishable lexical class of *modal verbs*.

A further difference between the present and most earlier works is that we do not recognize a future tense or consider the futuristic usage of some modal verbs separately from the remaining modal system.

Most modern authors, e.g. Palmer (1979, 1990), Perkins (1983), Davidsen-Nielsen (1986a), and K.M. Lauridsen (1987) acknowledge three classes of modal verb variants, and we have followed this newer tradition; but it should be clear that the difference between bipartition and tripartition of the variants is mainly a difference with respect to the granularity of the descriptions and not a material conceptual difference.

CHAPTER 4

Basic Modal Grammar

In the following we discuss some aspects of the grammar of Danish modals with particular emphasis on characteristic interactions with other grammatical items.

Modal Verb Inflection

Modal verbs practically only occur in four forms: infinitive, present, past, and past participle, and we consider the occasional occurrences of other forms to be sporadic innovations, typically of jocular or literary flavor and without systematic significance.

The *present participle* forms are extremely rare, but attested for VIL-LE, KUNNE, SKULLE, MÅTTE, the latter two only in very few cases. The following example (Skyum-Nielsen 1971, 140) shows three of these forms:

villende individer og masser - nej .. måttende og skullende masser.
'will-ING individuals and masses - no .. having-to and musting masses'.

The modern corpus includes a single example:

De er krævende, villende, skånselsløse.
'They are demanding, will-ING, merciless'.

Such examples have no tinge of ungrammaticality; they are simply

unusual, and they always represent the dynamic variant of the respective modals.

The same is true for the *passives*, which again are least uncommon for VILLE, KUNNE while the form *mås* 'may-PASS' is occasionally used jokingly, expressing what is prohibited (AaHansen 1967/3, 54). I would also consider a constructed example as the following to be acceptable:

- ? Hun fortalte os hvad der måtte og hvad der ikke måtte.
 ? 'She told us what there might-PASS and what there not might-PASS'.

This example represents permissive dynamic MÅTTE, as do the cases with *mås*. Examples with VILLE, KUNNE also always seem to represent the dynamic variants. In the following constructed example we have dynamic SKULLE and dynamic compulsional MÅTTE:

- Hun erindrede os om alt det der skulles og måtte.
 'She reminded us of all that there should-PASS and must-ed-PASS'.

Attributive use of the past participle is only possible with (dynamic) VILLE, e.g. »en villet handling« 'a would-ed [:volitive] act', and *imperatives* are attested for KUNNE, VILLE but must be considered ungrammatical; they could only represent dynamic usage.

With respect to the rare forms discussed here we must conclude that they are not obviously ungrammatical (except for the imperatives) and that their rarity is more likely to be attributed to the rarity of the situations where a non-modal verb would not be a better and more precise expression of what the speaker or writer wants to express.

We have examined these borderline cases with some care because it is only such cases that can tell us where the borders are located, and we should note that it is the dynamic variants of the modals that appear to be the only ones occurring in these forms.

Modal Complements

The Danish modals not only take infinitival complements but also occur in four other types of construction according to Aage Hansen

(1967/3, 77-78). We slice the cake quite differently, however, and distinguish between the following complement types in addition to the standard explicit infinitive one:

1. Specific implicit infinitive (all).
2. Pronominal or general noun phrase (all except BURDE, BEHØVE).
3. Unspecific implicit infinitive (all except BURDE, BEHØVE).
4. Directional adverbial (BURDE, MÅTTE, SKULLE, VILLE).
5. Noun phrase (KUNNE, VILLE, GIDE).
6. Two noun phrases (VILLE).
7. Sentence (VILLE).

Specific Implicit Infinitive

A *specific implicit infinitive complement* may be represented by ellipsis or a pronoun. This needs no exemplification and is a standard feature of (any) language.

Pronominal or General Noun Phrase

A *pronominal or general complement* like *det, hvad, noget, så meget, alt* 'it, what, some/anything, so much, everything' may also express an unspecific verbal action. Davidsen-Nielsen notes the type *Hun kan/vill/må/skal en masse* 'Hun can/will/may/must a lot [of things]' (1990, 21); but this type also occurs with some other modals: *Hun tør/gider aldrig noget* 'She dares/bothers-to never anything'.

Marginally, such constructions could also be imagined with BURDE and BEHØVE; but only in special contexts and not systematically. *Man bør så meget* 'One ought-to so much' may express a general irritation but seems to suggest that the word *bør* 'ought to' has been used in the immediately preceding text.

With BEHØVE such complements rarely have exclusively infinitival meaning, but the situation might suggest it; in the following example B does not refer to the specific actions A mentioned but merely states a general absence of need (and implies that such need is *not* absent):

A: Du behøver da ikke støvsuge, vaske gulv og feje trappen idag.

B: Ja, ja, ja – der er så meget jeg ikke behøver.

'A: You need surely not vacuum-clean, wash floor and sweep
the-stairs today.

B: Yes, yes, yes, there is so much I not need'.

Unspecific Implicit Infinitive

An *unspecific implicit infinitive complement* may be situationally suggested; the first example following just expresses that the present state of affairs cannot continue, and there is no implication of a specific verb; nor does the second example need a context specifying or implying a complement for the modals:

Jeg kan/vil ikke mere.

'I can/will not more'.

Det er ikke nok at ville, man må også kunne.

'It is not enough to would, one must also could'.

When *mere* 'more' in the first example is understood as a noun phrase, the expression belongs to the previous type, but it may also be understood as a durative adverbial: 'I can/will no longer', in which case the modal has no complement. The same goes for the second example.

The (children's) expression *Jeg skal* 'I must' is related to this type but the implicit action is usually quite specific as to the *class* of action involved: excretion, and the subspecies of this may be indicated by *Jeg skal stort* 'I must large' or *Jeg skal kun småt* 'I must only small'.

Some of the modals allow a construction with a non-complement adverbial and no explicit complement, where the implicit argument could be claimed to be *gøre det* 'do it' [:whatever the subject is doing or is going to do] but we do not find this type of elliptic explanation plausible:

Jeg vil/kan/tør/gider ikke på den måde.

'I will/can/dare/bother-to not in that way'.

Du ??behøver/må/?skal/??bør ikke på den måde.

'You need/may/must/ought-to not in that way'.

We could describe the restrictions on this type of construction in terms of the absence of the feature [+REQUIRE] in the modal verb; but we rather think it is simply a matter of gaps in the lexicon for those verbs

where this type of construction would be infrequently used. For instance, the example with SKULLE is more acceptable than the other two questionable cases.

The non-complement type of construction always seems to represent the dynamic variants of the modals. The construction does not appear to be natural with BURDE and BEHØVE.

Directional Adverbials

The dynamic variants of MÅTTE, VILLE, BURDE, SKULLE freely occur with *directional adverbials*, but generally only compulsional and not permissional MÅTTE. Klinge (1996, 53) denies that the adverbial is directional since »there is nothing directional about the adverbial itself« in his example (he does not mention BURDE with this construction):

Jeg vil/må/skal på toilettet.
'I will/need/must on the-toilet'.

It is true that directionality is not explicitly *expressed* here, but it is clearly *implied*: if we add a specifying adverb like *ud* 'out', it can only have the directional form, not the locational form *ude*: *Jeg skal ud/*ude på toilettet*. Erik Hansen (1972, 25) also notes that the construction is impossible with some expressions with static meaning; the expression *gå i stå* 'go in stand' means to enter into a state of standing still and as a whole translates to English *stop*, and it is not acceptable Danish to say

*Vi vil ikke i stå igen.
'We will not in stand again'.
We will not (be brought to) stop.

We consider expressions like *ville af med noget* 'will off with something [:want to deliver sth.]' and *ville ud med noget* 'will out with something [:wishing to tell sth.]' to belong to the present type although they have a slightly different character.

With the permissional variant of MÅTTE this type of construction is of questionable grammaticality; but in certain contexts it may conceivably occur:

? Der må ikke rygter i omløb.

'There must not rumors in circulation'.

This sentence is perfectly understandable but would idiomatically be expressed with *komme* 'come': »Der må ikke komme rygter i omløb«.

In addition to the dynamic variants of the four verbs mentioned, the prospective variants of SKULLE and BURDE also occur in this construction: the first of the following examples is ambiguous between the plan (prospective) and the obligation (dynamic) variant of SKULLE, and in the second example we clearly have prospective BURDE (the obligation is not on Peter):

Peter skal på besøg hos sin far.

'Peter shall on visit at REFL-POSS father'.

Peter {is going to visit/must visit} his father.

Peter burde i Folketinget.

'Peter ought [to] in Parliament'.

Neither Klinge (1996) nor Erik Hansen (1972) tries to explain why this construction is limited to a subset of the modals (the deontic ones and VILLE) and particularly why the otherwise ubiquitous KUNNE is clearly excluded from this subset; and we are not able to offer an explanation either, presumably because there is no reason: we are dealing with a lexically idiosyncratic phenomenon.

Skyum-Nielsen quotes a unique example with KUNNE, adding that it appears to be »fremmedartet« (strange), an opinion we share:

Han kan hverken frem eller tilbage.

'He can neither forwards nor backwards'.

The modern corpus contains a single example of this construction with TURDE which we would also characterize as somewhat strange:

Jeg tør ikke forfra igen.

(DK879198)

'I dare not from-the-beginning again'.

I dare not start all over again.

In this example, GIDE might also have been used; changing the meaning, of course, but not our grammaticality judgement, and in a recent

issue of the popular language magazine *Mål & Måle*, a reader from the West coast reports on (children's) expressions like »Gider du med ud (og lege)?« 'Bother you with out (and play)', and the editor (EHansen 1997) comments that such expressions support the perhaps increasing acceptance of GIDE as a modal verb, adding that the reported usage is not just a local phenomenon.

Although these constructions with KUNNE, TURDE, GIDE have been described as strange, it must be noted that the meanings are quite clear and that the strangeness is not due to a semantic clash of meaning elements: the constructions *could* have been acceptable, but aren't (yet); and we conclude that the viability of the directional adverbial construction with a given modal is an arbitrary lexical feature of that modal.

Noun Phrase

The dynamic (ability) variant of KUNNE may take a noun phrase complement representing some know-how the subject is able to display or »perform« (ODS#18): *Han kan sine lektier* 'He knows his lessons'. A common complement type is a (zero-derived) adjectival noun denoting a language: *Hun kan fransk* 'She knows French'.

The dynamic (volition) variant of VILLE also presents some clear cases of noun phrase arguments (ODS#8.1):

Vi vil frihed. Vi vil kampen! Vi vil fred her til lands.
'We will freedom. We will the-fight. We will peace here in country
[:in our country]'

When the complement is not of the slogan type the construction seems unacceptable, excepting travesties:

* Vi vil mad. * Vi vil øl. Vi vil øl her til lands. [Travesty]
'We will food. We will beer. We will beer here in country'.

In such cases, the natural construction would use HAVE 'have': »Vi vil have mad« 'We will have food [:We want food]', and it would be possible to claim that the cases without HAVE are just elliptic, but that would miss the point that the expressions without HAVE have a quite different meaning than the ones with HAVE: the former complement

types express »political« entities the subject insists on being involved in; the latter types with HAVE just express acquisitiveness »I wanna have that! – Gimme that!«

Also GIDE (*which is always dynamic*) occasionally occurs with NP object, and the corpus includes two examples of this fairly recent development (not in ODS):

[Jeg ..] gad ikke gymnastik.

'I bothered not gymnastics [;physical exercises (at school)]'.

Jeg gider ikke en løftet pegefinger.

'I bother not a raised [;admonishing] forefinger'.

In analogy with the first example, a newspaper headline (Berl.Tid. 09OCT96, 1; 8) reports the lack of interest in the young generation for becoming professional soldiers:

Unge gider ikke hæren.

'Young bother not the-army'.

Two Noun Phrases

The volitive variant of VILLE occurs in a construction with two complements (ODS#8.2-3): one a noun phrase designating an animate being, the other a pronominal or general noun phrase:

Han vil dig ikke noget godt.

'He will you not something good'.

He has evil intentions for you.

Hvad vil du mig?

'What will you me?'

What do you want?

This construction does not occur with any other modals and with VILLE it is only possible if the second argument is a noun phrase. The most obvious analysis is that the two arguments are indirect and direct object, respectively, and this is supported by the restriction of the first argument to animates and by the fact that in other cases the pronominal or general argument clearly seems to be a direct object.

The second argument is rather restricted. It may be a pronominal expression: *hvad* 'what', *hvad andet* 'what else', *noget* 'something', in

which cases it denotes errand or intention. Another type denotes good or bad intentions, and the second argument may be *noget* + *ADJ-t* where the adjective means *good* or *bad*, or conceivably a few nouns like *ulykke* 'unluck, misfortune'.

Sentence

The volitive variant of VILLE has some rare occurrences with sentential complement (ODS#8.4):

Omstændighederne ville, at der var et værelse ledigt.
'Circumstances would that there was a room available'.

This construction belongs to the written language and is infrequent in current Danish. In discussing modality in German, Calbert notes that a modality may be presented from the point of view of its »origin« (the modal source, in our terms) or its »destination«, quoting the examples (1971, 105):

Er will, daß ich komme.	(<i>Er</i> is Origin)
Er soll nach Hause.	(<i>Er</i> is Destination)

We suggest a similar distinction between *explicit* and *implicit* expression of the modal source but do not consider this a major dimension of the modal system since verbs with explicit modal source are normally non-modal verbs like *want* and rarely modal verbs (in our restricted sense), in Danish only VILLE, in German WILLEN and, as Welke notes (1965, 114), also MÖGEN in past subjunctive form. In English the pattern never seems to occur.

Modality and Negation

Since a modal construction has two verbs, there are two possible foci of a negation, and we distinguish between two types of negation, usually called *modal negation* and *propositional negation*, but we have preferred the term *predicational negation* since non-finite modal expressions are not propositional. For illustration, consider the two English examples

Peter may not come.	P. (not may) come	Modal negation
Peter must not come.	P. must (not come)	Predicational negation

Throughout this discussion we ignore the obvious and uninteresting fact that the normal negation type may be overridden in *contrastive* contexts, usually accompanied by emphasis or other clarifying clues as in »Peter may (possibly) *not* come« with predicational negation.

Danish is quite similar to English with respect to the types of negation typically found with the various modals. KUNNE only has modal negation, expressing non-capability; the same goes for TURDE, GIDE; and negated BEHØVE always expresses absence of need, never need of a negative event. Conversely, BURDE has predicational negation except in one infrequent specialized, legal usage: »lægmand burde ikke vide besked om særegent juridisk problem« 'layman ought not [to] have knowledge of [a] peculiar legal problem' where the meaning is *was-not-obliged-to* with modal negation. Arguably, this sense of BURDE is abilitive rather than deontic, and the meaning of BURDE here is close to that of BEHØVE.

All these verbs allow only one type of negation and they all (including legal BURDE) obey the rule that abilitive meaning implies modal negation, deontic meaning implies predicational negation. The remaining three verbs, however, merit individual discussion.

Negated MÅTTE

The normal meaning of negated MÅTTE is prohibition: modal negation of the dynamic permissional variant, and we need not present examples. The suppositional variant, however, has predicational negation:

Hvis dommen ikke måtte blive stadfæstet ..

'If the-verdict not might be confirmed ..'

Should the verdict not be confirmed [by a higher court] ..

ODS quotes no examples of negated epistemic MÅTTE although they are quite natural. If we get no response from ringing a bell we might say

Peter må ikke være hjemme.

'Peter must not be home'.

with predicational negation, and modal negation does not seem possible.

Negated dynamic compulsional MÅTTE is also unattested in ODS, and in this case it is not accidental since compulsional MÅTTE is almost impossible to negate without changing the meaning from compulsion not to act into non-permission to act. Two examples in ODS contain MÅTTE together with *ikke* 'not'; one is from a well-known play where the drunkard Jeppe tells how difficult his life is and continues:

Må jeg da ikke drikke?
 'Must I then not drink?'
 Don't I then *have to* drink?

The second example also has form as a question and *må* could be emphasized:

Hvad *må* folk dog (ikke) tænke?
 'What must [:will] people really (not) think?'

The parentheses indicate *ikke* as purely ornamental, and the meaning of the expression is unaltered if this word is omitted; we find this example to be of the same type as the Jeppe-example above which means: Isn't it true that it is necessary for me to drink? so that the (rhetoric) negation goes with the question as such and negates neither the modal nor the proposition.

Helle Østkjær Jensen (1987, 69ff.) postulates a special variant, MÅTTE¹ Variant 3, denoting »Notwendigkeit von Nicht-Realisation/Nicht-Realität«, and quotes some attested examples from Danish newspapers, e.g.

Uddannelsen *må* ikke gøres så teoretisk,
 at man mister kærligheden til materialet og formen ..
 'The-education must not make-PASS so theoretical
 that one loses the-love to [:for] the-material and the-form ..'

This may be paraphrased as »It is necessary that the education is not made so theoretical ..«, and similar paraphrases are possible for her

other examples; this does not preclude, however, that they could *also* be paraphrased as »We are not allowed to make the education so theoretical ..«, and it is notable that two of Østkjær Jensens three examples are passives while the third has a non-animate subject:

De samlede lønomkostninger i virksomhederne må ikke stige mere end ..
 'The total wage-expenses in the-businesses must not grow more than ..'

This may perhaps not express a prohibition with the wages as the modal target; but it could certainly express a prohibition with some person(s) as modal target, who are not permitted to let the wages grow. In fact, the immediately preceding context makes this interpretation a natural one.

While predicational negation with compulsional MÅTTE seems difficult to document, there are attested cases with modal negation. In his autobiography, Martin Andersen Nexø (»Vejs ende«, VII, p. 46) gets a room for himself instead of living two students to a room, and writes

Jeg fik derved bedre arbejdsforhold,
 'I got thereby better working-conditions'
 da jeg ikke måtte dele værelse med en anden
 'since I not must share room with an other'.

In Henrik Pontoppidans story »Isbjørnen« (In »Fortællinger 1«, ch. 3, p. 179-80) the protagonist returns from Greenland to Denmark where he is not so admired as he has been by the Greenlanders and has difficulties in understanding

at man ikke ogsaa hernede maatte beundre og misunde ham
 'that one not also downhere must admire and envy him'
 hans kraftige Skikkelse, hans Haardførhed og stolte skæg.
 'his strong body, his hardiness and proud beard'.

Nexø's example is about 50 years old and Pontoppidan's more than 100 years; personally I find both of them perfectly acceptable but somewhat old-fashioned, since in the modern idiom one would prefer to use *være nødt til* 'be forced to' instead of MÅTTE or – much less likely – to make the necessity reading explicit by means of suitable adverbials:

Jeg måtte ikke længere nødvendigvis dele værelse med nogen.
'I must not [any] longer necessarily share room with somebody'.

This example shows that modal negation of compulsional MÅTTE is not restricted to dependent clauses as the two attested examples might suggest; but I do not find it to be really idiomatic Danish: it is an example of what has been called »garden path« sentences where one initially assumes the prohibition reading of *måtte ikke* and only realizes that one has been led »up the garden path« when *nødvendigvis* 'necessarily' forces a change to the non-compulsional reading.

Consequently we conclude that modal negation of compulsional MÅTTE is not a productive phenomenon but must be considered contrastive. Hence, compulsional MÅTTE would have predicational negation; but this is inevitably changed to modal negation and permissional MÅTTE: prohibition. I have yet to see a *single* sentence with negated dynamic MÅTTE that has two clearly distinct readings, one with modal negation (prohibition) and one with predicational negation (compulsion not to ..), and if such examples are impossible there is no reason to stipulate two different negated variants. The only case where we might conceivably find a negation with compulsional MÅTTE seems to be of the following type:

En indbrudstyv må være meget forsigtig og ikke efterlade fingeraftryk.
'A burglar must be very careful and not leave fingerprints'.

Even in this case, however, the intuitive reading seems to be one of non-permission 'not-may leave' so that the example does not illustrate predicational negation but rather coordination of verb arguments for two different variants of the same verb. Outside such coordinative constructions, negated dynamic MÅTTE may always be interpreted as non-permission (prohibition), i.e. exclusively modal negation:

Jeg må ikke glemme hendes fødselsdag.
'I must not forget her birthday'.

Even though this sentence may be understood to mean that I feel an inner compulsion not to forget her birthday, this meaning is almost indistinguishable from the meaning that I am not permitted (by her or

by social conventions) to forget it. This could be interpreted as a reflection of the logical rule of *negation shift*:

Necessarily (not P) => Not possibly (P)

but this assignment of the phenomenon to a possibly well-known class of phenomena does not *explain* why this rule obligatorily applies: There is no equivalent negation shift for SKULLE or BURDE (nor does English MUST obligatorily change to mean MAY when negated).

We note, however, that the close relationship between the necessity 'must' sense and the permission 'may' sense of MÅTTE is good evidence for our contention that Danish has only one lexeme MÅTTE and not two homonymous ones.

Another perhaps notable fact is illustrated by the following two examples:

Peter er muligvis ikke	hjemme.
'Peter is possibly not	at-home.

Peter er	ikke nødvendigvis	hjemme.
'Peter is	not necessarily	at-home'.

In both English and Danish it seems to be the case that possibility most naturally has negation inside its scope while negation has scope over necessity. With the adverbs, this semantic scopal distinction is also reflected in the topology of the sentence.

Negated SKULLE

In its epistemic, reportative variant SKULLE only has predicational negation, and the other two variants also allow predicational negation in accordance with the suggested main rule; but sometimes there is modal negation, and in these cases we *gloss* SKULLE by NEED, but HAVE TO is often a more appropriate *translation*.

For the prospective plan-meaning one might claim two interpretations of »Peter skal ikke bo i Paris«: it is our plan that Peter is not going to live in Paris; it is not our plan that Peter is going to live in Paris; but the difference between these interpretations is minor and the basic meaning is predicational negation, modal negation being contrastive only.

In dynamic usage with admonishments, warnings, and threats we generally have predicational negation: »Du skal ikke gå over for rødt en anden gang« 'You must not walk over for red [light] an other time'; but expressions of non-obligation are also possible:

Jeg skal ikke skynde mig hjem.
'I need/must not hurry me home'.

The most obvious meaning of this sentence has modal negation 'not-need hurry'; but the sentence may also have predicational negation 'must not-hurry': it is necessary for me that I do not hurry (because of bad health, for instance). This may be interpreted as ambiguity between the variants *plan* and *obligation*, and we would then have modal negation in connection with plans and predicational negation with obligations.

However, in some dynamic and clearly non-internally modalized (deontic) expressions we also have modal negation; consider a child who is not sure whether it is time to get home and may be told by his host that he is not yet so obliged:

Du skal ikke være hjemme endnu.
'You shall [:need] not be home yet'.

Du skal ikke hjem endnu.
'You shall [:need] not [go] home yet'.

Interestingly enough, even in the case where SKULLE does not govern a verb but only a directional adverbial we find ambiguity between modal and predicational negation.

Jeg skal ikke i byen nytårsaften.
'I shall not in the-town [on] new-year's-eve'.

This may express that I have no *plans* for that evening (modal negation) or that I am firmly *committed* not to leave my home that evening (predicational negation). The same (determination) meaning with predicational negation occurs with infinitives:

Han skulle ikke nyde noget.
'He should not partake [of] anything'.
He refused to participate.

Also in this example we have another interpretation: A man has entered a bar just to talk to somebody there and he might use the sentence to tell the barman that he is not planning to buy anything; arguably the meaning is 'not-plan to drink' (modal negation) and not 'plan to not-drink' although the difference is minor.

The result of this discussion is that epistemic SKULLE always has predicational negation. In prospective usages both modal and predicational negation may be found but this could be considered as (contextual) clarification of an essentially vague meaning: the two *interpretations* are normally not two clearly ambiguous *meanings* and we could say that the distinction between modal and predicational negation is suspended in the prospective variants. In the dynamic variants the typical usage is with clearly predicational negation (in prohibitions, admonishments, etc.); some cases of modal negation have also been shown above, but they may be considered contrastive and not examples of a systematic ambiguity between the two types of negation. A further argument for analyzing modal negation of SKULLE as a peripheral phenomenon is that Danish normally uses BEHØVE for modal negation of deontic necessity.

Negated VILLE

The dynamic volitional meaning of VILLE is usually considered to have modal negation and it seems difficult to invent natural counter-examples: »Jeg vil ikke gå« 'I will not go [:leave]' denies the speaker's willingness to leave. If he had wanted to assert his willingness not to leave, VILLE (or any modal) cannot be used.

On the other hand, with prospective VILLE we typically understand the negation to be predicational. If we negate one of ODS's examples we may get predicational negation if we insist on negating exactly the original sense:

Nyordningen vil ikke være kendt af de fleste.

'The-reform will not be known [:be unknown] by the most [people]'.
'

but this sentence is not really an idiomatic expression of the intended meaning. One would rather use *ukendt* 'unknown' (retaining – indirectly – predicational negation) or change the sentence

Nyordningen vil ikke være kendt af mange.
'The-reform will not be known by many'.

which arguably has modal negation but is not the exact negation of the original. A parallel, invented example like

Planerne vil ikke være kendt af fjenden.
'The-plans will not be known by the-enemy'.

seems to be equally good in both interpretations: we not-expect the plans to be known; we expect the plans to not-be known, and this is not a case of ambiguity: there are not two clearly distinct meanings the sentence could be ambiguous between.

The situation is different with one of Palmer's examples: »I won't ask for details«. In its context it apparently »does not mean that I am unwilling or I refuse to ask for details, but that I am willing not to ask« (1990, 152); but the sentence in isolation surely also allows the refusal-meaning. The same distinction could be claimed for Danish but we think it would be ambiguity between prospective (predictive) and dynamic (volitive) WILL or VILLE in both languages. In prospective usage WILL and VILLE both primarily negate the proposition, but the difference between modal and predicational negation is small: it is hard to not-expect or not-predict X without also expecting or predicting non-X.

We could claim that VILLE underlyingly has modal negation and that the predicational negation we commonly find is a case of »negation lowering«, but this would of course just amount to giving the problem an impressive name and not contribute to its solution. Instead we assume that the distinction between modal and predicational negation is suspended for prospective VILLE.

Summary of Negated Modals

Summarizing the discussion above we show the following diagram where the two types of negation are indicated by their initials and the starred cases are the ones conflicting with the tendency that abilitive modality goes with modal negation and deontic modality goes with predicational negation.

	Epistemic	Prospective	Dynamic
Abilitive			
KUNNE	M	M	M
TURDE	M	+	M
GIDE	÷	+	M
VILLE	+	P/M *	M
BEHØVE	M	M	M
Deontic			
MÅTTE-g	÷	P	M *
MÅTTE-n	P	÷	[P]
BURDE	P	P	P
SKULLE	P	P/M *	P

The epistemic variants all follow the stated rule, and prospective VILLE and SKULLE would be regular cases if we amended the rule to state that in prospective usage expressing future, prediction, plan, or arrangement the distinction between modal and predicational negation is neutralized. This is not as *ad hoc* as it might appear, since a similar neutralization exists in English (Palmer 1990, 152).

On the other hand, permissional MÅTTE is an unbeatable exception to the main rule, but we note that English MAY displays a similar difference between epistemic and non-epistemic usage: with epistemic MAY the proposition is negated; otherwise permission is denied: the modality is negated (Palmer 1990, 60, 75). This suggests that we are not just dealing with an accidental lexical idiosyncrasy, and that there should be a meaningful explanation; but we are unable to offer one. For instance, to claim that permissional MÅTTE is abilitive and not deontic would clearly conflict with our definitions of these terms.

There is another possible rule for describing the relationship between modality and negation. This was proposed for the German modals by Gunnar Bech (1951, 8-12) and holds that necessity modals have a tendency to prefer predicational negation while possibility modals do not have that tendency (»die *a*-verba haben ja eine tendenz zur negatio obliqua, während die *A*-verba diese tendenz nicht haben«). If we rearrange our table above according to this rule, we get the following result, where the asterisks here indicate disagreement with Bech's rule; the question marks indicate the predicational modals, a category Bech does not acknowledge:

	Epistemic	Prospective	Dynamic
Possibility			
KUNNE	M	M	M
TURDE	M	+	M
GIDE	+	+	M
Predictability			
VILLE	+	P/M ?	M ?
MÅTTE-g	+	P ?	M ?
MÅTTE-n	P ?	+	[P] ?
Necessity			
BURDE	P	P	P
SKULLE	P	P/M *	P
BEHØVE	M *	M *	M *

Clearly, the proposed rule makes the right predictions for all the possibility modals, and it also makes the right prediction for MÅTTE-n if we consider this verb to be a necessity modal. Furthermore, BURDE and SKULLE are predicted to have predicational negation as is generally the case. VILLE, which Bech presumably would consider a necessity modal (Bech 1952 only discusses German modals, classifying WILLEN as necessitive), is then predicted to have predicational negation, however; but this only (weakly) holds for the prospective variant and is certainly not the typical case for the dynamic variant where the distinction between modal and predicational negation is more apparent: »Jeg vil ikke se ham« 'I will not see him' is most reasonably interpreted as a necessity modalization if we abandon the intermediate category of predictability, but the negation is obviously modal, negating willingness, so VILLE does not really follow the rule. Neither does BEHØVE, of course: it flatly contradicts it.

All in all, a rule according to Bech's proposal seems to be subject to just about the same exceptions as our own rule, and hence we see no reason to prefer it. The major objection is the behaviour of dynamic VILLE where the negation type is most clearly wrongly predicted; BEHØVE is not a central modal and does not weigh as heavily in the scale.

Modality and Tense

Unlike English, Danish has non-finite forms for all modals, but the finite forms dominate the picture; Danish also distinguish past and present tense for all modals (unlike English *must, ought to*). The past tense forms of most of the modals coincide with the infinitive (for KUNNE, SKULLE, VILLE only since an orthographic change in 1948) and may in most cases be used with non-temporal meaning, expressing a weaker degree of modality than the present tense form. In this section we discuss the usage of the past tense and the two possible perfect constructions which are usually considered as periphrastic tenses.

Frequency of Modal Forms

The infinitive and past tense uses of a common form have been separated in the following table, which shows some statistics about the 104,370 occurrences of modal verb forms in the modern corpus.

	Inf.	Pres.	Past	Ptc.	Past/Pres.
TURDE	18	334	320	36	95.8 %
BURDE	80	1,215	937	6	77.1 %
GIDE	5	231	162	7	70.1 %
VILLE	183	13,257	8,855	150	66.8 %
KUNNE	1,585	25,414	13,690	530	50.9 %
SKULLE	313	16,744	8,477	25	50.6 %
MÅTTE	88	7,940	3,784	210	47.7 %
BEHØVE	11	364	129	25	35.4 %
Total	2,283	65,499	35,602	986	54.4 %
	2.2 %	62.8 %	34.1 %	0.9 %	

The past tense frequency almost follows the rule that abilitive modals are more frequently used in the past tense than the deontic ones, the only exception being is that BURDE has an unexpectedly high past tense frequency. If we separate the legal and the general corpora we find that in legal texts the frequency of past tense BURDE relative to present tense is a fairly typical 55.8% while in the general texts the relative frequency is 95.8%, the same as for TURDE (which practically only occurs in the general corpus).

We note that non-finite forms are infrequent, i.e. the modals are rarely governed by auxiliaries, modals or other verbs, the main exception being KUNNE which is governed in about 5.2% of its occurrences while the remaining modals are only governed in about 1.8% of their occurrences.

Tentative Past Tense

Modal past tense forms may be used with present or future time reference to indicate a weaker intensity of the modality than that expressed by the present tense form. For brevity we call this usage *tentative* past tense (Palmer 1990, 44), not only as opposed to *temporal* past tense, but also to *hypothetical* past tense which is possible with all verbs in conditional constructions. These distinctions are illustrated by the following examples:

Peter vinder.	
'Peter wins [:is winning <i>or</i> is going to win]'	
Peter vandt.	
'Peter won'.	Temporal past tense
Hvis Peter vandt ..	
'If Peter won ..	Hypothetical past tense
Peter kan vinde.	
'Peter can [:may] win'.	
Peter kunne vinde.	
'Peter could [:might] win'.	Temporal or tentative past tense
Hvis Peter kunne vinde ..	
'If Peter could [:might] win ..'	Hypothetical past tense

Past Tense Modals

In the following we generally ignore examples of temporal and hypothetical past tense and concentrate on the possibility of tentative past tense and other special phenomena.

Lexical Survey

Past tense of BEHØVE is always temporal (or hypothetical); there seems

to be no possibility of forming tentative modal expressions with non-past time reference.

BURDE in itself is a rather weak modal but it may still be used with tentative past tense, weakening the modality even further. One example has been heard with past-in-the-future time reference by a speaker (B) predicting the result of a billiard shot aimed for by another player (A), all of the following dialogue taking place before the shot:

A: Der er fire.

'There are four'.

I'm going to score 4 points.

B: Nej, kun to.

'No, only two'.

A: Der er fire!

'There are four!'

B: Ja, det burde der have været.

'Yes, that ought-PAST there [to] have been'.

In this example, the past tense of *BURDE* is arguably used to express past-time reference »projected« into the future; but another possibility is that the past tense *BURDE* is used in its tentative meaning and that it is the infinitive perfect *have været* 'have been' that is being unusually employed (instead of infinitival *være* 'be' with future time reference).

At any rate, tentative past tense of *BURDE* is quite common in all three sense variants, possibly almost as common as temporal past tense. In example pairs like

Statsministeren bør/burde udskrive valg.

'The-prime-minister ought-PRES/ought-PAST [to] call [an] election'.

the present tense form simply states what the speaker finds it appropriate to do in the situation; the past tense form adds that he doubts that this will in fact be done.

If we take *GIDE* basically to express the *absence of disinclination* it is not all that surprising that the tentative past tense is used to express *desire* as discussed p. 48.

With *KUNNE*, tentative past tense is not uncommon, particularly in expressions of wish or inclination and in polite requests:

Jeg kunne godt tænke mig en øl nu.

'I could well think me a beer now'.

I would like a beer now.

Du kunne vel ikke låne mig en cigaret?

'You could well[:I suppose] not lend me a cigarette?'

Would you be so kind to lend me a cigarette?

Such examples must be interpreted as (weakly) dynamic, while the next ones represent the prospective and epistemic variants:

Man kunne i den forbindelse rejse spørgsmålet om ..

'One could in that connection raise the-question whether ..'

Toget *kunne* være ankommet nu.

'The-train *might* be [:have] arrived now'.

The suppositional variant of *MÅTTE* almost always occurs in the past tense, and with this variant there is little difference in meaning between present and past tense but the latter has to be a tentative past tense:

Aftalen respekterer offentlige deklamationer

der senere må/måtte blive tinglyst på ejendommen.

'The-agreement respects public declarations

that later may/might be registered on the-property'.

Either tense form here indicates future eventuality, and this implies that the past tense form is not *hypothetical* past tense: the hypothesis or supposition is part of the meaning of this variant of *MÅTTE* and need not be expressed in the context.

We might consider desiderative *MÅTTE* to be a subvariant of the suppositional sense (since both have predicational negation), and again both present and past tense forms are used with future time reference so that we have tentative past tense when we hope but do not really believe:

Må/måtte hun dog bare overleve!

'May/might she though only survive!'

Epistemic MÅTTE does not seem to be able to occur in tentative past tense; there are no weakened versions of sentences like

Peter må være på ferie.

'Peter must be on vacation'.

Dynamic compulsional MÅTTE, on the other hand, is technically feasible, but quite rare:

Vi må(tte) vel se at komme afsted.

'We must(-PAST) well see to get away'.

We have to (had to) be leaving, I guess.

Permissual MÅTTE only occurs with tentative past tense in polite requests (which need not have question form, however):

Må/måtte jeg bede Dem om en tændstik?

'May/might I ask You for a match?'

Jeg må/måtte vel ikke bede Dem om en tændstik.

'I may/might well not ask You for a match'.

Reportative SKULLE readily occurs with tentative past tense, and so does the dynamic variant expressing obligation:

Peter skal/skulle (ifølge rygterne) komme idag.

'Peter shall/should (according [to] the-rumors) come today'.

Du skal/skulle ikke fornærme ham.

'You shall/should not offend him'.

You ought not to offend him.

Quite analogous to a similar use of English *should*, past tense *skulle* occurs in subordinate clauses like

Det var pudsigt at vi skulle mødes her.

'It was odd that we should meet here'.

This usage is clearly not tentative and it may also – more infrequently – occur with present tense:

	Epistemic	Prospective	Dynamic
BEHØVE	+	+	+
BURDE	*	*	*
GIDE	-	-	(*)
KUNNE	*	*	*
MÅTTE-g	-	*	*
MÅTTE-n	+	-	+
SKULLE	*	(*)	*
TURDE	*	-	+
VILLE	-	*	*

We have parenthesized the markings for prospective SKULLE because this variant only seems to occur with tentative past tense in certain specialized senses, and we have parenthesized the marking for GIDE because the tentative past *gad* is close to being a standing expression whose meaning is disassociated from present tense *gider*.

It has been suggested by Diver (1964, 333) that the presence in a sentence of a signal of Non-Before combined with the past tense meaning Before results in an incompatibility: »since X plus non-X cannot mean either X or non-X, the combination may be used to mean Y«, i.e. a formally meaningless expression is free to represent a meaning that is different from either of its parts. In other words, if we know from the context or the situation that reference is made to the present or the future, the use of a past tense form cannot *mean* »past time«, so it is free to mean »hypothesis«. This may be on the right track although it is merely a *descriptive* technique, and it does not explain why epistemic MÅTTE never occurs with tentative past tense. A sentence like »Peter måtte være på sit kontor« 'Peter must-PAST be at his office' cannot possibly be interpreted as a weak present-time epistemic judgement (as the analogous sentence with *kunne* 'could') but only as either a reported speech past-time epistemic or a past-time dynamic sentence.

Participial Modals

Except for the very rare occurrences of adjectival *villet* the modal *participles* are only used for forming *perfectives*, so the two terms may be used interchangeably. Past perfect modals always use *have* 'have' as auxiliary and, as we shall see, they are most commonly dynamic, and consequently we only present examples of non-dynamic usages.

Lexical Survey

Participial BEHØVE usually represents the dynamic meaning but prospective cases also occur:

Ingen havde behøvet at få det at vide.

'Nobody had needed to get it to know [:get to know it]'

Participial BURDE is very rare outside legal contexts; once in my life I have in informal speech heard the rather unidiomatic expression

Hvad vi havde burdet var at ..

'What we had oughted-to was to ..'

but ordinarily this participle is mostly used with the special legal meaning of *BURDE*: 'be legally supposed to', particularly used about knowledge which a participant in certain situations will be assumed to have: at least his opponent cannot be blamed for his lack of knowledge.

Participial GIDE represents inclination: *Hun har nok gidet vide om ..* is not naturally interpretable as the perfect of *Hun gad nok vide om ..* 'He bothered rather [to] know whether [:he really liked to know]'

Participial KUNNE is most commonly dynamic, and only a few of the about 500 examples are prospective:

.. replikkerne har vi kunnet snakke om, hvis de var for svære.

'.. the-lines have we could talk about if they were too difficult'

Here it is not the players (in a play being discussed) that enable the discussion but (presumably) the director of the play, and although the next example really means that the two hands may wash each other, it is still not due to any property of the hands, hence not dynamic *KUNNE*:

Den ene snavsede hånd har kunnet vaske den anden.

'The one dirty hand has could wash the other'

Participial MÅTTE almost invariably represents the compulsional variant; only a single one of the 200 corpus examples is permissional (and negated):

Hun har aldrig måttet få et [et fjernsyn], så længe Far levede.
'She has never might get one [a tv-set], as long [as] Dad lived'.

Non-negated permissual perfects are conceivable, however:

Vi har altid måttet færdes i skoven.
'We have always might walk in the-wood'.

Participial SKULLE is mostly dynamic but a few prospective examples may be found; with *arve* 'inherit' as complement the meaning is likely to be prospective (plan) and not obligation:

.. havde jo heller ikke skullet arve bedstemor.
'.. had »as-we-know« also not should inherit grandmother'.

In another example *skullet* means 'have the effect of' and does not seem interpretable as obligation (the meaning is similar to the English usage in examples like »How strange that I should meet him there«):

Den [påvirkning] .. jeg har været udsat for,
har ikke skullet skabe et afrundet hele.
'The influence .. I have been exposed to
has not should create a well-rounded whole'.

Participial TURDE always represents the dynamic variant.

Participial VILLE in all 150 examples represents the dynamic (volitional) variant, and prospective examples are not possible in the present perfect:

* Det har villet blive regnvejr, men ..
'It has would become rain but ..'

Past perfects (pluperfects) may be marginally conceivable but appear decidedly odd and should be judged ungrammatical:

?? Jeg havde ventet at jeg havde villet få brev.
'I had expected that I had would get [a] letter'.

Summary of Participial Modals

The meaning of a modal participle is almost invariably dynamic. Most

of the modals having a prospective variant may also appear with that variant in perfects, but this is always extremely rare and with VILLE it may not even be grammatical. Epistemic examples are not possible, either.

Modalized Infinitive Perfects

The modals not only form their own perfects; most of them may also govern an infinitive perfect. Thus, unlike English, Danish has two possible perfective sentences:

Han har kunnet gøre det.
'He has could do it'.

Han kan have gjort det.
'He can have done it'.

It appears that modal participles with about 2,300 corpus occurrences are more than twice as frequent as participial modals (about 1,000). The number of corpus examples with each modal are as follows:

	<i>have</i>	<i>være</i>	Total
BURDE	196	47	243
KUNNE	349	158	507
MÅTTE	268	144	412
SKULLE	379	258	637
VILLE	394	144	538
Total	1,586	751	2,337

In some cases we need not interpret *have* + participle as a perfect construction with auxiliary *have* but as main verb *have* in a special futuristic usage meaning 'get sth. done'; the following example has an epistemic reading with perfective meaning and a dynamic reading with main verb *have* in which case the object could also have preceded the participle:

Han må have isoleret værelset grundigt.
'He must get isolated the-room carefully'.

Magda Nyberg (1967, 1976) discusses the modalized infinitive perfects – which she calls »udvidede modalkonstruktioner« 'expanded modal constructions' – in some Danish dialects, but some of her observations also apply to the Danish language in general. Particularly, it seems to

be the case that an epistemic reading of the modal only seems to be possible if the participle precedes its object, i.e., only the first of the following two sentences has an epistemic reading:

Han skal have slået græsplænen. (Report, plan, or obligation)
'He shall have mowed the-lawn'.

Han skal have græsplænen slået. (Only plan or obligation)
'He shall have the-lawn mowed'.

In this connection it is interesting to note that the corresponding sentence with *VILLE* has both a volitive and a (marginal) futuristic interpretation:

Han vil have græsplænen slået.
'He will have the-lawn mowed'.

The futuristic reading becomes more idiomatic if the sentence is modified by completive and temporal adverbials

Han vil have græsplænen slået færdig, når du kommer hjem.
'He will have the-lawn mowed finished when you come home'.

but it is still a conceivable reading of the unmodified sentence, and if Nyberg's observation is correct this may be considered an argument for our hypothesis that futuristic *VILLE* is not epistemic.

Lexical Survey

With *BURDE* governing an infinitive perfect it is almost invariably the past tense form: only 7 examples use present tense *bør*. We mostly find dynamic examples but prospective ones are also possible:

Han burde have haft en præmie.
'He ought [to] have had a prize'.
He had deserved to get a prize.

Sejren burde være blevet et mål større.
'The victory ought [to] be [have] been one goal greater'.

Epistemic *BURDE* is infrequent but the following seems to be a clear case:

Solen burde være stået op for flere timer siden.

'The-sun ought [to] be [:have] risen up for several hours ago'.

The sun must have risen several hours ago.

With *KUNNE* followed by an infinitive perfect it is again the past tense form that is the most frequent one, accounting for about 75% of the examples. Apparently the present tense cases are primarily epistemic while most of the past tense examples are prospective or dynamic.

Parterne kan have løst problemet på forhånd. (Epistemic)

'The-parties [to a contract] can have solved the-problem in advance'.

Vi kunne have sparet os vores bekymringer. (Prospective)

'We could have saved us our worries'.

Vi kunne have formindsket tabet ved at .. (Dynamic)

'We could have reduced the-loss by to ..'

Two legal examples are the only cases with perfect modal perfects, and the first one looks very much like a misprint (especially in its full context):

[Det] han *har fået* eller *kunnet have opnået* .. (DJUR6024)

'That [which] he has got or [has] could have obtained ..'

[Den] rigtige afgørelse *havde kunnet være truffet* uden § 36.(DJUR6001)

'The right decision had could be reached without § 36'.

Modal infinitive perfects with *MÅTTE* are almost evenly distributed between present and past tense constructions, and they are typically epistemic:

Jeg må have fået forkert nummer.

'I must have got [a] wrong number'.

Hun måtte have hørt forkert.

'She must-PAST have heard wrongly'.

Dynamic *MÅTTE* in the present tense only occurs a few times governing *være 'be'* in a construction that might be considered a subject pre-

dicative, i.e. with adjectival use of the participle, even though the participle does not show number agreement with the subject:

Visse betingelser må være opfyldt før ..
'Certain conditions must be fulfilled before ..'

There are, however, clear cases of dynamic MÅTTE in the past tense and they could also have been expressed with the present tense:

Han måtte også have fjernet sit venstre ben.
'He must-PAST also have removed REFL-POSS left leg'.

Permissional MÅTTE is not represented with infinitive perfects in the corpus except when it has the special suppositional meaning which we have classified as prospective. The reason for the lack of permissional perfects is obviously that it usually makes little sense to give permission retroactively (as the perfect would imply), but they are not formally impossible, even with past-in-the-future meaning, amounting to an order or strong suggestion:

Du måtte gerne have drukket lidt mindre igår.
'You might rather have drunk [a] little less yesterday'.

Du må gerne have gjort rent når jeg kommer hjem.
'You may rather have made clean when I come home'.

SKULLE is the modal that is most common with infinitive perfects, about 40% in the present tense, 60% in past tense. Epistemic and dynamic examples are the most common ones:

Hvortil Bresjnev skal have svaret: ..
'Whereto Bresjnev shall [:is said to] have replied: ..'

Vi skal have løst landbrugets problemer.
'We must have solved the-agriculture's problems'.

Many dynamic examples may also be interpreted as prospective, however. Out of context it is often difficult to determine whether SKULLE means plan or obligation; in most cases there is at least a tinge of obligation although we may classify some as prospective:

Jeg skal have fornyet mit togkort.

'I shall [:must or is to] have renewed my season-ticket'.

Jeg skulle have været hos tandlægen i morges.

'I should have been at the-dentist in [:this] morning'.

With *VILLE* plus infinitive perfect the present tense is uncommon and only accounts for about 15% of the examples. Both predictive and volitional *VILLE* are clearly represented, none of the types dominating:

.. og de ville have fået selskab af Emilio.

'.. and they would have got company by Emilio'.

Jeg ville have ringet til dig igår.

'I would have phoned to you yesterday'.

The following example has both a volitional and a predictive reading:

De fleste kvinder vil have født mindst ét barn før de fylder 30.

'The most women will have born [at] least one child
before they become 30'.

The corpus data only include modal infinitive perfects with the five modals discussed above; but it also seems to be possible with *BEHØVE* as shown by the following invented examples:

Du behøvede da ikke at have drukket så meget igår.

'You needed then not to have drunk so much yesterday.

Brevet behøver ikke at være kommet modtageren i hænde ..

'The-letter need not to be [:have] come the-recipient in hands ..'
It is not required that the letter has arrived at the recipient's.

With respect to *TURDE* Skyum-Nielsen (1971, 256) claims that it should be possible for the epistemic variant to govern infinitive perfects, but he gives no examples or quotations although a sentence as the following might occur:

Den historie turde have været en skrøne.

'That story dared have been a canard'.

We might even conjecture the existence of perfects after dynamic TUR-DE:

Jeg turde ikke have sprunget over dér.
'I dared not have sprung across there'.

Skyum-Nielsen also suggests that GIDE may have infinitive perfect complement:

Han gad (nok) have skrevet (i tide).
'He bothered (rather) have written (in time)'.
He would (rather) like to have written (before it was too late).

but such constructions seem to be marginal at best.

Summary of Modalized Infinitive Perfects

Generally speaking, all variants of all modals may govern an infinitive perfect construction, and there seems to be no technical reason for the rarity of some of the constructions; it is simply a matter of meaning: permission, inclination and boldness with respect to some activity is unlikely to combine with the retrospective meaning of a perfect construction.

We note that in all cases where tentative past is possible at all it is quite common with a following perfect construction.

Our findings disagree with Skyum-Nielsen who states (1971, 256) that »for all the modal verbs it seems to be the suprasegmental [:epistemic] variant that is applied« (in his test context »han ... (ikke) have skrevet« 'he ... (not) have written'). As many of our examples have shown, this claim is clearly wrong.

Another question is the difference between perfect (participial) modals and modal (infinitive) perfects. Skyum-Nielsen uses the expression »competing construction[s]« (1971, 255) about the pair

Han ville have skrevet.
'He would have written'.

Han har viller skrive.
'He has would write'.

and continues »The reason we may speak about a certain competition between these two constructions is that there for the contemporary lin-

guistic intuition *apparently* is no clear semantic difference. ... Their distribution differs, however, which points towards a difference in meaning«. One such difference is said to be that the participial modals do not occur in non-real contexts (e.g. certain types of conditionals) since this use needs the suprasegmental [epistemic] variant which cannot be governed by *have* 'have'.

As we mentioned in the summary of participial modals it is quite true that they cannot be epistemic, and as we have seen, the modal infinitive perfects very often use that variant. This does not explain the difference in meaning between the two non-epistemic constructions; it only predicts that the participial modals will have one variant less than the modalized infinitive perfects in otherwise comparable contexts.

Mikkelsen (1911, 453) presents his discussion in a section with the heading »En tænkt forestilling, udtrykt ved en forskydning af tiden« 'An imagined situation expressed by a shift in tense' and states that instead of past perfect modal verb is used past modal perfect; but »exceptions from the rule are not uncommon, particularly with KUNNE«, e.g.

Gid jeg havde kunnet hjælpe ham!

'God-give [:I wish that] I had could help ham!'

Mikkelsen's description implies that past modal perfect ('kunne have') is preferably used when referring to an *imagined* (non-real) situation so that real situations are referred to with past perfect modals ('havde kunnet').

Paul Rubow notes in passing (1927, 215) that H.C. Andersen only once in all of his fairy tales uses »the paper-like ('papieragtige') *havde kunnet* with infinitive instead of the idiomatic ('mundrette') *kunne have* with participle:

dersom Nogen ordentlig havde lagt Mærke dertil, da havde de tydeligt
'if anyone really had paid attention thereto, then had they clearly'
kunnet see, at Skyggen gik ind ad den halvaabne Altandør.

'could see that the-shadow went in through the half-open balcony-door'.

His ear is otherwise infallibly sure with respect to what one naturally says«. Rubow apparently considers the two expressions semantically equivalent and only finds a stylistic difference between them.

Aage Hansen (1967/3, 152-53) offers the following description: In present tense denoting reality («realis») primarily the participial modals are used although KUNNE with the special meaning of possibility and SKULLE with the special meaning of rumor or report may also occur as modal perfects in present tense. In the past tense only the participial modals may be used about something real while the modalized infinitive perfects are used about something imagined, uncertain or possible («non-realis»); occasional usages of the participial modals for the non-real do occur, however. The following example is quoted by Aage Hansen from Mikkelsen's grammar (1911, 453):

Hvis han havde villet hjælpe dig, havde han nok gjort det.
 'If he had would help you had he probably done it [:so]'

What is considered non-real here is the *volition* expressed by 'villet', not the act of helping itself, just as in the following example; but if we here use the alternative construction it is the *act of helping* expressed by the main verb 'hjælpe' that is non-real (and 'ville' may, but need not be futuristic):

Jeg havde villet hjælpe dig, hvis du havde spurgt mig.
 'I had would help you if you had asked me'.

Jeg ville have hjulpet dig, hvis du havde spurgt mig.
 'I would have helped you if you had asked me'.

Aage Hansen's description simply reflects the scopal facts in the two constructions. A participial modal indicates a retrospective (past) modality and emphasizes the (past) existence of that modality which then again indicates a contingent (irreal) main predication. A modal infinitive perfect, on the other hand, emphasizes the contingent (irreal) existence of a retrospectively viewed (past) main predication. This description of the two constructions seems compatible with Rubow's point of view since it may be considered more formal and less idiomatic to «irrealize» the more abstract concept of modality than the more concrete main verb act.

The notion that the two constructions have the same meaning goes back at least to Wiwel (1901, 191) who uses the expression «ensbetydende udtryk» 'identically-meaning expressions' about the pair

Jeg havde kunnet gøre det.
'I had could do it'.

Jeg kunne have gjort det.
'I could have done it'.

We note that Wiwel compares two sentences in the past tense while Skyum-Nielsen's pair consists of a sentence in the past tense and one in the present tense. Be that as it may, we reject the claim that the two constructions systematically have identical or even closely similar meanings: in participial (perfect) modals the perfect has wider scope than the modality while the modal has wider scope in the modal perfects, and in almost all examples, change between participial modal and modal perfect is associated with a clear change of meaning, and occasional similarities in such pairs are derivative and accidental phenomena. If we change Wiwel's sentence pair from the colorless *gøre* 'do' to a more specific verb like *kvæle* 'strangle', the meanings of the two sentences are not so similar:

(A) Jeg havde kunnet kvæle hende.

'I had could strangle her'.

It was (objectively) possible for me to strangle her.

(B) Jeg kunne have kvælt hende.

'I could have strangled her'.

(1) I could have strangled [:wanted to strangle] her – I was so angry.

(2) I might have strangled her (e.g., accidentally).

Sentence (A) only seems to have a prospective reading while (B) has a dynamic (1) and a prospective (or epistemic?) (2) reading, and even the latter reading does not necessarily mean the same thing as sentence (A) does, although there are *some* situations where the meanings are similar. With this example pair, at least, both (A) and (B) seem to be equally unreal (she wasn't strangled, after all), while Aage Hansen's rules would suggest that (A) is more »real« than the »irreal« (B). We find no such difference: in (A) the modality is described as non-real (hence also the main verb act); in (B) only the main verb act is described as non-real.

With present tense constructions the difference is even more clearly scopal; the (A) example here describes a past (modal) state of affairs, the (B) example describes a possible past act:

(A) Jeg har kunnet kvæle hende.

'I have could strangle her'.

I have been (mentally or physically or both) able to strangle her.

(B) Jeg kan have kvalt hende.

'I can [:may] have strangled her'.

I may have strangled her (e.g., accidentally).

To conclude: there is a clear semantic difference between modal perfects and participial modals due to the different respective scopes of the modal verb and the perfect auxiliary. In some, perhaps many cases this difference may turn out to be conversationally irrelevant, for instance in the case where we discuss a past act of helping or strangling and the most relevant fact about it is that it did not take place; nevertheless, the choice between the two constructions is real enough and may also be conversationally relevant.

Modality and Passive

In the literature about English it is noted that while most auxiliaries are *voice neutral* so that a sentence containing an auxiliary may be passivized without any other change of meaning than the normal effect of passivization, there are exceptions at least with dynamic (volitional) WILL. With this interpretation of WILL, the following two sentences have different meanings (Palmer 1990, 47-48):

The man will meet the boy.

The boy will be met by the man.

In this section we shall investigate the use of modal verbs with the two types of passives in Danish, and we then address the question of voice neutrality.

Passives in Danish

Traditionally, Danish is said to have two passives and we stick to this terminology even though it might be more appropriate to talk about a passive and a resultative construction, respectively.

The morphological passive or *s-passive* is an inflectional form constructed by suffixing an *s* to the infinitive or the past tense form, of which only the infinitive passive is relevant in connection with the modals. Note that certain verbs have infinitives ending in *s* although they are not passives: Some denote reciprocal activities like *slås, følges* 'fight, accompany (each other)'; others denote other types of events: *synes, grønnes* 'think/mean, become-green'.

The other passive is a periphrastic construction using the auxiliary BLIVE which basically means *become* but is normally translated as *be* in this construction, which may be interpreted as a resultative but which we call *blive-passive*.

It is a common misconception that »there is competition between two different passive constructions« (Klinge 1996, 50). In fact they compete no more than, say, indefinite and definite noun phrases do, and it is well-documented that the two constructions have different meanings and usages and that in some cases only one of them is grammatical (Rehling 1934, Olauridsen 1987, Lauridsen & Lauridsen 1989). Already Mikkelsen (1893, 222-23) states the appropriate, essentially aspectual rules for the use of the two forms and expands them a bit in his later work which we follow: *s*-passives are used about states or incomplete activities and about repeated and habitual activities, while *blive*-passives are used about the individual, completed activity (Mikkelsen 1911, 381). However, the *s*-passives may also be used to denote an individual activity, in which case one lingers somewhat more by the activity; and the *blive*-passives may be used with repeated activities when they are interpreted as results (Mikkelsen 1911, 382).

In other words, the *s*-passive characteristically expresses imperfective aspect, the *blive*-passive characteristically expresses perfective aspect. In the following we only consider their usage when governed by a modal verb, in which case Mikkelsen (1893, 1911) gives explicit rules for the meanings of the modals: with *s*-passives VILLE denotes volition, SKULLE a requirement or obligation, KUNNE a general possibility, TURDE a permission, MÅTTE a necessity, and BURDE is regul-

arly followed by *s*-passives; with *blive*-passives, *VILLE* denotes futurity, *SKULLE* a promise, threat, assurance or future possibility, *KUNNE* and *TURDE* a future possibility, *MÅTTE* a permission (Mikkelsen 1911, 383).

Modal Passives

If verbs are classified into the two main types: stative or transitional on the one hand and actoral or causative on the other hand, verbs in the first group almost always use the *s*-passive while those in the second group use *s*-passive primarily with durativity, *blive*-passive with perfectivity (Lauridsen & Lauridsen 1989, 243). In other words, the difference between *s*-passive and *blive*-passive is normally aspectual, as we already noted; but it has been claimed that in connection with the modals the aspectual distinction is replaced by a modal distinction, typically between an epistemic and a non-epistemic modality (Lauridsen & Lauridsen 1989, 248).

Klinge (1996, 51) is in accord with the Lauridsens (whose work he does not seem to know) that the *blive*-passive is typically used with epistemic modals and the *s*-passive with non-epistemic modals. Rehling (1934, 85-86) states that the *s*-passive is »more objective-latent or general-abstract« and suggests a state, while the *blive*-passive is »more subjective-situative or actual-concrete« and suggests occurrence or event, and this is said to be particularly salient with the modal verbs.

Heltoft & Jakobsen in their discussion of passives (1996) also seem to be unaware of the Lauridsens' work, and they take the choice of passive form to be a choice between subjective and objective *mood*, invoking Bech's *modalfaktor* and suggesting that »the periphrastic mood has a subjective modal factor, the *s*-mood has an objective modal factor« (209). (We should emphasize that their use of Bech's modal factor applies to the two types of passive and has nothing to do with our application of a modal factor to the modal lexemes, for which we have associated a »subjective modal factor« with abilitive modals and an »objective modal factor« with the deontic ones.)

After their general discussion of passives, Heltoft & Jakobsen apply their subjective/objective distinction to modal passives and find that »Strikingly, subjective (epistemic and volitional) readings of the modal

verbs select the periphrastic mood of the infinitive, while the non-subjective (deontic and causal) readings take a *s*-mood infinitive« (1996, 209). This might make sense for their idiosyncratic conception of what the Danish modals include since they explicitly limit the modal verbs to KUNNE, MÅTTE-g, MÅTTE-n, and SKULLE (ibid., 210); but volitional VILLE takes *s*-passives, and there are also other exceptions to their putative rule.

When we replace the binary distinction between epistemic and non-epistemic modality with our ternary distinction between epistemic, prospective, and dynamic modality, we find the following pattern: epistemic modality favors *blive*-passives and dynamic modality favors *s*-passives, while prospective modality is compatible with both types of passive. The following example will typically be understood as prospective (plan, promise) but could marginally also be epistemic (report):

Bilen skal blive repareret.

'The-car shall be repaired'.

The car {is said to be being / will be} repaired.

With *s*-passive there are also two interpretations: a prospective (plan) one where the car is scheduled for repair, and a dynamic one where the state of the car is such that it needs repair:

Bilen skal repareres.

'The-car shall repair-PASS'.

The car {is to / needs to} be repaired.

In many cases, not all four possibilities are equally likely to occur; but Davidsen-Nielsen (1990, 96) also mentions an example of this type:

Forestillingen skal {spilles / blive spillet} imorgen.

'The-play {is said to / is to / shall / must} be played tomorrow'.

and (wrongly, in our opinion) uses the two different passives to argue for two independent meanings of SKULLE (arrangement and obligation) instead of our single prospective meaning. With another example set, now with KUNNE, we also find four possibilities, two for each sample sentence:

Bogen kan blive trykt. Bogen kan trykkes.
 'The-book can be printed'. 'The-book can print-PASS'.

The blive-passive can be read as an epistemic prediction (where the publishing of the book is said to be possible) or – most naturally with some adverbial like *i næste uge* 'next week' – as a prospective statement that printing facilities will be available. The s-passive may express that the properties of the book are such as to enable its being published (dynamic modality), but also – for instance with an adverbial like *i 2000 eksemplarer* 'in 2000 copies' – that permission is given for the printing to start (prospective modality).

In the corpus, s-passives dominate the picture: there are almost 9,000 of these against about 600 blive-passives. Only BURDE and the central modals KUNNE, MÅTTE, SKULLE, VILLE commonly occur with passives, and VILLE is much less frequent with passives than the other central modals. Expectedly, passives are particularly common in the legal corpus which only accounts for 20% of the total material but for 52% of the passive constructions. The overrepresentation is particularly large with s-passives where 70% of the cases with MÅTTE, 60% of the cases with KUNNE and BURDE, and 40% of the cases with SKULLE come from the legal corpus; with blive-passives the legal corpus is only significantly overrepresented with VILLE (40%) and MÅTTE (85%), the latter primarily deriving from the otherwise rare suppositional («subjunctive») use of the past form *måtte* indicating something that could conceivably happen in the future.

We return to these five modals below after briefly discussing the three modals that rarely occur with passives. In the corpus, BEHØVE has one s-passive (dynamic), but it also seems possible to have (prospective) blive-passive:

Peter behøver ikke at blive klippet endnu.
 'Peter needs not to be [hair-]cut yet'.

The three corpus examples of passives with TURDE are all dynamic s-passives, and epistemic blive-passives are conceivable but do not seem natural:

Rygterne turde blive bekræftet af de seneste oplysninger.
 'The-rumours dared be confirmed by the latest information'.

On the other hand, dynamic blive-passives are not impossible:

Jeg tør ikke blive opereret.

'I dare not be operated [on]'.

The corpus has no passives with GIDE although they are marginally possible, but blive-passives seem to be better than s-passives, which is a contradiction of our claim that dynamic modality most naturally occurs with s-passives:

Jeg gider ikke blive skubbet og mast af tusindvis af mennesker.

'I bother not [to] be pushed and pressed by thousands of people'.

? Jeg gider ikke skubbes og mases af tusindvis af mennesker.

'I bother not [to] push-PASS and press-PASS by thousands of people'.

Interestingly, in this pair of sentences TURDE also favors blive-passive, although dynamic VILLE most naturally takes the s-passive.

Passives with BURDE

BURDE-passives are in one sense always prospective, expressing propriety; but we generally consider them dynamic if they express that some active subject ought to bring about that the situation described by the main verb becomes actualized. In other words, if the passive means that *man/nogen bør X* 'one/somebody ought to X', we classify it as dynamic.

The active subject is very rarely expressed in the passives with BURDE; if it is, it is sometimes the target of the obligation, and the modality is dynamic; but it is perhaps more commonly *not* such a target, and the modality is prospective, expressing the propriety that something must be done by a person or organisation of a specific type. An attested example is given below, and other similar ones are easily invented: *Spørgsmålet bør besvares af en læge* 'The question ought-to answer-PASS by a doctor'. This construction often has the active subject in indefinite form or it is the name of an institution: *Sagen bør pådømmes af Højesteret* 'The-case ought-to jugde-PASS by The-Supreme-Court'.

Almost all 300 s-passives with BURDE represent the dynamic variant which is also the most common one in any case. We have only noted a single example with clear prospective meaning:

[Organisationen] bør for fremtiden ledes af en trojka.

'[The-organisation] ought-to for the-future direct-PASS by a troika'.

There is only a single example of blive-passive with BURDE, which we interpret as clearly prospective, expressing propriety:

.. at en kvinde aldrig burde blive betroet opsynet med ..

'.. that a woman never ought-to be entrusted [with] supervision of ..'

Passives with KUNNE

The dynamic variant expresses that the subject is capable of becoming the object of the situation expressed by the main verb in active form; the prospective variant just expresses possibility: it is possible for the subject to become the object of the situation expressed by the main verb in active form.

Prospective s-passives with KUNNE are often roughly synonymous with constructions with the permission/prohibition sense of MÅTTE. Dynamic cases are often roughly synonymous with expressions like *er (u)mulig* 'is (im)possible':

De skarpe kanter kan afrundes med en fil. (Dynamic)

'The sharp edges can round-PASS by a file'.

Beløbet kan afrundes til nærmeste 100 kr. (Prospective)

'The-amount can round-PASS to nearest 100 kr.'.

There are about 4,000 s-passives with KUNNE, about 2,500 of which are from the legal corpus where dynamic passives are often closely synonymous with compulsional expressions with MÅTTE: if the court states that something is possible, it is often tantamount to saying that it is true:

Det kan anses for godtgjort at ..

'It can consider-PASS for proved that ..'

The Court considers it proved that ..

In the legal corpus, prospective s-passives are quite common and account for perhaps about 50% of the cases; in the general corpus, on the other hand, dynamic passives dominate and probably account for 80-90% of the cases.

Among the about 100 blive-passives the vast majority are prospective, only a few clearly epistemic:

Freden i din gade kan blive brudt, Blackie.

'The-peace in your street may be broken, Blackie'.

Fiskeriministeren kan blive dømt for ..

'The-minister-of-fishing may be convicted for [:of] ..

In many cases s-passives may replace blive-passives with smaller or greater change of meaning:

.. så støvet kan blive skyllet væk.

'.. so the-dust can be flushed off'.

With blive-passive the sentence primarily focuses on the *result* or the completion of the flushing, and if we change it to an s-passive

.. så støvet kan skylles væk.

'.. so the-dust can flush-PASS off'.

the sentence primarily focuses on the enabling of the *process* of flushing and it is most naturally read with dynamic meaning of KUNNE.

Passives with MÅTTE

In the general corpus the compulsional variant dominates the 400 s-passives: only about 10% represent the permissional one, and of these two thirds are negated. The suppositional variant was only noted once. The legal corpus mainly differs from the general corpus by the considerable frequency of the suppositional use of past tense *måtte* and the much higher frequency of MÅTTE in itself (almost 1000 examples).

Some examples are close to being epistemic, but it seems that it is the main verbs that carry the epistemic meaning element: *anses for*, *antages*, *formodes* 'consider-PASS as, assume-PASS, conjecture-PASS' etc. express epistemic judgements themselves and the modal verb need not be interpreted as epistemic. Other cases, e.g. with *må siges* 'must say-PASS', are more dubious, since an example like the following could be claimed to express an epistemic judgement rather than an obligation:

Prisen må siges at være rimelig.

'The-price must say-PASS to be reasonable'.

However, we interpret this type of examples as *concessive*; the speaker accepts that circumstances allow him to admit something, but he does not present this as a necessary epistemic conclusion.

With MÅTTE, blive-passives are very rare in the general corpus: only 8 examples are included; none of these are compulsional, and half of them involves the suppositional or desiderative subvariant (permission by Fate or Destiny), the other half express prohibition. The legal corpus then adds about 50 occurrences of suppositional past tense *måtte*.

Passives with SKULLE

The difference between dynamic (obligation) and prospective (plan) meaning is clear enough in principle, and in the dubious cases there is also a clear distinction between the two possible readings, but it is not always easy to determine which of the meanings is the intended one. In the example

Formueskatten skal afskaffes.

'The-property-tax {must / is to} abolish-PASS'.

the dynamic (necessity) reading would belong in a political program; the prospective (plan) reading would belong in a newspaper report that the abolishment has already been agreed upon and that it will be effective at some later date.

Apparently the dynamic variant is the most common one among the 3300 s-passives; the prospective variant probably accounts for less than 25% of the examples.

The rare blive-passives (about 35), on the other hand, all express prospective plans, but it does seem possible to invent fairly natural examples with epistemic, reportative, passive:

Forestillingen skal blive spillet imorgen.

'The-play shall [:is said to] be played tomorrow'.

Han skal blive mishandlet ganske forfærdeligt i fængslet.

'He shall [:is said to] be maltreated quite terribly in the-prison'.

It also seems to be marginally possible to construct blive-passives with dynamic meaning, primarily for issuing warnings etc.:

Du skal ikke blive behandlet af doktor N.N.

'You shall not [:shouldn't] be treated by doctor N.N.'.

We predict such constructions to be extremely rare, however, since one would prefer to say

Du skal ikke lade dig blive behandlet af doktor N.N.

'You shall not let you be treated by doctor N.N.'.

or – more formally

Du skal ikke lade dig behandle af doktor N.N.

'You shall not let you treat by doctor N.N.'.

Passives with VILLE

The dynamic variant expresses that the subject is willing to or wants to become the object of the situation expressed by the main verb in active form; the prospective variant expresses future: the subject is expected to become the object of the situation expressed by the main verb in active form.

The about 100 s-passives with VILLE are fairly evenly distributed between dynamic (volitive) and prospective (future) variants. In the present tense the prospectives account for 43% of the examples and in the past tense they account for 35%.

Several of the prospective s-passives would – at least in my opinion – be considerably more natural as blive-passives, particularly some of the legal expressions as *vil anses for* 'will consider-PASS as', etc.

As the only one of the modals VILLE is more commonly found with blive-passives than with s-passives. The 425 examples are all prospective, expressing future expectation.

Voice Neutrality

Basically we find the notion of »voice neutrality« to be ill-conceived or at best irrelevant since it is based on the idea that a process of »passivization« relates active and passive *sentences*, the passives being derivative and the actives basic. This is not obviously true, since it predicts that any passive sentence must have a corresponding active; but some passives can not be »activized«:

Debatten ventes af mange iagttagere at slutte inat.

'The-debate expect-PASS by many observers to finish tonight'.

* Mange iagttagere venter debatten at slutte inat.

'Many observers expect the-debate to finish tonight'.

The only way to express the active in this case is by the following sentence which, however, already has its own corresponding passive sentence:

Mange iagttagere venter at debatten slutter inat.

'Many observers expect that the-debate finishes tonight'.

Det ventes af mange iagttagere at debatten slutter inat.

'It expect-PASS by many observers that the-debate finishes tonight'.

In addition to *vente* 'expect', many other of what for brevity I have called *cognitive verbs* (Brandt 1995, 25-27), i.e. verbs denoting utterance, knowledge, experience, opinion (Mikkelsen 1911, 114), display this type of behavior. This is most simply explained by assuming that the active *venter* and the passive *ventes* are two different morpho-lexical items, each with their own – related but formally independent – valence pattern: *venter* may take a sentential complement but not an infinitive as object, while *ventes* may take either.

If the voice distinction is a relation between *constructions* (valence patterns) and not a relation between *sentences*, so-called »odd passives« (ØLauridsen 1987, 230-32) like

Dams are built by beavers.

which are not truth-functionally equivalent to corresponding actives like

Beavers build dams.

are not odd *passives* at all. They would be odd, if voice alternation was a relationship between sentences, but the truth-functional non-equivalence simply contradicts that hypothesis.

Lauridsen attributes the oddness to the difficulty of interpreting *dams* as rheme and *beavers* as theme in the passive sentence, corresponding to the pragmatic functions he claims these NPs to have in the

active sentence, and this may be the right explanation; but it could be simpler just to assume that indefinite plural noun phrases are interpreted as generic, i.e. with universal quantifiers, if they are subjects, and that a subject quantifier has wider scope than a quantifier in the predicate part of the sentence. These assumptions are probably needed in any case, and they directly imply that the two sentences may have different meanings: »For all dams, they are built by beavers« and »For all beavers, they build dams«, and the passive sentence then may seem odd because it happens to be false, a fact that on our assumptions is predictable and not odd in itself.

With these remarks we may return to the notion of *voice neutrality*, presumably exemplified by the following pair:

Our troops can ford that river.

That river can be forded by our troops.

This does not mean, however, that the modal verb CAN is voice-neutral. Even though both sentences express that the capability of our troops and the obstacle to their progress provided by the river match each other, the active sentence focuses on the troops and their characteristics, the passive one focuses on the river and its characteristics. In other words, the modality in the active sentence depends on the troops, in the passive sentence it depends on the river. These are arguably different meanings and we find the »voice neutrality« of the set to be an accidental consequence of the fact that the central predicate happens to be truth-functionally near-symmetric. An analogous case is presented by the verb *resemble* which logically »ought to« be symmetrical and which allows constructions like »A and B resemble each other«; but nobody would claim that *all* sentences with *resemble* can be reversed.

Consider another pair of sentences where the relationship between the active and the (marginal) passive is not the same as in the previous sentence pair:

I can hit that guy with a snowball.

? That guy can be hit by me with a snowball.

Here both sentences primarily seem to express that *my ability* is such as to enable me to hit that guy, so – unless we emphasize *that guy*, e.g.

because he is so fat or so close that he is an easy target – we do get voice neutrality, but only at the price of unidiomaticity.

Thus, voice neutrality is not an inherent feature of (some sense variants of) some modal verbs but a secondary phenomenon, depending on the actual truth value of the propositions expressed by the active and the passive sentences, i.e. depending on extra-linguistic facts and not on intra-linguistic regularities. Voice neutrality obtains when two related sentences have the same truth value; non-neutrality is the rule and the occasional voice neutrality is analogous to the fact that occasional second degree equations only have a single solution while in general they have two.

Clearly, it is conceivable that certain types of sentences have logical structures of such a form that it is mathematically provable that certain pairs are truth-functionally equivalent (irrespective of non-linguistic facts); but until such proofs are provided (for some non-trivial cases), we do not find voice neutrality to be a useful concept.

Summary of Modal Passives

Even if voice neutrality were considered a meaningful notion, its introduction would merely amount to assigning a name to an otherwise unexplained phenomenon, and we would still like to explain why voice neutrality occurs in some cases and not in others. We have suggested that such explanations must be non-linguistic, but our rejection of voice neutrality does not mean that we must give up the problem of describing the relationship between the two Danish passives. First, however, we summarize some statistical data.

Frequency of Modal Passives

The data given above about the usage of modal passives are summarized in the following table.

	Epistemic	Prospective	Dynamic
BEHØVE		b: +	s: 1
BURDE		b: 1 s: 1	s: 300
GIDE			s: + b: +
KUNNE	b: 3-4	b: 100 s: 1500	s: 2500
MÅTTE-g		b: 50	s: 400 b: +
MÅTTE-n	b: ?		s: 1000

SKULLE	b: +	b: 35 s: 800	s: 2500	b: ?
TURDE	b: ?		s: 3	b: +
VILLE		b: 425 s: 40	s: 60	
T o t a l		b: 610 s: 2340	s: 6800	9750
		6.3 % 24.0 %	69.7 %	100 %

Since the total number of modal occurrences is about 104,000, the passives account for about 9%, and this percentage would be lower (about 6%) if only the general corpus was considered. Rehling (1934, 81, 84) reports about 2% passives in informal language (dialog in novels, H.C. Andersen's fairy tales), about 8% in technical literature, and even up to 20% in certain genres like folklore reporting customs etc. without active subjects.

Rehling estimates that the ratio of s-passives is about 60% (1934, 87), which is considerably less than in our data (93.7%). But Aage Hansen points out that this ratio varies very much with the type of writing: in a book of Danish history he finds 83% s-passives, in fiction characterized by spoken language down to 17% s-passives (1967/3, 53-54), and the high percentage of s-passives in our material is primarily caused by the legal corpus, as we have already mentioned.

Skyum-Nielsen's data (1971) may be summarized to show that passives occur in about 15% of the modal constructions and that 92% of the modal passives are s-passives, the latter figure very close to our 94%, while his global ratio of passives is rather larger than our 9%.

These data suggest that the usage of passive with modals do not differ significantly from the usage of passives in general, but that the s-passives are significantly more frequent in modal constructions than they are in general.

Meanings of Modal Passives

We already mentioned above that Lauridsen & Lauridsen suggest that in connection with the modals the aspectual distinction between the two passives is replaced by a modal distinction, typically between an epistemic and a non-epistemic modality (1989, 248). This is an unattractive proposal, partly because is merely stipulative and does not explain *why* the meanings of the two passives should be distinguished in a completely different manner when governed by a modal, and part-

ly because it does not explain why we have *four* rather than two meanings of modal passives as described above and repeated here:

Bilen skal blive repareret.

'The-car shall be repaired'.

The car {is said to be being / will be} repaired.
epistemic / prospective

Bilen skal repareres.

'The-car shall repair-PASS'

The car {is to / needs to} be repaired.
prospective / dynamic

The null hypothesis must be that the two passives have the meanings they ordinarily have and that their distribution with respect to modal sense variants is determined by the different compatibilities of the two passive meanings with the different modal sense variants.

In the modal passives, the passive is inside the scope of the modal, so it seems unlikely that the passives themselves change meaning as the Lauridsens suggest, the blive-passive inviting epistemic governing modals and the s-passives inviting dynamic governing modals. The normal situation is that a governor subcategorizes for its arguments and not vice versa.

Thus an *observationally adequate* statement of the usage of modal passives is that epistemic modal meanings strongly prefer blive-passives, dynamic modal meanings strongly prefer s-passives, and prospective modal meanings are compatible with both passives but prefer s-passives (except that prospective, i.e. predictive, VILLE favors blive-passives):

Han vil skydes.

(Dynamic, volitional)

'He will shoot-PASS'.

He wants to be shot [e.g., rather than being hung].

Han vil blive skudt.

(Prospective, predictive)

'He will become [:be] shot'.

The question now is *why* we cannot say »Han vil blive skudt« with volitional meaning or »Han vil skydes« with predictive meaning. This question must be answered if we want a *descriptively adequate* rule for

modal passive usage, but unfortunately we have no clear answer to offer.

We propose, however, that s-passives denote *states, processes, or activities* without consideration of their possible completion and that blive-passives denote *events or facts* as a whole, without explicit consideration of the possible progress of the events. This description seems compatible with the previously cited descriptions of the aspectual difference between the two passives and it may suggest an answer to our question.

First, since an *epistemic* judgement is logically made with respect to a proposition (fact), it makes sense that it prefers blive-passives which denote such entities. Epistemic expressions are, however, quite *compatible* with durativity or progression of an event (Davidsen-Nielsen 1990, 21), but do not *insist* on it: hearing screams from the dungeon we may make the epistemic judgement:

Han må blive pint forfærdeligt dernede.

'He must be tortured terribly down-there'.

Secondly, since *dynamic* modality expresses the (internally or externally determined) disposition of the subject towards some activity, it may be found more likely that this disposition involves the actual undergoing of that activity than merely becoming the result of the activity. Finally, *prospective* modality apparently allows both possibilities, the undergoer-subject typically being the most common.

We readily admit that this is a rather vague and unsatisfactory description, and we would have preferred to propose a better one. Whatever explanation is eventually developed it must be noted that it cannot be an absolutely hard and fast rule, since stray modal passives of the unexpected types occasionally show up. We have also already seen some examples of blive-passives with clearly dynamic modals, and with verbs of mental anguish or stress s-passives are quite natural in epistemic judgements:

Han må {nages/pines/martres} af samvittighedskvaler.

'He must {torment/torture/pain}-PASS by conscience-qualms'.
epistemic

Such examples show that not all s-passives are incompatible with epistemic modality; but with these verbs the semantic role of the passive subject is arguably different from most other verbs, and the s-passive is also the most natural one in non-modal contexts.

CHAPTER 5

Syntactic Modal Constructions

In this chapter we discuss certain types of syntactic constructions involving modal verbs. The first three also involve another (modal or non-modal) verb: coordinations, modal verbs governing each other (modal verb combinations), and modal verbs governed by non-modal verbs; and we then proceed to discuss some adverbials and the relationship between modal verbs and conditionals.

Coordination with Modal Verbs

As mentioned earlier, modal verbs easily coordinate with each other but not with non-modal verbs. We briefly discuss these two situations.

Modal/Modal Coordination

Skyum-Nielsen reports examples of the ten pairs he has found (1971, 95-96, 125, 185, 207, 220). Disregarding sequence these pairs are VILLE with KUNNE, MÅTTE, SKULLE, TURDE; SKULLE with BURDE, KUNNE, MÅTTE; KUNNE with BURDE; BURDE with BEHØVE; and TURDE with GIDE. The modern corpus again attests most of these and adds VILLE with BURDE, KUNNE with MÅTTE, GIDE, TURDE; and MÅTTE with BURDE. The results may be summarized in matrix form:

	BEHØVE	BURDE	GIDE	KUNNE	MÅTTE	SKULLE	TURDE
BURDE	.	-					
GIDE			.				
KUNNE		.	.	.			
MÅTTE		.		.	.		
SKULLE		
TURDE			.	.			.
VILLE		.		*	.	.	.

All the central modals are found coordinated with each other and most combinations are common; but VILLE with MÅTTE is only attested by two examples, the first from Skyum-Nielsen (1971, 95), the second with repeated main verb:

Hvis N.N. vil og må bruge sit talent i ideens tjeneste, ...
 'If [the artist] N.N. will and must use REFL-POSS talent[s]
 in the-idea's service [:for the idea] ...'

.. som hun ved vil ske og må ske.
 '.. which she knows will happen and must happen'.

When the modals are coordinated it is almost invariably the dynamic variants; but occasional coordinations with prospective modal variants may be found, as exemplified here:

Jubilæet skal og vil blive fulgt positivt op.
 'The-anniversary must and will be followed positively up'.

The dynamic (obligation) variant of SKULLE normally governs *s*-passives while the prospective (predictive) variant of VILLE normally governs a *blive*-construction, so the coordination here is not quite well-formed. The next example is well-formed, however, and shows coordination between the prospective (plan) variant of SKULLE and the dynamic (capability) variant of KUNNE:

De [nogle maskiner] skulle og kunne med rette
 demonstrere det høje teknologiske stade ..
 'They [some machines] should and could with justification
 demonstrate the high technological level ..

Some further examples are to be found in the corpus, but in more than 90% of the cases the coordination is between two dynamic variants.

Coordinations between a modal and its negation occur occasionally; in the corpus it is attested with permissual MÅTTE, obligational SKULLE and volitional VILLE. In addition, the coordination »har måttet eller må« 'have must or must' occurs a few times in the legal corpus.

Without presenting constructed examples we shall claim that most of the unattested coordinative pairs seem to be possible and that their absence from the corpora may be attributed to their relative infrequency. Modal coordination is not a highly frequent phenomenon in the first place: among more than 100,000 occurrences of modal verb forms in the modern corpus we have only found about 100 coordinative constructions (about 65 with *og* 'and' and about 40 with *eller* 'or', many of the latter being of the neither – nor type).

Assuming coordination to be a random phenomenon, a corpus of 5 million words would be expected to contain about 0.7 occurrences of a coordination between SKULLE and TURDE, so the absence of this pair in the corpus is not really surprising, and this is the unattested pair with the highest probability of occurrence. If we take a pair like MÅTTE and BEHØVE, we would need a corpus of 30-35 million words just to have an expected occurrence figure of about one, and if we wanted to argue that this pair does *not* occur, we would probably want a corpus of about 150-175 million words, where we would expect about five occurrences and finding none could presumably be shown to be statistically significant.

Modal/Non-Modal Coordination

The search in the modern corpus showed three examples of coordination between modal and non-modal verbs, the first one being a borderline case with respect to grammaticality:

.. [jeg] passede mine kurser når jeg huskede og gad ..

'.. [I] attended my classes when I remembered and bothered [to] ..'

.. hvad han egentlig mener og vil.

'.. what he really means [:thinks, intends] and will'.

.. en kvinde, der vil og ved og kan meget ..
 .. a woman who will and knows and can much ..'

The last of these is reminiscent of a text from a student song:

Det som vi søger, vil og ved | har værd i evighed.
 'That which we seek, will, and know has worth in eternity'.

In the following example from a legal text the coordination is not between two modals but between a modal and a modal construction, a type analogous to coordination of modal and non-modal verb; the coordination is [*vil og [kan enes ..]*], not *[[vil og kan] enes ..]*:

.. udforme sine .. aftaler som man vil og kan enes med [andre] om.
 .. form REFL-POSS .. contracts as one will
 and may agree-PASS with [others] about'.
 .. express one's contracts as one wishes and can get agreement on.

It is no accident that the occasional examples of coordination between modals and non-modals all involve the most »personal« abilitive modals expressing the intention or inclination of the subject, since it is primarily these modals that are capable of taking nominal objects.

Otherwise, coordination between modal and non-modal is ruled out simply because the two words have different requirements with respect to the infinitive marker *at*; there is no semantic restriction involved:

- Jeg ønsker ikke at møde ham, og jeg vil ikke møde ham.
 'I want not to meet him and I will not meet him'.
 * Jeg ønsker (ikke) og vil ikke (at) møde ham.
 'I want (not) and will not (to) meet him'.
 * Jeg vil (ikke) og ønsker ikke (at) møde ham.
 'I will (not) and want not (to) meet him'.

Modal Verb Combinations

In principle, Danish modal verbs may combine with each other and form chains of any complexity provided only that the result makes

sense. If the first of the following examples (with four modals: *vil gide skulle kunne*) becomes the subject of a report, the second example (with five modals) results:

Når jeg kommer i skole vil jeg ikke gide skulle kunne læse latin.
'When I get to school will I not bother should could read Latin'.

Han skal ikke have villet gide skulle kunne læse latin.
'He shall not have would bother should could read Latin'.

In practice, of course, long verb chains are extremely rare because one rarely has such very complicated things to say. And not only are long chains rare: almost all two-member »chains« are quite rare as well.

Skyum-Nielsen (1971) attests 15 modal pairs; but in our (much larger) corpus only 4 of these are common and only 8 are even attested; on the other hand, our corpus provides 2 additional cases, both of which only occurring once. Even assuming that homonymous pairs are excluded, perhaps as »disharmonic«, 8 modal verbs would allow 56 modal pairs, so the fact that only 4 pairs are reasonably frequent shows that modal combination is rather restrictive in practice.

Actual Modal Pairs

The only common corpus examples are the following four pairs:

burde kunne	43 examples
måtte kunne	78 examples
skulle kunne	240 examples
ville kunne	391 examples

The modern corpus also attests the following pairs:

burde behøve	1 example (this pair not attested by Skyum-Nielsen)
måtte skulle	1 example (this pair not attested by Skyum-Nielsen)
skulle behøve	1 example (this pair also attested by Skyum-Nielsen)
skulle turde	1 example (this pair also attested by Skyum-Nielsen)
ville gide	5 examples (this pair also attested by Skyum-Nielsen)
ville turde	1 example (this pair also attested by Skyum-Nielsen)

In addition to these pairs from the modern corpus, we may add that

Skyum-Nielsen also attests or suggests the following pairs (1971, 87-93, 120-21, 150-52, 179-81, 206, 214, 219, 222, 227):

- ville måtte
- ville skulle
- ville behøve
- kunne ville
- måtte ville
- skulle ville (probably not in modern Danish)
- skulle måtte (probably not in modern Danish)
- burde ville (suggested in text)
- burde turde (suggested in text)
- skulle turde (only in jocular – but attested – expressions)
- turde kunne (invented example)
- gide kunne (invented example)
- gide gide (only in jocular – but attested – expressions)

Skyum-Nielsen (1971, 258-63) discusses the combinability of the modals in detail, supplementing his corpus by invented examples (verified by two informants) to set up a matrix showing the acceptability of the $14 \cdot 14 = 196$ modal variant pairs he employs, finding 60 pairs acceptable and 9 almost so. He concludes that the 6 »supra-segmental« (epistemic) variants and BURDE (for which he specifies no variants) cannot be governed while the other 7 variants may be. This rule predicts $14 \cdot 7$ variant pairs and subtracting 14 homonymous pairs we get 84 which is fairly close to the 69 more or less acceptable variant pairs he has registered. We do not feel, however, that the combinability is nearly as high as that in naturally occurring texts.

Modal Combinability

Checking Skyum-Nielsen's attested or suggested modal pairs (but not his invented examples) we have found the following distribution of sense variant combinations:

Governor	Governed	Examples
Epistemic	Dynamic	4
Prospective	Prospective	4
Prospective	Dynamic	16
Dynamic	Dynamic	11

Although some uncertainty must be admitted, it seems as if the first modal in a modal pair cannot be »more dynamic« – more to the right in our diagrams – than the second one. If this is true, the rule is that (1) epistemic modals cannot be governed and (2) a dynamic modal may only govern another dynamic modal.

This rule allows the possibility that an epistemic modal might govern a prospective modal; and although we have not found any clear examples of this, we think it is a viable construction. The following example was first considered as epistemic BURDE and prospective KUNNE, and this interpretation is still possible in some contexts:

Og vi bør kunne vinde pengene .. (DK877009)
 'And we ought [to] could win the-money'.

If this quotation had referred to a Lotto (numbers game) context, as I first thought, it would make sense to claim that *bør* 'ought to' is epistemic, stating what is inferred to be logically possible (because we have hedged our bets), and *kunne* '[to] could' would refer to the eventuality of winning, certainly not to our *ability* to do so – since we presumably cannot influence the drawing of the winning numbers. However, it turns out that the context shows *pengene* 'the money' to refer to an extra bonus a handball team will receive if they win a certain match, so it seems that both *bør* and *kunne* refer to the actual duties and abilities of the team members and thus represent a dynamic – dynamic pair of modals.

To summarize the preceding data we might say that KUNNE may occur as the governed member of a modal pair and that it may be governed by any other modal although only the other *central* modals and BURDE occur frequently as governor. If we add the observation that predictive VILLE *may* occur as governor of any modal, but only infrequently except with KUNNE, we have practically exhausted the *realistic* cases. *Theoretically*, however, a much larger inventory of modal pairs are possible as shown in the following diagram:

Governed:	Epistemic	Prospective	Dynamic
Governor:			
Epistemic	-	+	+
Prospective	-	+	+
Dynamic	-	-	+

The diagram would have looked neater if epistemic modal variants were capable of governing other epistemic modals; but this seems to be impossible, and we ascribe this to the stipulated »fact« that an epistemic qualifier (in the sense of Caton (1969)) must be associated with a *finite* verb form and bars the sentence from having any other epistemic qualifier.

The rule as stated (weakly) supports our contention that compulsional and permissional MÅTTE are both dynamic. The crucial context consists of a clearly dynamic modal governing MÅTTE, and based on Skyum-Nielsen's invented example (1971, 261) we present another which is clearly unusual, but grammatical:

Hvis du vil måtte ryge her, skal du måtte ryge for dine forældre.
'If you will may smoke here, must you may smoke for your parents'.

Since both *vil* and *skal* here represent dynamic senses, permissional MÅTTE must be dynamic by the rule that dynamic modals may only govern other dynamic ones. For compulsional MÅTTE, Skyum-Nielsen (1971, 260) invents an example with GIDE which he considers dubious but which we find just as good (and just as unusual) as the preceding one and also allowing VILLE

Jeg gider/vil ikke måtte stå op om natten for hans skyld.
'I bother/will not must get up at night for his sake'.

By the same argument as before, these examples show that compulsional MÅTTE must also be dynamic. Together, these findings then predict that neither compulsional nor permissional MÅTTE should be able to govern prospective modals, and Skyum-Nielsen's data (1971, 258-63) confirm this. We think, however, that it is possible to construct examples where (permissional) MÅTTE seems to govern SKULLE with a sense of plan rather than obligation:

Dagen efter festen må du ikke skulle flyve.
'The-day after the-party may you not should [:be going to] fly'.

We could take this to indicate that our suggested rule does not hold or that permissional MÅTTE is not dynamic; but we do not find this

necessary. Instead we suggest that a plan or arrangement could be considered as a kind of obligation and that the present context induces such an interpretation here. Admittedly, this is a rather weak explanation; but since this discussion has been based on contrived examples throughout it can hardly be considered decisive whatever its conclusion is.

Double Epistemics?

In contradiction of the rule that epistemic modals cannot be governed, Thrainsson & Vikner (1995, 76-77) claim that epistemic modals *may* indeed govern other epistemics, quoting the following two examples:

Det må kunne stå på én side.
 'It must could stand on one page'.

Der vil let kunne gå noget galt.
 'There will easily could go something wrong'.

In our interpretation, however, the first example clearly does not contain epistemic KUNNE: it is »it«, presumably a text, that by virtue of its size is the modal source, so we would classify this usage as dynamic; at least it is certainly *not* epistemic, since the meaning is not »It is possible *that* the text is contained on one page«, but that »it is possible *for* the text to be contained on one page«.

The second example is superficially more convincing. It could be claimed that the embedded predicate »Der kan let gå noget galt« 'Something may easily go wrong' has a »possible *that*«-reading, and furthermore Thrainsson & Vikner have previously (p. 65-66) argued that event expressions may *only* be governed by epistemic modals and not by root modals, so there are presumably two reasons to consider KUNNE epistemic in this example.

The restriction on event expressions, however, clearly does not hold for SKULLE, BURDE, BEHØVE, MÅTTE, TURDE, GIDE, all of which normally refer to a future event, and the restriction really only pertains to VILLE (which is also the only modal Thrainsson & Vikner use in their examples supporting their contention). This modal in its volitive (dynamic) sense requires that the subject is capable of *influencing* the outcome of the embedded predicate; otherwise volition is usu-

ally meaningless, hence in the following example the HAVE-sentence expresses volition (in English expressed non-modally), the FÅ-sentence futurity only.

Han vil have / få en cykel.
 'He will have / get a bicycle'.
 He { wants / will get } a bicycle.

Thus we may disregard the putative event restriction and are left with the question whether »Der kan let gå noget galt« 'Something may easily go wrong' contains an epistemic or a prospective modality. Retaining the adverbial, it cannot naturally be paraphrased as »It is *possible that* something will easily go wrong«, the classic criterion for recognizing an epistemic construction; but we must also consider the sentence

Der vil kunne gå noget galt.
 'There will could go something wrong'.

Here the embedded sentence is »Der kan gå noget galt« 'Something may go wrong'; in our opinion, this has two readings: a truly epistemic one stating as a present-time fact that a future failure is possible, but also a prospective one which, however, cannot be paraphrased with *possible for* because of the expletive *der* 'there'. But in a sentence like

Det eksperiment kan være farligt.
 'That experiment may/can be dangerous'.

the most natural interpretation is not the epistemic one, meaning that the dangerousness may or may not exist, but rather a prospective or predictive one, meaning that the experiment is likely to have disastrous results. This example is quite similar to one given by Palmer (1990, 108) who states that if *may* is used here, it is likely to have an epistemic interpretation while *can* expresses a different and non-epistemic meaning. In Danish, *kan* is used to express both of these meanings (and in English *can* and *may* has some overlap, the subject of Palmer's just mentioned discussion).

Now, our example »Der vil kunne gå noget galt« does not mean that at some future time it will become possible that something goes wrong, in other words that an epistemic possibility (expressed by KUNNE) of

going wrong does not presently exist but is confidently predicted (by VILLE) to arise at some future time. In fact, the example sentence is practically synonymous with »Der kan gå noget galt« 'There can go something wrong', which expresses an opinion of the likelihood of the realization of some future event: a prospective and not an epistemic interpretation. Thus, we conclude that the putative example of a double epistemic does not have an epistemic modal in a governed position; in fact, we do not even consider VILLE epistemic in its futuristic reading.

Modal Verbs as Verb Arguments

Basically, whenever an infinitive can occur a modal verb infinitive (usually with an infinitive complement) may occur, and there seems to be no formal restrictions; but the occurrence potential for modals in such positions is nevertheless typically rather restricted since it must make sense to include the modal and, unless the expression is to become pleonastic, the modal should contribute something in addition to the meaning of the modal-less expression. Some examples follow:

Han er ked af at skulle gå i skole.

'He is sad about to should [:having to] go to school'.

Hun er ved at kunne passe mit tøj.

'She is about to could fit my clothes'.

Jeg er ved at ville hjem.

'I am about to would home'.

At skulle læse lektier er mig en plage.

'To should read [:do my] lessons is me a pain [:is a pain to me]'.

Politik er at ville.

(Title of a book by Olof Palme)

'Politics is to would'.

Modal verbs in such contexts are mostly low-frequent, but in some cases they quite readily occur, and these situations are described in the present section. In all these cases the modal is an infinitival verb argument and normally itself governs an infinitive. We consider prepositional and other indirect verb complements as verb arguments on an equal

footing with directly associated verb objects. The verb governing the modal verb may itself be governed by a modal and this phenomenon we occasionally refer to as »supermodalization«.

KUNNE as Verb Argument

The corpus seems to contain between 200 and 250 examples where KUNNE is governed by another verb. The majority probably represents the KUNNE of eventuality but the ability reading is also quite common. Supermodalization, especially with MÅTTE (requirement) often occurs, particularly in the legal texts.

Verbs of opinion or judgement seem to be the most common ones, partly but not exclusively because of the legal texts in the corpus: *antages*, *finde(s)*, *mene* 'assume-PASS, find(-PASS) [:judge], opine [:expect]'. Similar to this group is the type of verb that expresses expectation, hope, desire, etc.: *forudsættes*, *forvente(s)*, *håbe*, *vente*, *ønske* 'presuppose-PASS, expect(-PASS), hope, expect, want'.

Verbs of appearance like *se ud til*, *synes*, *vise sig* 'look out to [:look like], seem, show REFL [:turn out]' are also well represented, usually with at least a tinge of abilitive reading to KUNNE.

The two verbs *begynde*, *nå* 'begin, reach [:be in time to]' have only been noticed with KUNNE but their aspectual meaning makes it likely that they also occur with other common modals.

A final group of verbs with prepositional complement includes *forpligte sig til*, *vente på*, *vænne sig til* 'oblige REFL to, wait for, habitualize REFL to' and seem to have no common denominator.

MÅTTE as Verb Argument

Only 50 cases of MÅTTE as verb argument occur in the corpus and they normally represent the MÅTTE of requirement unless governed by a verb using the preposition *om* 'about' to associate an expression of conditionality, in which case the permissional variant of MÅTTE is always used. In either meaning supermodalization does not seem to occur.

The most common cases of argument MÅTTE are governed by active or (more commonly) passive *finde* 'find [:judge]' in legal contexts, and a number of more or less related verbs also occur as governors of MÅTTE: *antages*, *beklage*, *finde(s)*, *mene*, *synes*, *vente(s)* 'assume-

PASS, regret, find(-PASS) [:judge], opine [:intend], appear, expect(-PASS)'.

A few cases of verbs denoting risk or avoidance (of obligation) are also found: *risikere*, *undgå* 'risk, avoid'.

As already mentioned, verbs like *anmode om*, *bede om*, *henvende sig om*, *plage om*, *søge om*, *tigge om* 'submit about, ask about, apply REFL about, pester about, apply about, beg about' (where the glossing 'about' often more idiomatically corresponds to *for*) only occur with permissional MÅTTE, as is indeed natural.

SKULLE as Verb Argument

The corpus presents less than 100 examples of argument SKULLE, usually the obligation variant although the plan or future meaning is also represented as exemplified by:

[.. som hun] aldrig havde drømt om at skulle eje.

'[.. which she] never had dreamed about to should own'.

In some cases (often supermodalized by KUNNE) the governing verb itself expresses modality and may even be closely synonymous with futuristic (plan) SKULLE. In such cases the governed SKULLE typically represents the obligational sense variant and the expression may be used to avoid the use of two homonymous uses of SKULLE: *komme ud for*, *stå foran*, *stå over for* 'come out for [:experience], stand before to [:be about to], stand across for [:be going to]'.

The reverse type is also represented where governed SKULLE often expresses futurity or plan while the governing verb expresses expectation, risk, duty, or avoidance: *blive nødsaget til*, *finde sig i*, *påregne*, *regne med*, *risikere*, *tynges af*, *tænke på*, *undgå*, *være indforstået med* 'be obliged to, accept REFL in [:to], expect, calculate with, risk, burden-PASS by, think of, avoid, be accepting of [:accept]'.

The verbs *godkende*, *klage over* 'accept, complain about' may govern obligational SKULLE but the futurity meaning is also possible, and *mene* 'opine [:intend]' occurs with SKULLE in the planning sense.

VILLE as Verb Argument

The corpus data shows about 100 cases of VILLE as verb argument and

in almost all cases the expression *could* be claimed to represent predictive VILLE; but it is often more likely that the volitional variant is involved. A fairly clear example of the volitional variant is:

[De] truede med ikke at ville gå på scenen.
 '[They] threatened with not to would go on the-scene [:perform]'

Passives of verbs of expression or opinion typically govern predictive VILLE, but the volitional variant is also possible: *hævdes, menes, siges* 'claim-PASS, opine-PASS, say-PASS'. These verbs are normally not again governed by modal verbs.

Some other passives are quite often themselves modalized, typically by KUNNE or MÅTTE. They all denote some type of expectation or prediction and thus seem to express modality by themselves: *antages, befrygtes, beregnes, formodes, forventes, skønnes, tænkes, ventes* 'assume-PASS, fear-PASS, calculate-PASS, assume-PASS, evaluate-PASS, think-PASS, expect-PASS'. Again both variants of VILLE are possible in most cases.

Verbs denoting appearance are often supermodalized by KUNNE: *give udtryk for, gøre mine til, se ud til, synes, vise tegn på* 'give expression for [:indicate], make look to [:look as], look out to [:seem], seem, show signs of [:suggest]'. With these verbs the predictive meaning is probably the most common one.

On the other hand, the volitional variant is normally the one governed by verbs of declaration, promise, and threatening. These may be supermodalized but this is rare in practice: *erklære, insistere på, love, stå fast på, true med* 'declare, insist on, promise, stand fast on [:insist on], threaten with'.

Summary of Modals as Verb Arguments

The corpus includes no examples of argument modals for BEHØVE, GIDE, and TURDE, and only the legal parts show examples of BURDE as argument, typically of verbs like *finde, mene* 'find, opine' in various inflectional forms including several passives.

If we exclude the sporadic occurrences of a few minor types, our findings are compatible with those of Skyum-Nielsen (1971, 264-66) who mentions two major types of verbs capable of governing modals:

(a) verbs of opinion or evaluation: *mene(s)*, *finde(s)*, *skønnes*, *anses for*, *antages*, *synes* 'opine(-PASS), find(-PASS), assess-PASS, consider-PASS as, assume-PASS, mean'.

(b) verbs of attitude or expression: *håbe*, *frygte*, *love*, *bede om* 'hope, fear, promise, ask for'.

Skyum-Nielsen notes that group (a) is similar in meaning to the modal verbs themselves, expressing an intellectual evaluation of the reality status of their argument verb phrase (also when this does not contain a modal verb). The second group, on the other hand, express emotive attitudes with respect to their argument verb phrase.

We would suggest that group (a) really consists of two subtypes which we elsewhere have called *cognitive verbs* and *appearance verbs* (Brandt 1995). All Skyum-Nielsen's examples are cognitive verbs; he does not mention any of the appearance verbs *gøre mine til*, *se ud til*, *synes*, *vise sig*, *vise tegn på* 'make look to [:look as], look out to [:seem], seem, show REFL [:turn out], show signs of [:appear]'. (Note that *synes* has two senses: *mean* and *seem*, one in each subgroup.)

In addition to Skyum-Nielsen's two types we have noted a third one which primarily seem to be aspectual, for instance *begynde*, *nå* 'begin, reach [:be in time to] governing KUNNE and *komme ud for*, *stå foran*, *stå over for* 'come out for [:experience], stand before to [:be about to], stand across for [:be going to]'.

As Skyum-Nielsen also points out, the epistemic variants of the modals are not found in argument position, and he suggests the following hierarchy of verb types where a lower-numbered type can govern a higher-numbered one but not vice versa:

1. Epistemic modal verbs
2. Group (a) verbs
3. Group (b) verbs
4. Non-epistemic modal verbs

To the extent that such a hierarchy exists, item 2 should only include the cognitive verbs while item 3 should include the appearance verbs, Skyum-Nielsens group (b), and possibly the aspectual types. We do not think, however, that such a hierarchy is viable: the only restriction

seems to be that only the first verb, i.e. the finite verb form, in a chain of verbs may be an epistemic one. The following verbs may come in any order that makes semantic sense. For instance, Skyum-Nielsen's group (b) verbs may also easily be governed by non-epistemic modals, contrary to his hierarchy.

Characteristic Adverbs with Modals

One undeservedly ignored finding of Skyum-Nielsen's is his observation that certain adverbs characteristically occur together with certain (semantic variants of) modal verbs (Skyum-Nielsen 1971, 267-68). The typical example is, of course, *godt, gerne* 'well, rather' which in otherwise ambiguous cases are used to indicate the permission variant of MÅTTE.

In other cases the characteristic adverbs (Da. 'karakteradverbierne') tend to support or amplify the meaning of the modal verbs, and in still other cases the adverb is »anti-characteristic« for a variant, e.g. *godt* 'well' which excludes the sense of (external) necessity and consequently does not cooccur with BEHØVE, BURDE, SKULLE, and the MÅTTE of necessity (Skyum-Nielsen 1971, 267).

In the following discussion we do not translate all individual adverbs since they often have no close English equivalent. Instead we give a general characterization of their types of meaning.

Adverbs with BEHØVE

BEHØVE in modal use is restricted to non-assertive contexts, and these are meagerly attested in Skyum-Nielsen's material (1971, 233-35). The adverb *vel* 'presumably' may be a characteristic adverb here, and it is compatible with all variants of BEHØVE, typically in contexts like:

Vi behøver vel ikke ..

'We need presumably not ..'

and certainly *vel* with a different meaning: »presumed negation« is characteristic for spoken (children's) language in constructions as

Behøver jeg vel komme hjem nu?

'Need I well come home now?'

I don't need to come home now, right?

Adverbs with BURDE

Due to the limited number of examples, there are fewer adverbs quoted for BURDE than for the high-frequency modals (Skyum-Nielsen 1971, 208). The characteristic feature of those that do occur is that they tend to sharpen the contrast between what ought to be the case and what really is the case. Typical examples are *egentlig*, *snarere*, *rettere*, *ellers* 'really, rather, rightly, actually'.

Adverbs with GIDE

Skyum-Nielsen (1971, 228) rightly condemns some ODS-examples with adverbs of (dis)inclination like *gerne*, *nødig* as no longer current. The only typical adverb is the affirmative *nok* 'rather' which is characteristic of tentative past tense use of GIDE (which Skyum-Nielsen considers a separate variant) in its typical context

Jeg gad (nok) vide/vidst.

'I bother (rather) know/know'n'.

I'd rather like to know.

In non-tentative use GIDE seems to be in the process of acquiring *godt* 'well' as characteristic adverb. In questions *godt* may be replaced or supplemented by *lige* 'just' which is also a typical companion of GIDE, but only in questions, not in other non-assertive contexts:

Jeg gider godt besøge dig, men først på torsdag.

'I bother well visit you, but first on Thursday [:not until Thursday]'

Gider du godt flytte dig?

'Bother you well move you [:step aside]?'

Gider du (godt) lige flytte dig?

'Bother you (well) just move you [:step aside]?'

Adverbs with KUNNE

KUNNE may be used in a very wide semantic range, and there are no clear boundary between obviously epistemic occurrences as

Der kunne jo komme noget i vejen.

'There could as-we-know come something in the-way'.

Certainly, some obstructive event might occur.

and obviously non-epistemic (dynamic) occurrences as

Ole kan gå på stølter.

'Ole can walk on stilts'.

Consequently, a wide range of adverbials cooccur with KUNNE (Skyum-Nielsen 1971, 186-90) and tend to narrow or pin-point the place on the scale the speaker has in mind. Following Skyum-Nielsen, we list them in order of decreasing probability (of the truth of the basic predication):

'Easily' etc.: frit, snildt, nemt, sagtens, meget vel, gerne

'Perhaps' etc.: formentlig, vist, vel, måske

'Doubtfully' etc.: dårligt, ikke rigtigt, næppe, knap (nok),
slet ikke, overhovedet ikke

In addition to these adverbials, the adverb *godt* 'well' cooccurs very frequently with KUNNE (25% of the occurrences in spoken language (Skyum-Nielsen 1971, 187)). As also mentioned, this usage is often pleonastic and the adverb does not contribute materially to the interpretation of the utterance, but Skyum-Nielsen also rightly remarks that there is a marginal difference between the two sentences

Jørgen kan (godt) løse opgaven.

'Jørgen can (well) solve the-problem'.

and that the presence of *godt* seems to favor an epistemic interpretation rather than a straight-forward statement of Jørgen's capabilities as in the sentence without the adverb.

Adverbs with MÅTTE

Like Erik Hansen (1972, 20), Skyum-Nielsen (1971, 154-155) operates with two lexemes MÅTTE (although he does not employ the term »lexeme«) which are distinguished by the following observations (1971, 134-37):

1. Permissional MÅTTE normally occur in non-assertive (Da. 'non-realis') contexts: (1) negated (*ikke* 'not'), (2) indirectly negated (*kun, udelukkende, aldrig* 'only, exclusively, never') or with negative subjects (*ingen* 'none' or *ingen + NP* 'no'), (3) in direct or indirect questions.
2. When permissional MÅTTE occurs in assertive contexts, one of the characteristic adverbs ('accept-adverbials' in Skyum-Nielsen's terms) *gerne, godt* 'rather, well' is normally present or may be interpolated without change of meaning. It may be added, however, that the suppletive »comparatives« of *gerne: hellere, helst* typically imply MÅTTE of necessity and not permission (Skyum-Nielsen 1971, 154).
3. In non-assertive contexts, compulsional MÅTTE is normally replaced by BEHØVE, just as in English MUST is replaced by NEED.

As characteristic adverbials for compulsional MÅTTE we also find (Skyum-Nielsen 1971, 154-55) (pleonastically) *nødvendigvis* 'necessarily' as well as some emphatic adverbs and adverbials: *endelig, for enhver pris, da*, to which we might add *jo*.

Adverbs with SKULLE

This modal verb has a number of frequently cooccurring adverbs (Skyum-Nielsen 1971, 127-129), which we divide into several groups. The first two groups are very similar to those occurring with VILLE.

Adverbs of Immediacy

Of the two adverbs *lige, bare* which both mean 'just' only *lige* seems to be registered with VILLE, but this is surely accidental, and *bare* 'just' could occur with VILLE in contexts similar to those where *lige* 'just' occurs:

Jeg ville lige/bare se, om kontorchefen var ledig.

'I would just see whether the-office-manager was available'.

With SKULLE, on the other hand, *bare* and *lige* have special functions. With the present tense form *skal*, they characteristically indicate

a requirement which, if satisfied, will suffice to solve whatever problem is under consideration; this seems to be a contextually determined sub-variant of dynamic SKULLE:

Du skal bare skrue låget på, så virker den.

'You shall just screw the-lid on, then works it [:then it works]'

Man skal bare bo i Århus, så har man det godt.

'One shall just live in Århus, then has one it well'.

With the past tense form *skulle*, the typical composite meaning is different:

Man skulle bare bo i Århus, så havde man det godt.

'One should just live in Århus, then had one it well'.

expresses that the speaker wants to live in Århus (and doesn't), that the fulfilment of this desire is all that is required, but probably also that this is unlikely or unrealistic. However, this interpretation (tentative past tense) is not mandatory, since a sentence like the following would receive an interpretation analogous to that of our first example (temporal past tense):

Jeg skulle bare skrue låget på.

'I should just screw the-lid on'.

Neither *lige* nor *bare* excludes epistemic (reportative) SKULLE; but the non-epistemic interpretation is also possible in such examples as

Han skulle bare/lige være gået et øjeblik.

'He should just be gone a moment'.

Adverbs of Preference

With the preference words *gerne*, *hellere*, *helst* 'rather, more rather, most rather' the epistemic interpretation is excluded, but in contradistinction to VILLE, there is no requirement as to the class of subject:

Der skulle helst være agurker på bordet.

'There should rather be cucumbers on the-table'.

Maleriet skulle helst blive færdigt idag.

'The-painting should rather become finished today'.

Jeg skulle helst komme hjem inden tolv.
'I should rather come home before twelve'.

Adverbs of Assertion or Assumption

This group of adverbs includes *nok, sikkert, vel, dog*, of which the first three express the speaker's confidence in what he asserts; this confidence may be weak, but it is generally sufficient to exclude the epistemic variant of SKULLE or make it unlikely. In an example like

De skulle nok bo i Århus.
'They should presumably live in Århus'.

an epistemic interpretation of SKULLE would seem to imply that the sentence is a case of covered indirect speech and not the speaker's own assessment.

The adverb *dog* is similar to the English *however* or *though* and is also often interpolatory, a kind of speaker's comment which does not really modify the sentence. Consequently, it is not specifically characteristic for either of the variants.

Other Adverbs

The remaining adverbs that frequently cooccurs with SKULLE: *ellers, virkelig, rettelig, fortsat, vedvarende* 'actually, really, properly, still, continuingly' do not exclude either of the variants. They typically occur with SKULLE of obligation but that is by far the most frequent variant anyway.

Adverbs with TURDE

With this modal there are only a few examples (Skyum-Nielsen 1971, 220), but it is clear that the affirmative *godt* 'well' is very characteristic of dynamic TURDE (boldness), except, of course, when it is negated:

- Jeg tør godt springe ned fra taget! - Nej, du tør ikke!
'- I dare well jump down from the-roof! - No, you dare not!'

Skyum-Nielsen does not mention that another affirmative adverb, *nok*, is similarly characteristic of the epistemic (assumptive) variant of TURDE:

Det tør (nok) siges.
 'That dare (rather) say-PASS'.

Adverbs with VILLE

The characteristic adverbs are (Skyum-Nielsen 1971, 98-101):

lige; godt; nødig; gerne, hellere, helst

Except for *lige* 'just', all of these express inclination or disinclination, signalling the volitive variant of VILLE, and they normally require a animate subject, except that *lige* could conceivably be used with predictive VILLE:

Der vil lige skulle foretages en røntgenundersøgelse.
 'There will just should perform-PASS an x-ray-examination'.

Adverbials and Modals

In this section we briefly discuss some aspects of the usage of adverbials in modal verb constructions.

Topology of Danish Adverbials

We assume the reader to be acquainted with the standard slot-and-filler topological description of Danish sentence patterns known in Danish as *sætningskemaet* 'sentence schema'. Here we adopt Erik Hansen's (1970) version which has several places where adverbials may occur: (1) as »foundation« in the main clause F-field; (2) in a few cases after the finite verb, a slot we here call a0; (3) in the »nexus field« in the a1-slot; (4) after the verb complements in the a3-slot; (5) in the Adv-slot and (6) the a2-slot at the end of the sentence. The following sentence has adverbials in all these slots:

←- Nexus field → ←- Content field →
 F v a0 S a1 V O a3 Adv. a2

Igår havde så Peter igen skilt uret helt ad på sit værksted.

'Yesterday had then Peter again taken the-watch completely
 apart at REFL-POSS workshop'.

For the present discussion we ignore placement as foundation, the rare and restricted occurrence of adverbials in a0 and the valence-governed adverbials in the Adv-slot, and we adopt the three types of *free adverbials* Erik Hansen describes. His Danish terms would translate to »main chain adverbials, part[ial] chain adverbials, verb(al) adverbial«; but we suggest the terms *sentential*, *clausal*, *phrasal* adverbials instead.

Sentential adverbials are associated with *finite* verb forms and have scope over the entire sentence; they may only occur in a1. Clausal adverbials may be associated with finite or non-finite verb forms and have scope over the corresponding clause; some may only occur in a1, e.g. *ikke, aldrig, atter, netop* 'not, never, again, just', others may occur in a1 or a2, e.g. *altid, dengang, igen* 'always, then [temporal], again'. Phrasal adverbials are typically manner adverbials and may occur in a1, a2, or a3.

Verbal Government

If a verb governs a non-finite verb it may establish an embedded sentence pattern (an embedded clause) containing its own a1-slot and, since certain clausal adverbs may *only* occur in this slot we may use one of these to test for the presence of an embedded clause (EHansen 1970, 126-27). The following examples show that *have, villet* 'have, would' do not establish an embedded clause while *ønske* 'want' does:

Han må jo *atter* have villet hjælpe Ole.

* Han må jo have *atter* villet hjælpe Ole.

* Han må jo have villet *atter* hjælpe Ole.

'He must as-we-know again have would help Ole'.

Han må jo have ønsket *atter* at kunne hjælpe Ole.

'He must as-we-know have wanted again to could help Ole'.

Erik Hansen defines a *partial chain* as a chain of verbs from and including one allowing a1-adverbs to, but excluding, the next one with this possibility. A *main chain* is then a series of partial chains related by government and containing a non-governed verb, »almost the same as a main clause«. We have not retained these terms but note the distinction between verbs allowing a1-adverbs and verbs that do not. Erik Hansen calls the first type »partial-chain-establishing« while we would suggest *clause-forming* verbs as the appropriate term.

Most verbs taking non-finite verb arguments are clause-forming; but »the modal verbs, the traditional auxiliary verbs, and a few others« are not clause-forming (EHansen 1970, 127). Skyum-Nielsen explicitly lists some non-clause-forming verbs (1971, 278), and we here rearrange his list into four classes:

Modal verbs (governing infinitives):

behøve, burde, gide, kunne, måtte, skulle, turde, ville
'need, ought [to], bother, can, may/must, should, dare, will'

Accusative-Cum-Infinitive (ACI) verbs (governing infinitives):

bede, byde, føle, høre, lade, mærke, se
'ask, order, feel, hear, let, feel, see'

Auxiliary verbs (governing past participles):

blive, få, have, være
'be(come), get, have, be'

Others:

»several other verbs governing past participles«

The text does not make clear whether the last group is meant to include *all* other verbs governing past participles; but a rough check of a selection of the about 50 verbs Skyum-Nielsen lists as capable of governing past participles shows that none of them seem to be clause-forming.

Skyum-Nielsen notes that three of the modal verbs: BEHØVE, GIDE, TURDE may optionally be clause-forming but only when they govern infinitives with *at* 'to':

Han vil ikke behøve/gide/turde *atter* at rejse.

* Han vil ikke behøve/gide/turde *atter* rejse.

'He will not need/bother/dare again (to) travel'.

With respect to the ACI verbs Skyum-Nielsen states that »the non-clause-forming property never seems to occur when the governed infinitive form is an *at*-infinitive. It is notable that the clause-forming property is thus in a certain sense connected with the presence of *at*« (1971, 278).

Apparently, the entire preceding discussion may be summarized as

the rule that governed verbs are clausal (head an embedded clause) if and only if they are infinitives preceded with the infinitive marker *at* 'to'. In this case they start a new embedded topological pattern while otherwise, i.e. if they are 0-infinitives or past participles, they are not clausal and hence must fit all their associated material within the current sentence pattern.

Topology of Characteristic Adverbs

The modals and the ACI verbs are thus not clause-forming, but they differ from the four auxiliary verbs by both being able to associate »their own« adverbials. In no way could we invent an adverbial modifying only *har* 'has' in a sentence like *Han har (lige) svømmet en halv time* 'He has (just) svum [for] a half hour': *lige* 'just' does not modify *har* exclusively but applies to the complete verb chain. This restriction does not hold for the modals (and the ACI verbs), since the propensity of certain modals to be associated with specific characteristic adverbials seems to prove that these apply to the modals directly. The fact that the characteristic adverbials may also occur when the modals do not even govern infinitives supports this claim:

Jeg vil <i>gerne</i> hjem.	Ja, jeg vil <i>gerne</i> .
'I will rather home'.	'Yes, I will rather'.

The adverbials associated with modal verbs are located in the aI-field, and they are rarely used as foundation (in the F-field). The latter fact is related to the fact that many of these adverbials are semantically light or almost empty and simply enforce or confirm the content of the modal with which they associate. This obviously means that it would make little sense to emphasize them in the manner they would be if used as foundation. In contrastive usage or with more individual content they are quite natural in the F-field:

<i>Hellere</i> ville jeg ..	<i>Hvor gerne</i> jeg end ville, ..
'Rather would I ..'	'How rather I even would ..'
	How happily I <i>would</i> .. [I can't].

According to Erik Hansen (1970, 129), main chain adverbials only occur with finite verb forms, whence we have called them sentential

adverbials, and they can only occur in a1. But even though Erik Hansen explicitly includes *gerne* in his list of sentential adverbs (1970, 126) it seems clear that the modal-associated adverbials are *clausal adverbials*, more specifically belonging to the subclass of those that are restricted to the a1-field, since they are not grammatical in the a2-field:

- * Han ville hjælpe dig *hellere* (med opgaven).
'He would help you rather (with the-problem)'.
- * Han ville hjælpe dig med opgaven *hellere*.
'He would help you with the-problem rather'.

On the other hand they also seem to be able to occur with non-finite clause patterns where typical sentential adverbs cannot:

- Han skal have lovet *gerne* at ville hjælpe dig.
'He shall [:is said to] have promised rather to would help you'.
- * Han skal have lovet *heldigvis/desværre* at ville hjælpe dig.
'He shall [:is said to] have promised fortunately/unfortunately to would help you'.

We must conclude that the classification of adverbials suggested here is not exhaustive, since we have had to conclude that the modal verbs are not clause-forming but that their characteristic adverbials are nevertheless topologically a1-adverbials. We need not resolve that problem here.

Functional Dependency

K. M. Lauridsen claims that »epistemic modals can only be modified in combination with the lexical verb of the main proposition and are thus functionally dependent on it, whereas non-epistemic modals may be independently modified« (1987, 91). She also suggests »two ways of testing whether the modals are modified alone or in combination with its complement .. One is to focalize the lexical verb of the main proposition and another is to form *wh-/hv*-questions to which the answers are the lexical verb and its complement(s)« (1987, 92).

Focalization

We present our own examples instead of K. M. Lauridsen's (1987, 92-93) because hers use quite different contexts for the different variants, and this makes the issues less evident. Also, we do not find the issues very evident in the first place, since many of the focalizations seem rather stilted, even the ones we have judged grammatical:

Næste år vil Peter bo i Paris. (futuric / volitional)
 'Next year will Peter live in Paris'.

Det Peter vil næste år er at bo i Paris (*futuric / volitional)
 'That [which] Peter will next year is to live in Paris'.

Although the unfocalized version is grammatical also with the futuric variant of VILLE, it is not a sentence one would naturally say; but the sentence type occurs not infrequently in less than fluent translations from English. Idiomatically we would expect the futuric meaning to be expressed by an unmodalized sentence with present tense designating future time, and this sentence is just about as unfocalizable as the one above:

Næste år bor Peter i Paris.
 'Next year lives Peter in Paris'.

* Det Peter {gør / vil gøre} næste år er at bo i Paris.
 'That [which] Peter {does / will do } next year is to live in Paris'.

If we change the modal from VILLE to KUNNE, we do not judge any of the focalizations grammatical:

Peter kan bo i Paris næste år. (conjecture / eventuality / ability)
 'Peter can[/may] live in Paris next year'.

* Det Peter kan (gøre) næste år er at bo i Paris.
 'That [which] Peter can (do) next year is to live in Paris'.

We agree with K. M. Lauridsen's acceptability judgements, however, for the examples she presents; but we find that they cannot support a bidirectional distinction between modal variants and focalizability. All we can say is that focalization of subject, adverb and modal is not possible with epistemic modals and that such focalization is sometimes possible with non-epistemic modals.

Since K. M. Lauridsen's discussion only distinguishes between epistemic and non-epistemic variants, we must also address the question of how our prospective variants fall into this pattern. We do find some possibility of focalization; for instance, the next example could be said by a planner of a conference, using the prospective variant of SKULLE:

Det *professorerne* helst skal er at bo på Sheraton.

'That [which] *the-professors* preferably shall is to live at Sheraton'

We also find the following example with prospective BURDE acceptable if the context is a lottery or some other game where the modal subject cannot influence the outcome:

Det vi i hvert fald bør er at vinde en trediegevinst.

'That [which] we in any case ought [to] is to win a third-prize.

An analogous example with prospective KUNNE also seems acceptable:

Det vi muligvis kan er at vinde en trediegevinst.

'That [which] we possibly can [:may] is to win a third-prize.

but it is notable that we cannot accept the following example with dynamic KUNNE and its characteristic adverbial:

* Det Brian sagtens kan er at vinde boksekampen.

'That [which] Brian easily can is to win the boxing-fight'.

We conclude that both non-epistemic variants may occasionally be somewhat acceptable in the focalized constructions we have considered and that epistemic variants never can; but non-acceptability of this construction is no pointer to the type of the involved variant.

Term Questions

The following is an example of the type of term question K. M. Lauridsen considers (1987, 94):

Hvad er det du aldrig kan?

– Rejse på første klasse med andenklassens billet.

'What is it you never can?

– Travel on first class with second-class ticket'.

This type of questions seems to be limited by the capability of the modal lexemes of taking unspecific implicit infinitival complements, and except for VILLE, all the possible lexemes have affinity for either negated or affirmative contexts, primarily negative ones:

Hvad er det du ikke gider/kan/må/tør/vil? – Spise pizza.

'What is it you not bother/can/may/dare/will? – Eat pizza'.

Hvad er det du skal/vil? – Skrive et brev.

'What is it you shall/will? – Write a letter'.

The only non-dynamic example of this simple question type I have been able to imagine is the following:

Hvad er det professorerne skal? – Bo på Sheraton.

'What is it the-professors shall? – Live at Sheraton'.

However, there are other contexts where prospective variants are more acceptable, though perhaps only marginally so without some clarifying words. In the following examples we have futuric VILLE:

Hvad forventer du underskuddet vil (gøre)? Forsvinde eller vokse?

'What expect you the-deficit will (do)? Disappear or grow?'

Salget er faldet. Hvad tror du fortjenesten vil? – Falde.

'The-sale is [:has] fallen. What think you the-profit will? – Fall'.

Jeg kan ikke forstå det. Hvad tror du læserne vil kunne?

'I can not understand it. What think you the-readers will could?'

As with focalization, the results are inconclusive. Apparently only the dynamic variants readily allow term questions; but it is not certain whether prospective variants with such questions are marginally grammatical or marginally ungrammatical.

Echo constructions

In addition to K. M. Lauridsen's tests we might also suggest that *epistemic modals cannot readily occur in echo constructions*; rather, the effect is ludicrous if the modal is interpreted epistemically:

? Det turde være løgn, turde det ikke?

'? It dared be lies, dared it not?'

A: Peter skal bo i Århus. B: * Nej han skal ej.

'Peter shall [:is said to] live i Århus. * No he shall not'.

As mentioned above (p. 25), the central modals must and all modals may be self-representing in echo constructions; but with epistemic modality even the central modals seem marginally to allow main verb echo representation, possibly with GØRE 'do':

? A: Peter skal bo i Århus. B: Gør han det?

? 'Peter shall [:is said to] live in Århus. Does he that?'

? Det turde vel være løgn, er det ikke?

? 'It dared well be lies, is it not?'

The appropriate description seems to be that with an epistemic modal neither the modal nor the main verb can be »focused out« into an echo construction. Such constructions seem to be related to the ones discussed by K. M. Lauridsen, and the explanation of the restriction could be that the epistemic modal and the main verb are »functionally dependent«, so that since an echo construction insists on containing just a single verb and an epistemic construction insists on including two verbs, we get a conflict explaining the restriction stated. It is notable, however, that the echo construction is much better when the main verb is echoed than when the modal is.

We also note that when the modal is VILLE there seems to be no restriction on echo constructions:

Han vil ikke blive genvalgt, vil han, tror du?

'He will not be re-elected, will he, think you?'

and our interpretation of futuristic VILLE as prospective and not epistemic is thus supported in this respect.

The Notion of Functional Dependence

We have examined three proposed or invented tests for functional (in)dependence between modal and main verb and they seem to indicate that epistemic variants are functionally dependent on the main

verb and that dynamic variants are functionally independent of the main verb. The situation with respect to prospective variants is unclear at best.

There is reason, however, to question the relevance of this notion of functional dependence. It is based on the stipulation that epistemic modals can only be modified in combination with the lexical verb, and we do not find this stipulation convincing. If we make some epistemic judgements about Peter's being in his office, it seems clear that in the following examples the adverbs semantically *only* modify the epistemic modals (downgrading them); only the first of the two paraphrases shown corresponds to the meaning:

Peter kan næppe være på sit kontor.

'Peter can hardly be at [:in] REFL-POSS office'.

It is hardly likely that Peter is in his office.

* It is possible that Peter hardly is in his office.

Peter må sandsynligvis være på sit kontor.

'Peter must probably be at [:in] REFL-POSS office'.

It is probably likely that Peter is in his office.

* It is certain that Peter probably is in his office.

We may also mention that when a modalized proposition is negated we may have either modal or predicational negation, and this implies that modals may at least be modified by negation applying only to the modal, and several epistemic modals show this type of negation.

What the focalization, term question, and echo construction tests have shown is just that the modal cannot always easily be focused (as it also is in term questions and echo constructions), and this need not have anything to do with functional dependence. In most of the acceptable focused examples the semantically empty pro-verb GØRE 'do' could be inserted after the modal, and this would often make the examples more idiomatic. The problem is, however, that the pro-verb is not natural with prospective and epistemic readings because they do not involve the subject enough to make the agentive GØRE a meaningful pro-verb for the modal. Thus the focusing data are not necessarily relevant to the question of functional dependence, and this notion is probably also mistaken in the first place.

Modals in Conditionals

It is generally recognized that epistemic modals do not occur in conditional clauses (*if*-clauses), and we need only briefly recapitulate the data.

The Epistemic Restriction

A clear account is provided by Lyons (1977, 803-7) who refers to »the common, but strictly speaking false, statement that the modal verbs cannot occur with epistemic function in conditional sentences in English. Provided that an utterance like

If it may be raining, you should take your umbrella

is taken to express objective, rather than subjective, epistemic modality, it is interpretable and fully acceptable. What is excluded from conditional clauses is the expression of subjective epistemic modality ..« (1977, 805-6). Lyons goes on to note that sentences like the one above – taken as expressing objective epistemic modality – are quite rare in practice where one preferably uses one of the following constructions where the modality has been »objectified« and cannot be interpreted as subjective:

If it is possible that it will rain, you should take your umbrella.

If there is a possibility of rain you should take your umbrella.

As for Danish, K. M. Lauridsen (1987, 82-84) notes that Lyons's description of epistemic modality in conditionals also applies to Danish where Lyons's example becomes

Hvis det kan være, at det regner, skulle du tage din paraply med.

'If it may be that it rains, should you take your umbrella with [you]'.

which is more likely to be expressed as

Hvis der er en chance/risiko for, at det bliver regnvejr, skulle du ..

'If there is a chance/risk for that it becomes rain, should you ..'

Daidsen-Nielsen (1990, 20) only briefly refers to the restriction against epistemics in conditionals but mentions one type of exception: »If A says *He may come back at any moment*, B may reply, epistemically

as well, *If, as you say, he may come back at any moment, we'd better hurry.* In Danish, similarly, epistemic modals cannot be ruled out in this context, as shown by the following example:

Hvis Peter kan komme allerede kl. 3, så må vi se at komme i gang.
'If Peter may be here already at three, we'd better get started'.«

We have quoted Davidsen-Nielsen at length because he does not explicitly *say* but certainly seems to *suggest* that the epistemic reading of *kan* 'may' in his example is a case of implicitly or indirectly reported speech. This is probably also the most likely context for this example; but I also feel that I might be able to use it for talking to myself if I suddenly realize the possible imminence of Peter's arrival; thus Lyons's idea of an objectification is also applicable.

It is clear that epistemic judgements may only be used in conditional contexts if they in some manner or other are objectified and thus *not* expressed as part of the speaker's own commitment to the modality of the basic predication but simply referred to as objective or external.

Prospective and Dynamic Conditionals

The null hypothesis with respect to prospective and dynamic modal variants must be that there is no restriction on their occurrence in conditionals, and this also seems to be confirmed by the data:

Hvis du måtte afbryde rejsen, så ..

'If you must/may interrupt the-trip, then ..'

- | | |
|--|---------------|
| (1) If you happen to interrupt .. | (supposition) |
| (2) If you were allowed to interrupt .. | (permission) |
| (3) If it became necessary for you to interrupt .. | (obligation) |

Hvis du skal afbryde rejsen, så ..

'If you must/shall interrupt the-trip, then ..'

- | | |
|--|--------------|
| (1) If you plan to interrupt .. | (plan) |
| (2) If it is necessary for you to interrupt .. | (obligation) |

These observations seem to be contradicted by Palmer (1990, 182) who states that »Strictly, neither epistemic nor deontic modals can occur in protases [*if*-clauses]. They are performative in the sense that the spea-

ker actually expresses a judgement or a »directive«, and that cannot be conditional«. This presumably reflects a restrictive view of what counts as deontic modality since it implies that when Mum tells Jimmy:

You may stay out until 1 a.m.

the modal *may* represents deontic (permissive) modality, but when Jimmy tells his friends:

I may stay out until 1 a.m.

the modal is not deontic, but presumably epistemic, since »MAY, if not epistemic, is usually clearly performative; it gives permission. Unlike CAN it is not also used normally for dynamic possibility« (Palmer 1990, 69). It seems fairly obvious, however, that the linguistic entity *may* has exactly the same meaning in the two versions of the same permissive action. Furthermore, the second example has two readings: one where Jimmy is reporting his permission to stay out (»I am allowed to«) and one where he is simply announcing his possible intention of doing so (»I may decide to«), and we would only judge the second one of these to be epistemic.

Summary of Modals in Conditionals

With the rare exceptions of »objectification« it is clear that the epistemic modal variants cannot occur in conditional clauses while both the prospective and dynamic variants may freely occur in conditionals. We would suggest that the »objectified« epistemics are essentially changed to being prospective.

We do not find Palmer's distinction between performative and neutral modalities to be useful and hence we have unhesitatingly accepted what is traditionally called »deontic« modals in conditionals.

Modality and Noun Phrase Specificity

Ray Jackendoff has noted (1971) that certain *modal operators* introduce an ambiguity between specific and nonspecific readings of indefinite noun phrases, and among these operators he considers the futuristic WILL (p. 492-93) and the MAY of possibility (p. 493-96). In the examples

John will/may bring a girl to the party.

the noun phrase »a girl« may refer to a specific girl the speaker knows John will bring, or the speaker may simply state that when John turns up for the party, he will or may be accompanied by some girl.

A fact apparently not mentioned by Jackendoff is that such ambiguities seem to be less likely to arise when modal verbs are used epistemically. In an example like

Peter skal bo på et loftskammer.

'Peter shall live at [:in] an attic'.

the dynamic (obligation: 'Peter is obliged to') and prospective (plan: 'Peter is going to') readings exhibit the ambiguity noted by Jackendoff; but if the epistemic (reportative) reading of the sentence is the intended one: 'Peter is said to live in an attic', there is obviously only one specific attic Peter is being said to live in, even if we do not know which one it is. A similar situation holds when a sentence with MÅTTE is used with a reading of epistemic conclusion:

Peter må være ved at læse en bog.

'Peter must be at to read a book'.

Peter must be reading a book.

In the examples used, we have been careful not to introduce any other modal operators (e.g. negation, some quantifiers, generic expressions), particularly other modal verbs, between the modal being analyzed and the indefinite noun phrase.

With VILLE, we always seem to have ambiguity: in the following sentence, the noun phrase *en bog* 'a book' may be specific or nonspecific:

Peter vil give dig en bog i fødselsdagsgave.

'Peter will give you a book in [:for, as] birthday-gift'.

This might be an argument for saying that VILLE is never epistemic; but the truth probably is that it is not epistemicity in itself that excludes a nonspecific reading, but the fact that the epistemic examples we have used so far all refer to a situation with present-time reference. If

we use KUNNE with a futuric, epistemic reading *possible that*, nonspecificity is possible:

Du kan møde en sød pige til festen.
'You may meet a nice girl at the-party'.

Thus, we must abandon again this attempt to establish a firm relationship between certain modal variant types and required noun phrase specificity.

Modality and Expletive Subjects

In their description of »some of the more obvious syntactic differences between epistemic modals and root modals«, Thrainsson & Vikner (1995, 57-59) support the traditional claim that epistemic modals do not assign a thematic role to their subjects whereas root modals do, and one of the effects of this should be that expletive subjects (and idiom chunk subjects) should only be able to occur with epistemic modals.

They first refer to the following pair of sentences:

Der vil komme ti studenter til foredraget.
'There will come ten students to the-lecture'.

Ti studenter vil komme til foredraget.
'Ten students will come to the-lecture'.

Apart from the fact that the second example is hardly idiomatic Danish, it is clear that if it was, it would have two readings: a volitive and a futuric one; the first example, on the other hand, only has a futuric meaning; so it seems to be true that expletive *der* 'there' is only compatible with epistemic modality (granting for the sake of argument that futuric VILLE is epistemic). Thrainsson & Vikner proceed to prove the same for expletive »weather« *det* 'it', using two examples here shown together:

Det kan / vil regne imorgen.
'It can / will rain to-morrow'.

These examples only carry little weight, however, since they are not really normal Danish sentences; we would rather say

Det {kan blive / bliver} regnvejr imorgen.

'It {can become / becomes} rain-weather tomorrow'.

but in any case it is clear that such sentences do not have *dynamic* readings while it is far from clear that they could not be considered *prospective* rather than *epistemic*. We generally consider prospective and dynamic modals to be subsumed under the general heading of *root* modals, so we need to consider the situation in more detail than Thrainsson & Vikner.

First we note that expletive *det* (weather-*it*) is always compatible with an epistemic reading of the modals and rarely allows a dynamic reading; but there are – fairly rare – contexts where non-epistemic readings are feasible. If I want my neighbor's next party to be a failure, I might say:

Jeg vil have, at det skal regne til festen.

'I will have [:I want] that it shall rain at the-party'.

where a reportative (epistemic) reading of *skal* is impossible while either a planning reading or even an obligation reading may be intended. Another example, perhaps a continuation of the previous one, is the following with non-epistemic BEHØVE:

Det behøver ikke at tordne og lyne, regnvejr er tilstrækkeligt.

'It needs not to thunder and lighten, rain-weather is sufficient'.

An authentic example from a boy scout song exhibits clearly non-epistemic readings with KUNNE and even a dynamic (volitive) reading with VILLE:

Det kan øse, det kan pøse, det kan regne, ligeså meget som det vil.

'It can pour, it can drench, it can rain, just as much as it will'.

Granting that this is poetic license, animating the weather, we may adduce even further examples:

Det bør sne juleaften.

Det må ikke regne i ferien.

'It ought-to snow Christmas-eve. It must not rain in the-vacation'.

The conclusion clearly is that expletive *der* 'it' is not restricted to epistemic contexts but also occurs in prospective and dynamic ones, and if we are right in considering futuristic VILLE prospective rather than epistemic, such occurrences are not rare.

Turning now back to expletive *der* 'there', we find the same situation, only more so, since *der* is used as formal subject with passives, and the corpus contains hundreds of examples of the type

Der må ryges.

'There may smoke-PASS'.

Der må / bør / skal / kan tages hensyn til ..

'Der must / ought-to / shall / can take-PASS regard to ..

Since morphological passives are only natural in connection with prospective or dynamic modal variants, it is clear that formal (empty) *der* is not exclusively restricted to epistemic contexts, and it is also possible to find examples without passives:

Der skal et mandfolk til den opgave.

'There must a man-folk [:a real man] to that problem'.

Der kan / bør stå nogle bøger i reolen.

'There can / ought-to stand some books in the-book-case'.

Der må ikke ligge aviser på gulvet.

'There must not lie newspapers on the-floor'

We need not continue. The contention that expletive subjects are only compatible with epistemic readings of the modals must clearly be rejected, and we would even reject the weaker hypothesis that expletive subjects are incompatible with dynamic readings, since sentences like the following seem to be ambiguous between an obligation (dynamic) and a plan (prospective) reading:

Der skal ryddes op.

'There must clean-PASS up'.

1. Somebody (probably the addressee) is obligated to clean up.
2. A cleaning-up is required, but not of any particular person.

The suggestion that *der* is not really expletive but truly locational in such cases does not help, since the locational interpretation *may* appear natural in the prospective variant, but is *less* natural at best, with the dynamic reading of the modal verb.

Since Thrainsson & Vikner's (1995) major claim must be rejected we shall not consider the minor question of idiom chunks which we expect would fare no better. Note that their claim could not really be saved by moving the borderline between epistemic and root modals so that the former included our prospective variants: First of all, we would then need two subclasses of epistemics in several cases and the prospective subclass would not really be epistemic in the traditional sense of this word. Secondly, dynamic readings are only rare, not impossible with expletive *der*; here is a final example where the dynamic constructions are emphasized:

Der ville flere tilskuere ind end man havde ventet, og da *der skulle* så mange ind som muligt, *måtte der* åbnes flere indgange; men *der kunne* kun arbejde 20 kontrollører samtidig på systemet, så mange gik forgæves.

'There would [:wanted] more spectators in than one had expected, and since there should as many in as possible, must there open-PASS more entrances; but there could only work 20 controllers [:door-keepers] concurrently on the-system, so many went in-vain'.

CHAPTER 6

Concepts of Modality

After this survey of a number of characteristics of the Danish modal verbs we shall try to reach some more general conclusions.

The Semantic Space of Modality

We have discussed a number of factors or dimensions involved in determining the meanings of modal verbs, and we distinguish between those dimensions that primarily involve the choice of lexical items and those primarily involving variant meanings within lexical items.

Lexical Modality

We have defined modality as a semantic notion allowing the speaker to express himself with respect to the possibility, predictability, or necessity – in brief, the *contingency* – of a *basic afactive predication*, and as the basic dimension of modality we have introduced the notion of a *modal source* which is the factor due to which the contingency obtains. If this source – in the basic sense variant of the modal – is external to the subject of the modal, we classify the modal as *deontic*; if it internal to this subject, we call the modal *abilitive*.

As the second lexical dimension we use the *modal intensity* with the three values *possibility*, *predictability*, *necessity*, and we have finally introduced the notion of *modal orientation* with two options: *directed*

modals suggest the actualization of the basic predication while *non-directed* modals do not.

These three classificatory elements give rise to the following semantic specifications for the modals (for English and German the classification is only suggestive):

	English	Danish	German
Possibility:			
Ablitive, non-directed	CAN	KUNNE	KÖNNEN
Ablitive, directed	DARE	TURDE	
Ablitive, directed		GIDE	MÖGEN
Deontic, directed	MAY		
Deontic, non-directed			DÜRFEN
Predictability:			
Ablitive, directed	WILL	VILLE	WILLEN
Ablitive, directed			WERDEN
Deontic, directed	SHALL		
Deontic, directed	IS TO		
Deontic, directed/non-dir.		MÅTTE	
Necessity:			
Deontic, non-directed	OUGHT TO	BURDE	
Deontic, directed	HAD BETTER		
Deontic, directed	MUST	SKULLE	SOLLEN
Deontic, directed			MÜSSEN
Ablitive, directed	HAVE TO		
Ablitive, non-directed	NEED	BEHØVE	

Since there are two possible modal sources and two values of modal orientation, we might expect to find four subtypes of modality within each intensity, and if we look at the three languages as a whole, this holds true for the possibility and necessity modals. The predictability modals, on the other hand, are all basically directed, and this makes sense since *predictable* and *directed* both suggest the actualization of the basic predication; but we have classified the permissive variant of MÅTTE as non-directed like German DÜRFEN, and our classification of English MAY as directed may be wrong.

We suggest that these three semantic features of modality span out the *potential lexical space* of modal verbs; but we note that in some cases

a modal verb occurs in a variant that seems to differ from the main variant in a way that is most naturally described as a difference in one of these features (Danish MÅTTE-n and MÅTTE-g; permissive English CAN). This might be thought to indicate that these features are not actually lexical, as we have claimed, and this is of course formally true in a suitably technical sense; but we prefer to see these cases as quite natural phenomena: Our proposed features do not characterize lexical items but *potential* lexical items, and if you need a lexical item with some meaning, you would typically prefer to pick one that fits exactly but, failing that, you might also choose another one that is a reasonably close fit. This interpretation implies that variants differing with respect to lexical features are most likely to result in combinations of lexical features not already represented as lexical items, and this at least holds for the two examples we have presented, given the feature definitions specified above.

It may be relevant to point out that we have not claimed that our three dimensions of modality *define* the meanings of the modal verbs; we only claim that they *characterize* verb meanings according to some features particularly relevant to the semantic field of modality. English DARE is the only directed, abilitive possibility modal in that language; but this description is obviously not a definition of the meaning of DARE: the essential component of that meaning must clearly be described in terms of boldness, courage, or intrepidity. In addition to this DARE may also be a modal and the lexical type of modality it then expresses may conveniently be characterized by the semantic features we have described here.

These features are functionally equivalent to the systematic traits biologists use to distinguish between various classes of organisms, allowing them to classify an unknown animal as a rodent or an unknown plant as a crucifer. In the same manner, our proposed semantic features should be useful for cross-language comparisons and similar studies; but the meaning of a modal verb, like the meaning of any word in a language, is not defined in terms of abstract features but in terms of the prevailing actual usage of that word and of the words with which it paradigmatically alternates: here, the other modal verbs in the language in question.

Semantic Classification of Variants

In common practice three classes of modality are recognized, and we follow this practice and retain the names of two of them even though our classification is unorthodox.

Epistemic modality is a well-established notion which we find no reason to change. Traditionally, epistemic modality is characterized by being concerned with judgements about the truth of propositions, and the modal authority may be taken to be a system of rational laws and a set of evidence.

Non-epistemic modality is traditionally divided further into deontic, dynamic, and (possibly) futuric modality. Often the futuric sense of some of the modals is not included in the field of modality at all; and for those that consider the notion of modality to be defined as the speaker's subscription to the truth or realization of the basic predication, the dynamic senses of the modal verbs may be considered non-modal.

Apart from including all the four different types of meaning within the field of modality, we also structure the field of non-epistemic modality rather differently as illustrated by the following two diagrams, where each letter symbolizes a group of modal usages classified identically, and small letters indicate groups with few or specialized usages:

	Traditional view				Present view		
	Epi	Deo	Dyn	Fut	Epi	Pro	Dyn
Abilitive lexemes	A	b	C	D	A	b/D	C
Deontic lexemes	E	F	G	h	E	G/h	F

Thus, we do not just merge two columns of the traditional diagram, we also reinterpret the basic usage of lexically deontic modals and call it dynamic: note that the sequence of groups F and G is different in the two diagrams.

Dynamic modality in our view is that type of modality that is exhibited by the basic sense variant of the modals. Here the subject of the modal verb is directly affected by the modality and is thus identical to what we call the *modal target*. For the abilitive modal lexemes our view of dynamic modality is the same as in the traditional view where the source of the modality is seen to be internal to the modal target. For the deontic modal lexemes our dynamic modality includes most of

what is seen as deontic modality in the traditional view where the source of the modality is seen to be external to the modal target.

Prospective modality in our view not only includes the futuristic meanings of VILLE/WILL and SKULLE/SKAL, but also some usages of other modals which are classified differently in traditional treatments. The distinctive feature of prospective modality is that the modal target need not to be identical to the subject of the modal verb: with deontic modal lexemes the obligation or duty does not devolve directly on the subject but on somebody else, and with abilitive modal lexemes the »ability« does not reside in the subject of the modal verb but is unspecified (general circumstances).

While the modal target plays a role in the distinction between dynamic and prospective modality, the epistemic variants do not seem to imply any modal target at all, and the three different variants of the modals are thus semantically distinguished as follows:

	Modal target = modal subject	Modal target empty
Dynamic	Yes	No
Prospective	No	No
Epistemic	(No)	Yes

Syntactic Classification of Variants

It was generally assumed in traditional generative grammar that the distinction between epistemic and non-epistemic (»root«) modality corresponds to a distinction between intransitive and transitive (usage of) modals, and Kiparsky (1969) specifically applies this distinction to the Swedish modals. It is possible to elaborate on this idea and include the prospective modal variants as well, as we shall briefly do, using two orthogonal classifications of syntactic constructions.

On one view, a syntactic construction involves *operators* and *operands* (where an operator determines (restricts) the syntactic type of its operands). On another view, a construction involves *heads* and *dependents* (where a head determines the syntactic type of the resulting construction (in many syntax technologies by »projecting« its own type to the result)). These two classifications may be cross-bred to form an overall typology of syntactic constructions:

1. *Operator = head*

The operator (head) is called a *functor* and the operands (dependents) are called *arguments*.

Typical functor operators are prepositions (monovalent) and verbs (which may be polyvalent). Unlike the case where the operator is the dependent, we find no need for subclassifying functor constructions into monovalent and polyvalent ones.

2. *Operator = dependent*

a. *One head operand*: The operator is called a *modifier* while the head has no special name.

Typical modifiers are adverbials for various types of heads and noun phrase operators like determiners, adjectives, and relative clauses.

b. *Multiple head operands*: Coordinating constructions, which need not concern us here.

Using this set of notions we might suggest that the modal verbs are always operators but not always heads, and that when they are not heads they may be modifiers of different types of constituent: The three types of Danish modal variants would then be syntactically characterized as follows:

- *Dynamic variants* are functors heading a verb phrase: the modal verb is the head of the phrase.
- *Prospective variants* are modifiers with a verb phrase (VP) as head: the main verb is the head of the phrase.
- *Epistemic variants* are modifiers with a sentence, i.e. a finite complement phrase (CP) as head.

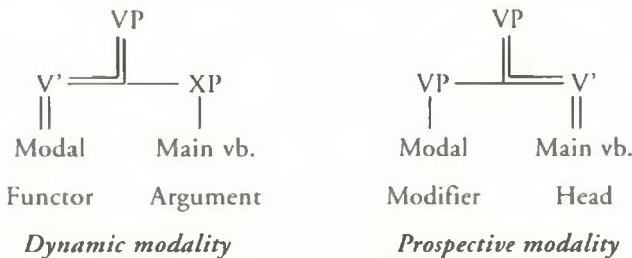
We do not wish to develop a detailed specification of these ideas in any particular syntax technology but we have introduced the presumably familiar abbreviations VP and CP to lead the readers on the right track.

The two basic ideas are that (1) only the dynamic variants are *heads* of a verb phrase, and one consequence of this is that only these meanings are expected to occur with non-verbal operands; (2) the epistemic variants are modifiers of a complete finite clause while the prospective

variants are modifiers of a non-finite constituent, and one consequence of this is that the semantic scope of the modal in epistemic constructions should be wider than in prospective ones.

Both of the two stated consequences of our analysis seem to hold true in practice. For the first we refer to our previous discussion (p. 69ff.) of modal complements; noting, however, that there are exceptions since prospective BURDE and SKULLE allow non-verbal arguments. For the second we may note that the distinction between epistemic and non-epistemic modality is often said to be that the former is a modality of propositions while the latter is a modality of events (Palmer 1990, 34; 1979, 35), and this is reflected by the fact that epistemic usages may be paraphrased as »It is possible/necessary/.. *that* subject verbs« while non-epistemic usages may be paraphrased as »It is possible/necessary/.. *for* subject to verb«.

Our syntactic distinction between the modal variants seems fairly plausible and simple in terms of syntax tree topologies. In the dynamic variant the modal heads a VP taking a not necessarily infinitive argument; in the prospective variant the former argument has become the head of the VP and the modal a modifier, presumably adjoined to it; the tree topology might be the same in both cases, only the labeling and hence the headedness need to differ (although most syntacticians would introduce some empty nodes as well):



Once the modal has achieved modifier status it is not surprising that it should become capable of modifying higher-level projections of the main verb, including projections of verbal functional heads like Inflectional Phrase (IP) or Complement Phrase (CP), and we need not take an explicit stand on the exact level of attachment for the epistemic modality.

The preceding discussion has deliberately been using expressions suggesting change or development: from dynamic (basic) meaning through prospective to epistemic meaning, and this seems to reflect the historical development (which is outside the scope of the present study).

It is an intriguing idea that in a Government and Binding (or equivalent) approach with two functional levels above the VP there might be shown to be a further subtype of modality: if prospectives are VP modifiers and epistemics are CP modifiers, why shouldn't there be *x*-ives which are IP modifiers? There are two arguments in favor of this idea: one is that the English modals no longer take anything but infinitive arguments (»Murder will out« and a few other fossilizations excluded), and for that language at least it would be possible to claim that modals are always used as modifiers of, respectively, VP (dynamic), IP (prospective), and CP (epistemic). The other argument is that in Danish we find two different passive constructions: the periphrastic *blive*-passive with epistemic and prospective modalities and the morphological *s*-passive with prospective and dynamic modalities. Since both passives are possible with prospectives, two subtypes of this variant might be identifiable in Danish.

Having developed this simple and perhaps convincing syntactic distinction between the modal variant types it is somewhat disappointing that it does not seem to be viable. The problem is that a few prospective modals (BURDE, SKULLE) are capable of governing dynamic adverbial arguments and, since they then do not govern *any* verbal material it would only be possible to claim that they were VP modifiers if we stipulated that they governed a verb phrase with a *covert* verbal head, semantically similar to *komme* 'come' and thus having a meaning of *inception* or *inchoativeness*.

Since we are not prepared to make such a stipulation, we abandon our syntactic classification again, noting in passing that it was not supported by any topological arguments: all three modal constructions behave identically as far as surface syntax is concerned.

Instead we revert to one of our earlier proposals, viz. that the difference between the variants is based on *thematic* roles. The following subsection consists primarily of edited extracts from »Infinitive Control in Danish« (Brandt 1995).

Thematic Classification of Variants

Our conception of thematic roles is that they lie somewhere between semantics and syntax, carrying the syntactically relevant elements of the more elaborate semantic structure. The thematic roles capture our intuition that certain sentences may mean different things but are still somehow related. The obvious example is active and passive sentences involving the same verb and the same participants, but there may be several others, depending on the syntactic versatility of the verb. By ascribing the same thematic role to different syntactic functions in the different possible verb constructions, we indicate that the semantic relationship between an actant and the verb is the same in all cases. Since Fillmore's seminal paper *The Case for Case* (1968), several semantic or thematic role systems have been suggested, and following tradition we have proposed our own (Brandt 1992).

The thematic role assignments are independent of the preposition or other connective words – if any – mediating the relationship between verb and argument, and the roles we propose are inspired by the major semantic roles used by Hanne Ruus (1979) and her student Hanne Jensen (1982) for analyzing Danish texts. A preliminary thematic role assignment has been performed for about hundred of the most common Danish verbs (Brandt 1992), and the following is an extract of the role set applied there, comprising the roles most commonly used as verbal arguments. In the descriptions, we use the word »situation« as a general designation for the activity, state, etc., denoted by a verb.

- ORG: Origin** The instigator, cause or agent in or of a situation, hence the subject in typical active transitive constructions.
- ENT: Entity** The undergoer or affected in a situation, hence the direct object in active transitive constructions, the subject in passive constructions and in the constructions sometimes called »unaccusative«, here designated *absolutive*, associated with verbs like *arrive*, *grow*, *arise*, etc.
- TRG: Target** The recipient or beneficiary in a situation, hence the indirect object in ditransitive constructions and the subject in some passives.

employ them very restrictedly, and they must appear more or less stipulative. The thematic roles, however, are also intended to account for other facts of grammar, a claim which we cannot justify here, except by noting that our distinction between monovalent verbs with ORG subjects (agentive) and monovalent verbs with ENT subjects (absolutive) corresponds to the (terminologically awkward) distinction other authors have made between *unergative* and *unaccusative* intransitive verbs. We might add that our association of predicatives with a STA role obligatorily related to an ENT role explains why no verb can have *both* a bound subject predicative and an object predicative.

One thing we did not mention in the introduction to our thematic role system was that the *semantic* role systems of Ruus (1979) and Jensen (1982) use two semantic role variants for each of our thematic roles, while they also maintain that a sentence may contain only one of these variants, never both. While we expect that many grammatical generalizations may be expressible in terms of thematic roles only, it is no surprise that some grammatical problems need to refer to more specific semantic roles (why else have them?), and before we continue the discussion, we present parts of the two role systems side by side, based on Ruus (1979, 163-64):

Thematic role	S e m a n t i c r o l e	
	Major	Variants
ORG	CAUSE	UNINTENTIONAL (phenomenon) AGENT (animate being)
ENT	OBJECT	CONCRETE (entity) ABSTRACT (phenomenon)
TRG	PATIENT	RECEIVER (animate being) EXPERIENCER (animate being)

For all major roles, the two variants may be characterized by a distinction between a *static* or passively involved one (unintentional cause; abstract object; receiver) and a more *dynamic* or actively involved one (agent; concrete object; experiencer). To avoid overworking the words *static* and *dynamic* we here propose to use *inert* and *intense* instead. Admittedly, the terms are vague, but this is a normal phenomenon with very abstract notions: it seems that if there are exactly two variants of

all thematic roles, a theory positing a single feature as responsible for all the differences is preferable to a theory considering the dualities to be independent phenomena; but a single feature to distinguish all role pairs must necessarily be a very abstract one, since the basic roles are quite different in the first place.

We now assume that we may distinguish between an intense and an inert *minor* variant of each of our thematic roles and further assume that a verb may lexically require a specific variant by virtue of its meaning (or that the general meaning of the verb is determined by its argument requirements). Based on such assumptions, a brief thematic analysis of the modals has been presented elsewhere (Brandt 1995, 140-41), using slightly different terminology than we do here, essentially corresponding to what we have called the »traditional view« above (p. 164); in the following we have adjusted the terminology so that it conforms to the usage in the present work.

On this analysis, modal verbs are absolute or »raising« verbs, schematically of the form

ENT v. STA

and we may now distinguish the three senses of the modals by postulating minor STA roles and ENT roles, assigned as follows:

ENT-	v.	STA-	Epistemic
ENT-	v.	STA+	Prospective
ENT+	v.	STA+	Dynamic

STA+ (intense) here means that the ENT is somehow involved in the situation expressed by the STA infinitive; STA- (inert) means that it is not so involved: this seems to be a reasonable characterization of the epistemic reading. In the two STA+ readings, on the other hand, the ENT v. STA+ situation is seen as more or less actualized (in the future), and ENT+ (intense) then means that the ENT role is not only involved in the situation expressed by the STA verb, but also in the situation expressed by the modal verb: in the dynamic reading, the modal directly affects the ENT+, while in the prospective reading ENT- (inert) is only directly involved with the STA+ infinitive.

This analysis is logically compatible with the analysis suggested earlier (p. 42, based on Brandt 1992, 63-64) where in the epistemic va-

riant the sentence subject is only the subject of the main verb, in the prospective variant it is only the subject of the modal, and in the dynamic variant it is simultaneously the subject of the modal verb and the main verb. The only difference is that above we presented it as a *syntactic* analysis while we now suggest that it is a *semantic* or *thematic* analysis, and that we might prefer to express it in slightly different terms.

We expect that the minor roles can be defined in such a manner that the fourth minor type

ENT+ v. STA-

is ruled out; but we shall not attempt to elaborate on this suggestion.

We may add that the argument specification ENT+ indicates an entity that is affected by the modal, and this agrees with the fact that if the ENT itself is an infinitive and thus not affectable, we can only have an epistemic or a prospective reading; a dynamic construction is impossible:

At dø af sult skal være ret ubehageligt. (Epistemic)

'To die of hunger shall [:is said to] be rather unpleasant'.

At dø af sult skal blive hans velfortjente straf. (Prospective)

'To die of hunger shall become his well-deserved punishment'.

Our thematic analysis then amounts to the proposal that the syntactic similarity of the three types of modal variants is due to their identical *major* thematic structure, and that the semantic difference between the three variant types is encoded by their different *minor* thematic structures. The crucial element in this analysis is that it predicts a small fixed number of possible variants and does not allow a proliferation of variants.

Rules of Danish Modal Grammar

We now summarize the results of our detailed examination of certain aspects of modal grammar in Danish.

Non-Verbal Complements

The main rule is:

Only dynamic modals take non-verbal arguments (including empty or implicit arguments).

The exceptions are that prospective SKULLE and BURDE occur with directional adverbials as arguments.

Negation

The main rule is:

Abilitive modals have modal negation; deontic modals have predicational negation.

The exceptions are:

- (1) Prospective (futuristic) VILLE and prospective (plan) SKULLE do not distinguish clearly between modal and predicational negation.
- (2) Permissional MÅTTE has modal negation.

A possible explanation for the stated rule may be that the syntactic status of the modal arguments differ between abilitive and deontic modals. We might suggest that the abilitive modals take their subject as an *external* argument while it is an *internal* argument in the deontic modals:

Abilitive: Subj. [Neg [Modal Ø MainVb.]]
 Deontic: Ø [Neg [Modal Subj. MainVb.]]

In the terms of traditional transformational grammar, abilitive modals would be *control* verbs while deontic modals would be *raising* verbs. If the structures shown here are approximately right, the negation has scope over the subject in the deontic constructions but not in the abilitive ones, and given the sufficient technical apparatus the negation rule might be derived; but we shall not attempt to do so and have only presented the idea as a suggestion.

Tentative Past Tense

The main rule is:

All modal variants may be used in the past tense with tentative non-past meaning.

The exceptions are that the following variants do not seem to occur:

- (1) All three variants of BEHØVE.
- (2) Epistemic MÅTTE.
- (3) Dynamic TURDE.

Participial Modals

The main rule is:

All prospective and dynamic variants may occur in the past participle (perfect) form, but the dynamic usage is by far the most common one.

There are no exceptions to that part of the rule that implies that epistemic variants are never governed by HAVE, and there is only one exception to the other part of the rule, viz. that all other variants do occur in this context:

Prospective (futuristic) VILLE does not occur in perfect constructions.

Since the form *burdet* is extremely rare and very stilted, the status of past perfects of BURDE is not absolutely certain; but in the absence of clear evidence to the contrary it seems reasonable to assume that this modal follows the main rule.

Modalized Infinitive Perfects

The main rule is:

Any variant of any modal may govern an infinitive perfect.

There are no real exceptions; but for semantic reasons certain modals very rarely occur in this context: BEHØVE, GIDE, TURDE, and permissional MÅTTE.

Passives

The corpus data may be summarized as follows:

Epistemic modals (rare in themselves) occur a handful of times with a following passive, in all cases the *blive*-passive.

Prospective modals allow both *s*-passives and *blive*-passives; usually the *s*-passives outnumber the periphrastic construction about 10 to 1, but for VILLE it is the other way around.

Dynamic modals govern *s*-passives (but there are a few occasional exceptions).

We have discussed the distinction between the two modal passives at length above, and our conclusion was that the *blive*-passive is typically perfective, denoting facts or events, and that *s*-passives are typically imperfective, denoting states, processes or activities. This »standard« meaning of the two passives also applies when they are governed by a modal, and the distribution of the passives across the modal variants reflects the typical meanings of these variants.

So, there is no special magic involved in modal passives: the passives mean what they normally do, the modals mean what they normally do, and their combination carries the combined meaning straightforwardly. The distributional correlation between type of passive and type of modal variant is due to the semantic correlation between the type of aspect characteristically expressed by each of the two elements. Thus the characteristically perfective *blive*-passive is the natural choice with epistemic modals which take facts or events as arguments, and the characteristically imperfective *s*-passive is the natural choice with dynamic modals which express a disposition of the subject towards some activity or process, where it seems more natural to talk about (imperfective) undergoing such an activity or process than about becoming the (perfective) result of it. Finally, the prospective modal variants may be taken to be compatible with both aspectual views and we actually also find that where both passives are possible, the difference in meaning corresponds to the difference in meaning between the two passives.

Hence we need not postulate any structural or technical restrictions on the occurrence of the two passives in connection with the different modal variants, and this conclusion is supported by the fact that we do find occasional stray passives of the »wrong« type in epistemic as well as dynamic contexts.

Coordination

The main rules seem to be:

Any variants of any modals may be coordinated with each other.

Only dynamic variants of abilitive modals may be coordinated with non-modals.

The first rule is probably too liberal but coordination only occurs about once per 1,000 occurrences of modals, and since epistemic variants are rare in the first place, possible restrictions against certain types of coordination must be highly speculative and cannot be verified by corpus analysis.

The second rule is compatible with our suggestion that only dynamic modals are VP-heads.

Modal Combinations

The main rule is that any pair of modals is possible, subject to the following two restrictions:

Epistemic variants cannot be governed.

Dynamic variants can only govern other dynamic variants.

Longer modal chains are formally possible but extremely rare in practice, and even pairs are rarely attested except for the four cases of BURDE, MÅTTE, SKULLE, or VILLE governing KUNNE.

The rule for modal combinability might be said to be predicted by our theory that dynamic, prospective, and epistemic modal variants are associated with successively higher syntactic levels; but it is rather the observational data with respect to combinability that have suggested the theory.

Modals as Verb Arguments

The main rule is:

Prospective and dynamic modal infinitives may occur in any argument position allowing an infinitive, while epistemic modals cannot be governed.

Only the four central modals KUNNE, MÅTTE, SKULLE, and VILLE are commonly found governed by other verbs; but this just seems to be a reflection of their higher frequency and there are no apparent restrictions with respect to the remaining modals. The only restriction is the semantic one that the modal must be compatible with the meaning of the corresponding sentence without the modal, and that the modal preferably should add something to the unmodalized meaning and not just be pleonastic.

Conditionals

The main rule is:

Prospective and dynamic modals may occur in the protasis of conditionals while epistemic modals may not.

The only exception is that epistemic judgements may be used in conditionals if they are »objectified« and are not expressed as part of the speaker's own commitment to the modality but only as an often more or less reportative reference to an objective situation.

Open Questions

The preceding summary of the grammatical rules for Danish modals seems as a whole to be satisfactory: most of the rules have no exceptions or only semantically natural exceptions.

The special status of the epistemic variants is systematic and clearly established, and all the individual restrictions on epistemics may be reduced to a general restriction on *epistemic qualifiers*. This notion is due to Caton (1969) and has been applied to Swedish by Karin Aijmer (1980), and the rule seems to be that epistemic qualifiers may only occur with finite verbs and that only a single epistemic qualifier is allowed.

There remains, however, some trouble-spots in our analysis, primarily involving the modals MÅTTE, VILLE, and SKULLE:

1. Prospective BURDE, and SKULLE allow non-infinitival arguments, while such arguments are otherwise restricted to dynamic variants.

2. Prospective VILLE and SKULLE do not distinguish clearly between modal and predicational negation.
3. Permissional MÅTTE has modal negation, contrary to the rule that deontic modals have predicational negation.
4. Epistemic MÅTTE (as well as BEHØVE and dynamic TURDE) has no tentative past tense.
5. Prospective VILLE does not enter into past participial constructions, unlike all other prospective (and dynamic) modals.

In the following three sections we shall discuss each of the lexemes MÅTTE, SKULLE, and VILLE and try to find explanations for the rule exceptions.

The Enigmatic MÅTTE

Since MÅTTE has two very different meanings, respectively corresponding to English MAY and MUST, it is necessary to consider the variant pattern of this verb in more detail and particularly discuss the question of whether we have one or two MÅTTE-lexemes in Danish.

We have opted for a monolexemic analysis, primarily for two reasons. (1) If there were two lexemes, we would expect to find six assertive (not negated, questioned, etc.) variants as well as six non-assertive variants, a total of twelve; but we actually only find seven, and (2) negated compulsional MÅTTE is semantically identical to negated permissional MÅTTE, which suggests a close relationship between these two senses of MÅTTE:

Peter må blive hjemme.
'Peter may/must stay [at] home'.

Peter må ikke blive hjemme.
'Peter may not stay [at] home'.

Non-assertive dynamic MÅTTE is formally grammatical in emphatic questions:

Må Peter (absolut) blive hjemme?
'*Must* Peter (absolutely) stay [at] home?'

where we have non-assertion of the necessity modal, but such examples are only possible in contrastive situations and even there they are not idiomatic; a native speaker would normally use BEHØVE instead of MÅTTE.

Nevertheless, such marginal cases might be used to argue for the position that compulsional MÅTTE has modal negation just like the permissive variant; but it is perfectly clear that epistemic and suppositional MÅTTE have predicational negation: observing Peter's dark windows, we might issue the epistemic conclusion with predicational negation:

Peter må ikke være hjemme.

'Peter must not be [at] home'.

It must be the case that Peter is not at home.

The suppositional variant also clearly negates the event and not the modal:

I det omfang han ikke måtte blive pålagt ansvaret for ..

'In [:to] the extent he not might be assigned the-blame for ..'

If he is not assigned the blame ..

.. afkommet af de af hendes børn

der ikke måtte overleve hende, skulle ikke arve.

'.. the-descendants of those of her children

there not might survive her should not inherit'.

If they do not survive her ..

It is not evident that the predicational negation here is induced by a special variant of the modal; this variant only occurs in hypothetical contexts which might be the cause of the deviation. We have, however, considered the suppositional usage a modal variant of its own, since permissive and compulsional MÅTTE also occur in the same contexts.

Thus we do not propose two homophonic lexemes, but only one, and that proposal is (weakly) supported by two other considerations: (1) historically, there is only a single lexeme involved, and (2) there is another verb in the Danish lexicon that seems to exhibit a variant pat-

tern similar to the one we have proposed for MÅTTE, viz. its old-fashioned synonym FÅ in its modal usages.

Skyum-Nielsen proposes three variants of modal FÅ (1971, 229-32):

- FÅ-n (n = *nødvendighed* 'necessity'): (resignatingly accepted) necessity with respect to surrounding circumstances. Corresponds to the necessity variant of MÅTTE.
- FÅ-a (a = *afvente* 'wait for'): (resignatingly accepted) necessity with respect to the progress of time. This is a subvariant of FÅ-n but is singled out because it is particularly common.
- FÅ-g (g = *gerne* 'rather'): permission or possibility. Corresponds to the permissional variant of MÅTTE.

Actually, some of the quotations for FÅ-n seem to be epistemic, not only

Men så stemmer det jo også –

hvis kortets alder stemmer, og det får man tro, siden ..

'But then fits it well also –

if the-map's age fits, and that gets one [to] believe, since ..'

but also two examples quoted on p. 230 and described as having an »evaluating« meaning; both use the characteristic assumptive adverb *vel* 'well'.

Thus, we find Skyum-Nielsen's variant FÅ-n to include epistemic as well as dynamic necessity, the latter also including his FÅ-a subvariant. The FÅ-g variant clearly corresponds to permissional MÅTTE and may be replaced by that word in all quoted examples. Skyum-Nielsen notes that FÅ-g has two subvariants, one meaning *få tilladelse* 'get permission' and one meaning *få lejlighed til* 'get occasion to', and the latter – which is not likely to occur in modern Danish – might be taken to be similar to our suppositional variant of MÅTTE:

Billedhuggerens vidunderlige Marmordrøm, som øjne aldrig undtes
at skue og Læber aldrig fik prise.

'The-sculptor's wonderful marble-dream which eyes never grant-PASS
to view and lips never got [to] praise'.

We have not included FÅ among the modal verbs in modern Danish; but it is obvious that whatever variant structure we assign to MÅTTE

should also apply to modal FÅ, and this suggests that the common meaning of these verbs is inducing a common variant structure on them. It would be hard to justify a polylexemic solution because this would imply – since lexical distinctions are in principle unpredictable – that this same polylexemic structure has *independently* developed in two different places in the Danish lexicon.

A weak point in our description of MÅTTE is that we propose two dynamic variants one of which only has a corresponding prospective variant while the other one only has a corresponding epistemic variant and there seems to be no principled reason for the two »holes« in the pattern.

Our suggested variant pattern for MÅTTE also does not explain why epistemic MÅTTE does not occur with tentative past tense; we must take this to be an idiosyncratic lexical restriction, shared by dynamic TURDE and all variants of BEHØVE, a set of modal variants that does not suggest a systematic explanation.

Adverbial Arguments with Prospective Modals

On the hypothesis that prospective modal variants are *modifiers* of VP and dynamic variants are *heads* of VP, it is a problem that SKULLE and BURDE accept dynamic adverbial arguments not only in their dynamic variants but also in their prospective variants. In the following, we therefore discuss whether it is possible to maintain that hypothesis, concluding that it must either be abandoned or modified significantly.

Since our variant structure for MÅTTE has already introduced the possibility of »doubling up« in the dynamic variant field, the obvious solution to the problem might seem to be an analogous introduction of dual dynamic variants for SKULLE and BURDE; but this idea we shall not pursue. The main reason is that the putative new dynamic variant and the prospective variant seem to have identical meanings. Consider the following two examples:

Formueskatten skal afskaffes.

'The-property-tax shall abolish-PASS'.

Formueskatten skal ud af lovgivningen.

'The-property-tax shall out of the-law-system'.

Both have two readings: a dynamic one expressing requirement (as in a political program) and a prospective one expressing plan (as in a newspaper account of the results of a political decision). The first reading may be denied by someone who think the property tax is a wonderful thing, the second by someone who knows that its abolishment has not been decided upon.

The difference between these two readings in both cases corresponds to the difference we expect to find between prospective and dynamic SKULLE, and a similar set of examples is easily constructed for BURDE; so our description of the modal system has to include the fact that prospective SKULLE and BURDE accept dynamic adverbials as their arguments.

It should be noted that the other two modals accepting dynamic adverbials do not occur in their *prospective* variants in such constructions:

- | | |
|---|-------------------------|
| Der vil komme rygter i omløb. | (futuric meaning) |
| * Der vil rygter i omløb. | (futuric meaning) |
| 'There will (come [:get]) rumors in circulation'. | |
| De rygter, der måtte komme i omløb .. | (suppositional meaning) |
| * De rygter, der måtte i omløb .. | (suppositional meaning) |
| 'Those rumors that might (come [:get]) in circulation ..' | |

Erik Hansen (1972) identifies the difference between modal adverbial constructions with and without *komme* 'come' with the presence or absence of a *modal interessent* 'modal interessant' (the term is a neologism also in Danish), i.e. »someone else's than the subject's volition is involved« (13). We might take this to imply that the construction without *komme* 'come' is a signal that a modal interessant has been suppressed, and this would again imply that if no such interessant exists, it cannot be suppressed, so the construction without *komme* 'come' is not grammatical.

This solution seems a bit convoluted, since it would be more straightforward if the absence of a modal interessant made the construction *with* the main verb *komme* 'come' ungrammatical, but this is contrary to fact: there is clearly no modal interessant involved in either of the two examples used above:

Der vil komme rygter i omløb. (futuristic meaning)
 'There will come [:get] rumors in circulation'.

De rygter, der måtte komme i omløb .. (suppositional meaning)
 'Those rumors that might come [:get] in circulation ..'

On the other hand there seems to be modal interessants in the two acceptable prospectives with dynamic adverbials if they include *komme* 'come':

Formueskatten skal (komme) ud af lovgivningen.
 (planning reading)
 'The-property-tax shall (come) out of the-law-system'.

Peter bør (komme) i Folketinget. (propriety reading)
 'Peter ought [to] (come) in Parliament'.

In both cases, the version with *komme* 'come' suggests that somebody ought to bring it about that the desired result materializes while the version without this verb focuses on the desired result alone.

We might elaborate on this by proposing that if a modal verb governs a construction consisting of a form of *komme* 'come' and a dynamic adverbial, and this governed construction may be interpreted as an agentive (or causal) process, *komme* may be omitted with the corresponding change in meaning that an agent (or cause) is no longer implied; but if the construction cannot be seen as agentive (or causal), *komme* is obligatory.

It must be noted that this proposal formally allows *all* dynamic modals to take adverbial arguments; but this possibility is only realized for the four modal lexemes BURDE, MÅTTE (in its compulsional variant), SKULLE, and VILLE, and this limitation seems to be a lexical idiosyncrasy and not a systematic phenomenon.

Assuming this proposal to be observationally adequate, we might improve it to be more descriptively satisfactory by noting that prospective modal variants only satisfy the omission condition if they are *necessity* modals. This includes BURDE and SKULLE but excludes MÅTTE and VILLE which are *predictability* modals on our analysis; but we can offer no explanation for why it has to be that way.

At any rate, our proposed description does not solve the basic problem of describing the syntactic structure of prospective modals with adverbial arguments. The best idea presumably is to stipulate an implied *komme* 'come' as the covert head of a verb phrase modified by the prospective modal; but we do not find this type of structures really satisfactory. It would not help just to allow the prospective modals (at least BURDE, SKULLE) also to be, say, *AdvP* modifiers, for this would force the *AdvP* to be the head of the sentence – a quite implausible consequence. Consequently, we have abandoned the modifier hypothesis again, as already stated above.

As briefly mentioned much earlier, Functional Grammar (Hengefeld 1987) considers the intermediate type of modality we have called *prospective* to be expressed either by a predicate operator or an embedding predicate (a predicate taking another predicate as operand). In both cases, however, this analysis would run into the same problems as we have, since in a prospectively interpreted modal construction with only an adverbial after the modal there is no (at least no expressed) predicate to modify.

The most attractive solution seems to be to consider the modal verbs as predicative verbs; this allows them to »support« a predicate whose head may be (but need not be) non-verbal. Thus the following sentences would be analyzed grammatically in the same manner, i.e. with the adverbial as a subject predicate (sometimes called a subject complement):

Peter skal/vil/er/kommer på hospitalet.

'Peter must/will/is/comes at the-hospital'.

To be consistent, then, the dynamic and epistemic modal constructions must be analyzed in the same manner; but this creates no new conflicts: the dynamic modalities would then roughly correspond to existential or identificational VÆRE 'BE', as in

Gud er til.

'God is to'.

God exists.

Poul er Gud.

'Poul is God'.

and the epistemic use of the Danish auxiliaries HAVE and VÆRE is well-documented already (Glismann 1986, 1989), corresponding to what Aijmer (1978, 166) has called *inferential perfect*, and it need not be covered here except by an illustrative example of an epistemic conclusion of the speaker's:

Tyven har knust vinduet og er gået ind i huset gennem kælderen.
 'The-thief has broken the-window
 and is [:has] gone in into the-house through the-cellar'.

Thus, our suggested analysis is not unparalleled in other parts of the Danish grammar, and our only remaining problem then is why SKULLE and BURDE allow adverbial predicates also in their prospective variants while VILLE and MÅTTE do not. Since we have already repeatedly stated that the capability of occurring with adverbial complement must be considered a lexical feature, it is not all too surprising that this feature may apply to dynamic modalities only or to both dynamic and prospective modalities. We have to admit, though, that we would have preferred a more motivated explanation.

Note, however, that our observational data are consistent with the following *descriptive rule*: Necessity modals (except BEHØVE) allow adverbial arguments in prospective as well as in dynamic usage, predictivity modals allow adverbial arguments only in dynamic usage, and possibility modals do not allow such arguments at all (except, as we have seen, for sporadic occurrences). While this is not explanatorily adequate, it seems to be descriptively adequate, and the exception for BEHØVE may just be considered a reflection of the fact that this verb is not yet a full modal in all respects.

Variants of VILLE

While the dynamic variant of VILLE is distinctively different from all other uses of VILLE it is not so easy to determine whether some of these are epistemic and some prospective or whether all non-volitional usages of VILLE are examples of the same variant. There are three possibilities: (1) both epistemic and prospective VILLE exist; (2) only prospective VILLE exists; and (3) only epistemic VILLE exists. We have

chosen option (2) and now proceed to discuss the arguments for this solution.

K. M. Lauridsen favors the idea that futuristic VILLE is epistemic and states that »the so-called future tense (WILL/VIL + infinitive) behaves exactly like the epistemic modals« (1987, 107). Most of her arguments, however, only go to show that futuristic VILLE is *not dynamic* and do not apply to our distinction between epistemic and prospective variants; the one argument that *does* apply (non-occurrence in conditionals) is counterfactual, as we shall see.

In fact, we must rule out the possibility that all cases of non-dynamic VILLE are epistemic, primarily by virtue of the occurrence of both Danish passives with futuristic VILLE and the fact that futuristic VILLE is readily governed. If all occurrences of non-dynamic VILLE were epistemic we would expect *s*-passives to be extremely rare and we would not expect this variant to be governable by other verbs, which it evidently is:

Han må antages at ville være ude af stand til ..

'He must assume-PASS to will be out of ability to ..'

He must be assumed to be unable to ..

Also, non-dynamic VILLE occasionally occur in conditionals, contrary to the restriction against epistemics in such constructions:

Hvis købers interesser vil være fuldt tilgodeset ved .. (DJUR5035)

'If buyer's interests will be fully considered by ..

.. hvis han overhovedet ville være til at drive ud. (DK889187)

'.. if he at-all would be to to force out.'

.. if it would be possible at all to force him out.

Hvis det vil stride mod almindelig god forretningskik ..

'If it will conflict with common good business-practice ..'

Such occurrences of futuristic VILLE are rather infrequent; but we take this to be caused the availability of the present tense form for expression of future time, so that VILLE is rarely necessary. To express a conditional future situation we would normally say

Hvis Peter kommer ..

'If Peter comes ..'

just as in English, in fact. As Palmer states (1990, 171): »For simple predictive conditionals, both real and unreal, that refer to the future, the form of the verb used in the protasis is the simple form, present or past. In particular, WILL and SHALL do not occur«.

In our discussion of modal participials we noted that the participle *villet* is practically always dynamic; a possible reason could be that non-dynamic VILLE was really a purely epistemic variant, never prospective. We also noted, however, that it was possible to find futuristic *villet* in (unreal) past perfects (pluperfects), although the *almost*, but not exactly synonymous »future perfect of the past« is more common:

Jeg havde villet nå bussen, hvis ikke .. (rare)
'I had would catch the-bus if not ..'

Jeg ville have nået bussen, hvis ikke .. (common)
'I would have caught the-bus, if not ..'

It still seems to be true that present perfects of futuristic VILLE are ruled out or at least extremely rare, but we do not ascribe this to a grammatical proscription against such constructions but to semantic factors. We find examples as the following grammatical but pleonastic:

Hun har ikke villet kunne nå bussen.
'She has not would could catch the-bus'.

= Hun har ikke kunnet nå bussen.
'She has not could catch the-bus'.

Loven har villet skulle forhindre ..
'The-law has would should prevent ..'

= Loven har skullet forhindre ..
'The-law has should prevent ..'

Our first conclusion then is that at least *some* non-dynamic usages of VILLE are prospective, so it remains to investigate whether *all* such usages are prospective or whether some of them must be considered epistemic.

There are five criteria by which epistemic modals may be distinguished from non-epistemic ones. (1) Lack of perfectives and (2) non-occurrence in conditionals are rather weak criteria, however, since we have seen that even prospective VILLE usually satisfy them. The (3) lack of *s*-passives would not be decisive either, since it might have other reasons than the epistemic governor, so we are left with two good criteria: (4) epistemic modals cannot be governed by other verbs (modal or non-modal), and (5) cannot occur in echo constructions.

A decisive test sentence demonstrating epistemic VILLE should preferably have a clear present-time meaning and not permit a futuric interpretation. One candidate would be

Peter vil ligge i sin seng nu. (expectation meaning)
 'Peter will lie [:be lying] in REFL-POSS bed now'.

which clearly allows an echo question and also fails the non-government condition, since the following sentence is grammatical:

Peter påstår at ville ligge i sin seng nu.
 'Peter claim-PASS to would lie in REFL-POSS bed now'.

The same sentence frame may be used for testing other putable epistemic uses of VILLE. The governing verb should preferably be one of report, claim, etc. and not have a meaning of expectation, prediction, etc. The latter type of verbs actually sound more natural in such contexts, but it might be claimed that they exceptionally allow epistemic VILLE to be governed because they themselves are epistemic verbs with approximately the same meaning as epistemic VILLE.

If we now try some of the examples suggested in our description of the lexeme VILLE to be candidates for the epistemic variant, we typically find that they are acceptable in governed constructions although VILLE is more or less pleonastic:

Det hævdes nu at ville være klart for alle at ..
 'It claim-PASS now to would be evident for anyone that ..'

Nyordningen påstår at ville være kendt af alle.
 'The-reform claim-PASS to would be known by everyone'.

Turning to ODS#4.2 which includes the possibly epistemic sense of

VILLE («expression for what may be assumed, opined, or judged to be the case»), we actually find some cases where VILLE is governed, hence not technically epistemic, and we also find some examples which are likely to have futuric meaning; but testing the key parts of some examples where VILLE governs a perfect participle we still find that they are acceptable (but pleonastic) in our test sentence pattern.

In our test frame the following example is more likely to be used with a third person subject:

Du vil i morges have opdaget at ..

'You will in morning's [:this morning] have discovered that ..'

Du/han påstås i morges at ville have opdaget at ..

'You/he claim-PASS in morning's [:this morning]
to would have discovered that ..'

Another example set is

.. ligesom solen ofte vil have oprundet for fortidens mennesker ..

'.. just-as the-sun often will have arisen for the-past's people ..'

Solen påstås ofte at ville have oprundet ..

'The-sun claim-PASS often to would have arisen ..'

Our final example is again more likely to be used with a third person subject:

De vil have bemærket at ..

'You will have noted that ..'

De hævdedes at ville have bemærket at ..

'They claim-PASS to would have noticed that ..'

In our judgement all cases of possible epistemic uses of VILLE allow echo constructions and are formally acceptable in governed position, and although these examples have a flavor of pleonasm, VILLE is not always completely void of meaning, since the preceding example, for instance, does not mean *precisely* the same as

De hævdedes at have bemærket at ..

'They claim-PASS to have noticed that ..'

The original sentence means something like »Someone claimed that they *were predicted to have* noticed ..«, and that claim would not be wrong even if they did not notice. On the other hand, the sentence without VILLE means something like »Someone claimed that they *have* noted ..«, and in this case it makes sense to say that the claim was wrong unless they actually did notice.

This usage of VILLE has a meaning of the speaker's expectation, judgement, or assumption, and in the *logico-philosophical* sense of the word they are thus »epistemic«; but in the *grammatical* sense of the word they are not epistemic variants of VILLE since they do not exhibit those *linguistic* characteristics that must be the only basis for positing a linguistic category of epistemicity.

Hence, we predict that this sense of VILLE should be capable of occurring with *s*-passives, which seems to be true:

Som det vil ses af det følgende ..

'As it will see-PASS of the following ..'

It is a bit difficult to invent sentences where the judgement refers to a past situation (so that the futuric meaning of VILLE is excluded); one example is the following, where both passives are acceptable:

I gamle dage ville dette kunne forstås som Guds vilje.

'In old days would this could understand-PASS as God's will'.

I gamle dage ville dette kunne blive forstået som Guds vilje.

'In old days would this could be understood as God's will'.

We conclude that there are only two variants of Danish VILLE: a volitional one and a predictive, usually futuric one. The latter might be given a *better name*: what it expresses is the speaker's assessment of what may be, have been, or will become true, thus *verdictive* might be a more time-neutral designation; but we do not find it strongly offensive to talk about »pre«dictions with respect to the present or the past: the prediction may be taken to be about what will be found to be true in a possible future investigation of the facts.

The conclusion that there are only two variants of VILLE is supported more or less directly by some other authors: Helle Østkjær Jensen

(1987, 56, 60) explicitly states that VILLE has no epistemic variant in Danish, and Niels Davidsen-Nielsen (1990), who considers epistemic modality to be an expression of analytic mood, nevertheless includes no mention of epistemic WILL or VILLE. For English, Palmer notes that »Where there is reference to a future action, it is difficult, and sometimes impossible, to distinguish epistemic WILL from the WILL of futurity« (1990, 57).

Danish Modal Structure

The 21 variants of the Danish modal verbs are shown in the following table where we have placed indications of our classificatory dimensions with each modal lexeme.

				Epistemic	Prospective	Dynamic
Possibility	Abilitive	Non-dir.	KUNNE 'can'	Conjecture Antagelse	Eventuality Opnåelighed	Capability Evne
	Abilitive	Directed	TURDE 'dare'	Assumption Formening	+	Boldness Dristighed
	Abilitive	Directed	GIDE 'bother'	+	+	Inclination Tilbøjelighed
Predictability	Abilitive	Directed	VILLE 'will'	+	Prediction Forudsigelse	Volition Vilje
	Deontic	Non-dir. Directed	MÅTTE 'may' 'must'	+	Supposition Forestilling +	Permission Tilladelse Compulsion Fornødenhed
Necessity	Deontic	Non-dir.	BURDE 'ought'	Conformity Ventelighed	Propriety Tilbørlighed	Duty Forpligtelse
	Deontic	Directed	SKULLE 'shall'	Report Påstand	Plan Plan	Obligation Pligt
	Abilitive	Non-dir.	BEHØVE 'need'	Hypothesis Formodning	Requirement Påkræverhed	Need Behov

The diagram above is not all that different from the 3-3 grid presented by Niels Davidsen-Nielsen many years ago (1985, p. 1189). If we move his category »others« in between »possible« and »necessary« and also interchange the axes, his diagram, here expanded with the modal verbs expressing the various modalities, might look as follows:

	Epistemic	Deontic	Subject-oriented
Possible	Possibility (KUNNE)	Permission (MÅTTE)	Ability (KUNNE)
»Others«	Probability (BURDE) Report (SKULLE)	Duty (BURDE) Obligation (SKULLE)	Inclination (GIDE) Resolution (TURDE) Arrangement (SKULLE)
Necessary	Necessity (MÅTTE, BEHØVE)	Compulsion (MÅTTE, SKULLE)	Volition (VILLE)

As is apparent, Davidsen-Nielsen classifies several modality variants in a different manner than we do; but the differences are not unreconcilable. It should be added that he explicitly mentions (p. 1185) that the English WILL of futurity is »regarded not as a modal but as a primary auxiliary« (expressing future *tense*), and the absence of this sense of VILLE in the diagram above is presumably due to a similar attitude to the Danish tense system.

Literature

This section first presents a brief survey of the literature on modal verbs in Danish and then contains *two non-overlapping lists of references*: the first one includes the works referred to in the literature survey; the second one includes all other referenced literature. This unconventional arrangement – which implies that a text reference may have to be searched for in two places – has been chosen to allow the first list to be used independently as a bibliography of all of the central Danish modal literature.

Literature Survey

The literature on Danish modals is characterized by two related features: much of it is unpublished or semi-published, and much of it does not utilize the relevant earlier works. For this reason we here summarize what we consider the major works in chronological order.

Ignoring various grammar books which generally have little to say about the subject, and also a little more unjustly ignoring Gunnar Bech's influential studies (1949, 1951) of German modals with local offshoots like Anders Bjerrum (1952), the study of Danish modals may be said to be founded by Erik Hansen who presented his findings to the Society for Nordic Philology (1966) and published them in the later report *Modal interessens* 'Modal Interessence' (1972).

The topic of this work is only a specific subproblem (the four modals

governing directional adverbials); but nevertheless we consider its major contribution to be the recognition of two systematic *types of variants* of the verbs VILLE (volition or prediction), SKULLE (obligation or report), MÅTTE 'MUST' (compulsion or conclusion; permissive MÅTTE 'MAY' is called a homonym and does not show the two variant types), and BURDE (duty or conformity). Although Erik Hansen calls the second variants in each case *suprasegmental*, they correspond to our epistemic variants. The report was published in *Danske Studier* which does not belong to the mainstream of linguistics, being primarily devoted to literary studies, and it is ignored by some later authors, particularly Thrainsson & Vikner (1995) and Klinge (1996) who rediscover some of Erik Hansen's results.

The same fate of oblivion has generally befallen Peder Skyum-Nielsen's 350-page prize essay *Modalverberne i nutidens dansk* 'The Modal Verbs in Contemporary Danish' (1971), even though this work is an invaluable source of data, including thousands of attested examples. It is the first work to attempt a comprehensive description of the Danish modals, although it must also be admitted that it is primarily observational in nature and includes a plethora of unorganized details and statistics of scant importance. It only exists in mimeographed form and does not appear to have been published or even widely distributed: most later authors do not seem to be aware of it.

The small paper *Behøver vi at?* 'Need we to?' by Erik Hansen (1977) is published in the information letter from Dansk Sprognævn (The Danish Language Council) and must be mentioned here because it presents a considered and authoritative contribution to the discussion of what it means to be a modal verb in Danish.

Next in the chronology come two prize-awarded essays of my own: The first one, *Concepts of Modality* (Brandt 1985) is a 120-page primarily theoretically-oriented survey of the Danish, English and German modals and attempts to apply and expand Perkins's tripartite classification of variants; the second one, *Modus og modalverber* 'Mood and Modal Verbs' (Brandt 1986), is more tangential to the topic of modality as such but updates the previous work in some areas. These two works have never been published or made generally available, although K. M. Lauridsen (1987) includes them in her bibliography; she does not refer to them, possibly because she received them very late in the

development of her work. At any rate they are both obsoleted by the present report.

The short paper *Modal Verbs in English and Danish* (Davidsen-Nielsen 1986a) deserves mention primarily because it may be the first discussion of Danish modal verbs published in English. The structure it presents for the field of modality is in many respects fairly close to the one advocated in the present work, which is no accident since Davidsen-Nielsen has been one of my teachers and his works have influenced my own (for better, for worse). Two other, identically titled, but not otherwise identical papers by Davidsen-Nielsen: *Har engelsk en fremtid?* (1986b) and *Has English a Future?* (1988), are of some peripheral interest since they suggest the analogous question for Danish, hence involving at least the Danish modal VILLE.

After Skyum-Nielsen (1971) and Brandt (1985), we consider the third major treatment of Danish modals to be Karen Margrethe Lauridsen's *A Syntactico-Semantic Subcategorization of the Modal Verbs in Modern English and Danish* (1987, 167 pages). Although this work antedates Davidsen-Nielsen's book (1990), K. M. Lauridsen is well aware of it. She only treats the five verbs BURDE, KUNNE, MÅTTE, SKULLE, and VILLE, but even so she presents a comprehensive linguistic discussion of the field of modality as expressed in modern Danish, and it deserves a wider dissemination than it appears to have been given: only Davidsen-Nielsen (1990) refers to this unpublished work; but a summary has been presented in published form (KMLauridsen 1988) and should have led other authors on the right track. Another pointer might have been the Lauridsens' also published paper *Modalverber med passiv infinitiv i moderne dansk* 'Modal Verbs with Passive Infinitive in Modern Danish' (Lauridsen & Lauridsen 1989) which is also a necessary item in the study of modality in Danish.

Even though Helle Østkjær Jensen's *Eine kontrastive Analyse der dänischen Modalverben BEHØVE und MÅTTE und ihrer deutschen Äquivalente BRAUCHEN, DÜRFEN, MÖGEN und MÜSSEN* (1987) only discusses a subset of the Danish modals, her work is a valuable contribution to the subject and is easily accessible, being published in book form; it does not appear to be utilized, however, in any later works.

Tangentially at least, the volume *On Modality*, a collection of papers from meetings and discussions in the Linguistic Circle of Copenhagen, edited by Michael Herslund (1989), belongs here and should be mentioned for its relevance to the general study of modality in Denmark; but none of its five papers deal with modal verbs (or the Danish language) specifically.

Much more relevant to this subject, of course, is Niels Davidsen-Nielsen's book *Tense and Mood in English – A Comparison with Danish* (1990). As the title suggests, its primary concern is the English modals, but the approach taken results in a fairly full treatment of at least those subtypes of modality in Danish the author considers to be expressions of mood; several other topics are also discussed, and this book must be considered a central reference for any future work on the Danish modals.

Davidsen-Nielsen's book has been the subject of at least four reviews. Of these, Karen M. Lauridsen's (1991) is the largest and most informative one, particularly with respect to the topic of modality. Kjell Vannebo (1993) likewise favors his own specialty, viz. tense, and his 3½ pages have little relevance to our topic. Stig Johansson (1994) also writes from Norway and also expresses himself briefly, but to the point, and makes a number of reasonable objections to Davidsen-Nielsen's conceptions of mood. Also Alex Klinge's (1992) more extensive review is well worth reading and presents a number of well-considered observations. The general consensus – to which we subscribe – seems to be that the book is a very interesting and thought-provoking one, but also that its description of mood and modal verbs and the relationship between the two might not win universal acclaim.

A work partly in the Government and Binding tradition is Höskuldur Thrainsson and Sten Vikner's *Modals and Double Modals in the Scandinavian Languages* (1995) discussing the syntactic structures of modal constructions, distinguishing only between epistemic and root (non-epistemic) modals, a modal being rather oddly defined as a verb that can have both an epistemic and a root modal sense (p. 53). Except for a passing mention of Davidsen-Nielsen (1990), the paper does not refer to any of the works described above, not even the two others listed in its bibliography: HØJensen 1987 and Skyum-Nielsen 1971; the latter is the more surprising as Skyum-Nielsen spends ten pages (257-266)

discussing the combinatorics of the modals, including the »double modals« of explicit interest to Thrainsson & Vikner.

Also Alex Klinge's short paper *The Impact of Context on Modal Meaning in English and Danish* (1996) suffers from defective bibliographic research: he only seems to know Davidsen-Nielsen's works (1986a, 1990) and consequently proceeds to reinvent several of the wheels discovered by previous authors. Aside from that, however, the paper is a useful contribution to the field.

In two contrastive studies of Italian and Danish Bente Lihn Jensen briefly touches upon the Danish modals: *On the Use of Mood and Modal Verbs in Italian and Danish* (1997) and *Om brugen af modalverber på italiensk og dansk – DOVERE sammenlignet med MÅTTE og SKULLE* 'On the use of modal verbs in Italian and Danish, *dovere* compared with *måtte* og *skulle*' (1998). Her works are only based on Davidsen-Nielsen (1990) and Klinge (1996, which she misdates to 1995) with a passing reference to Erik Hansen (1972), and some of her classification of Danish modal usage seems mainly to be based on the corresponding Italian mood and modal usage.

Summing up, we have now discussed about 15 works pertaining to the subject of modal verbs in Danish, several of which are comprehensive surveys of book-size and a few also published as books. Thus, unlike the impression one might get from the reference lists in most of these works, the literature on Danish modals is not inconsiderable, and most of it should be easily accessible in (or through) the university libraries.

Surprisingly, the literature on modals in Swedish and Norwegian seems to be much more limited in scope, at least according to the information having been available to me. There are numerous small papers and a few larger specialized reports available but no comprehensive surveys or books seem to exist. For Norwegian, at least, this impression has been confirmed by Jan Engh (pers. comm., 1996) at the University Library in Oslo, who has published a number of studies of various aspects of the Norwegian modals.

The reason we discuss the topic of modal verb studies for the other Scandinavian languages is of course that the lexical and thematical structures of these languages might be expected to be similar to those we have proposed for Danish – and if they were found to be dissimilar, that in itself might be considered an interesting fact.

Danish Modal Literature

This reference list includes the central Danish modal literature, i.e. works on modal verbs either written by Danes or concerning the Danish modals. Other text references may be found in the following supplementary reference list.

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