MODALS AND DOUBLE MODALS in the Scandinavian Languages

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0. Introduction

It is sometimes said that the so-called modal verbs cannot be "stacked" in English whereas they can in the Scandinavian languages. This is in fact a simplification. First, there are dialects of English where double modals are allowed. Second, it is not the case that all modals can be stacked in Scandinavian. Nevertheless it is true that the Scandinavian languages, like Danish (Da) and Icelandic (Ic) for instance, differ from standard English with respect to the "stackability" of modals. This can be seen in (1)-(5) (cf. Vikner 1988:9-10; Roberts 1991, section 3.3.2; Thráinsson 1986:243):

(1) a. *They shall will build a house.
   b. De skal ville bygge et hus.
      'They are said to want to build a house.'
(2) Der vil let kunne gå noget galt.
      'It will easily be possible that something goes wrong.'
(3) Han skal kunne svømme for at få jobbet.
      'He must be able to swim to get the job.'
(4) Hann kann að kunna að svømra.
      He can to can to swim
      'He may know how to swim.'
(5) Það mun vilja rigna meðan þú eru þar.
      'It will tend to rain while you are there.'

If we look at the examples in (1)-(5), we see that in (1) and (4) we have instances of root modals embedded under epistemic modals, in (2) and (5) we have epistemic modals embedded under epistemic modals, and in (3) we have a root modal embedded under a root modal. It is apparently not possible to embed epistemic modals under root modals in the Scandinavian languages:

(6) *De vil gerne skulle have tjeten million.
      'They would like to be said to have made a million.'
(7) *Hann verður að kunna að kunna að svømra.
      'He must to can to can to swim' (cf. (4))

In addition to this, there are several restrictions on the embeddings on epistemic modals under
epistemic modals and root modals under root modals (cf. Vikner 1988:9-10) but these seem to vary within Scandinavian.

The purpose of this paper is to explain some of the observed differences between English and Scandinavian modal verbs and certain differences within Scandinavian with respect to the behavior of modal verbs in general and double modals in particular. For reasons of space (not to mention the native languages of the authors) the discussion will concentrate on Danish and Icelandic as representatives of Modern Scandinavian (Mainland Scandinavian (MSc) and Insular Scandinavian (ISc), respectively) but it will contain occasional references to other Scandinavian languages.

The paper is organized as follows: Section 1 is an attempt to give a language-independent definition of modals and an overview of the types of epistemic and root modals found in Danish and Icelandic. Section 2 shows some of the basic syntactic differences between Scandinavian epistemic modals and root modals, since these differences play an important role in determining their "stackability". Section 3 introduces the basic ideas of our analysis in terms of thematic roles and syntactic structure and explains some of the differences between epistemic modals and root modals observed in section 2. Section 4 gives an overview of double modal constructions in Danish and Icelandic, contrasts these with double modal constructions in English dialects and attempts to explain some of the restrictions on double modals in Scandinavian. Section 5 contains a few notes on double modals in Old Norse (or Old Icelandic) and section 6 is the conclusion.

1. The class of modal verbs

1.1 A definition

(Most) English modal verbs have rather obvious morphological, syntactic and semantic properties. These include the following (for "standard" English, cf. for instance Palmer 1986:33-34; McCawley 1988:249-250):

(8) 1. They do not show agreement with 3rd person sg. subjects (they have no "a" forms):
   a. *He wills come.
   b. *She hopes to come tomorrow.
   c. *She has can/could come in the past.
   d. *Casting swim, I was not afraid of the water.

2. They cannot follow any auxiliary verbs - and (arguably) they have no non-finite forms:
   a. *He will come.
   b. *She hopes to can come tomorrow.

3. They take bare infinitives as complements (except for ought to):
   e. She may/can/must/will/shall (+to) come.

4. They express a "modal meaning", typically of two kinds, namely epistemic and root. The epistemic sense "qualifies the truth value of the sentence containing the modal" whereas the root sense expresses "necessity ... obligation, permission, volition, or ability of an agent, which usually, but not necessarily, is expressed by the ... subject of the sentence" (Platzack 1979:44):
   f. It must be five o'clock.
   g. I must pay my taxes.

With the exception of the fourth item here ("modal meaning") most of these criteria would appear to be language-specific. Yet it is perhaps a good starting point to try to determine to what extent something like 1.-3. in (8) holds for comparable verbs in Scandinavian. This is done in (9):

(9) 1. Modal verbs show subject-verb agreement in those Scandinavian languages that have subject-verb agreement in general, i.e. in Faroese (cf. Lockwood 1977:74-76, 144 ff.) and Icelandic, and not in those where the finite verb never shows any kind of agreement with the subject (nor with anything else), i.e. Danish, Norwegian, and Swedish:
   a. Eg mun / Dú munt / Við munum koma. (IC)
   b. Eg man / Tu manst / Vi munu koma. (Fa)
   c. Jeg vill / Du vill / Vi vill komme. (Da)

2. There is no general ban on modals following auxiliary verbs in Scandinavian, including other modal verbs as we have seen (see also Platzack 1979:48; Thráinsson 1986:243, 262; Vikner 1988:6-8):
   a. Bengal har kunnat talja grekiska. (Sw)
   b. Bengt has can(t) speak Greek.
   c. Ha han vill ett lota pengar. (Da)
   d. He has would(sup.) earn many money
   e. Ha har villat tje ne mange pengar. (Da)
   f. *Mig hefur vilja0 vanta peninga. (IC)
   g. *I have deserved to lack money.
   h. It must be five o'clock. (epistemic)
   i. Jeg vil (*at) gå hjem.
   j. Jeg vill (=at) gå hem. (IC)
   k. Jeg vill (*at) gå hem. (IC)
   l. Jeg vill (*at) gå hem. (IC)
   m. Jeg vill (*at) gå hem. (IC)

   a. Jeg vill (=at) gå hjem.
   b. Jeg vill (*at) gå hjem. (IC)
   c. Jeg vill (*at) gå hjem. (IC)

I would seem from this that the defining semantic criterion of "modal meaning" in item 4 in (8) is the only criterion that holds both of English and Scandinavian modal verbs.1 This is not particularly surprising, of course (see also the discussion of German and French modal verbs in Palmer 1986:34 ff. and remarks on German modal verbs in McCawley 1988:250). It must be admitted that the concept of modal meaning was not defined very carefully above. But on the basis of the preceding discussion, we propose the following tentative "definition" of modal verbs:

(10) Modal verbs are verbs that can have both an epistemic and a root modal sense.

We have already outlined in item 4 in (8) what we mean by "epistemic" and "root" senses of modal verbs and we will return to the issue in section 1.2. As we will see below, however, the definition in (10) is a little too narrow. The reason is that modal verbs as defined in (10) tend to
have particular syntactic properties, although somewhat different depending on the language, as
we have seen. Then a verb in a given language may show these particular syntactic properties and
yet only have an epistemic modal sense or only a root modal sense. We could then consider such
a verb a modal verb in the language in question and claim that it is basically a historical accident
that it is only found in one of the two types of modal senses. Thus while the English modal will
usually has the epistemic sense of "prediction" and only rather rarely the root sense of "volition"
(cf. Coates 1983:25), its historical counterpart wollen in German typically has the root sense of
"volition". We will see further examples of this below.

Taking the tentative and informal definition in (10) as our point of departure, we will base
the following discussion mainly on the properties of the Danish and Icelandic verbs listed in (11)
(cf. Thráinsson 1986 for Icelandic and Vikner (1988) and especially Davidsen-Nielsen (1990:40,
passim) for Danish). We do not claim that the list is exhaustive and the glosses are rather
misleading since they do not reflect the difference between the epistemic and root senses properly.
These distinctions will be clarified in section 1.2.3

(11) a. Danish modal verbs:
  ville 'will', skulle 'shall', måtte 'must', kunne 'can', burde 'ought (to)', turde 'dare', behøve 'need'
b. Icelandic modal verbs:
  munu 'will', skulu 'shall', mega 'may', vilja 'will', eig 'ought (to)', hiðta 'must', kunna 'can', verða 'must', þetta 'intend', geta 'can'

Having established this, we will now outline some of the further properties of Scandinavian modal
verbs and the differences between epistemic and root modals in these languages.

1.2 The epistemic and root senses of Scandinavian modal verbs

Numerous attempts have been made to define the concept of modality philosophically or logically.
As shown in Palmer (1986), different types of modality seem to play a role in different languages.
Although a simple distinction between epistemic and root (or non-epistemic) senses, as outlined
above, will be sufficient for our purposes most of the time, we will sometimes need to refer to
subclasses of the epistemic and in particular the root modals for the purposes of further
clarification. To be able to do so we must give some examples of these subclasses. That is the
purpose of this subsection, which is to a large extent based on Davidsen-Nielsen (1990) and

The most important subclasses of epistemic and root modals in Scandinavian are shown
in the diagram in (12) with some examples of the relevant modal verbs in Danish and Icelandic
(adapted from Davidsen-Nielsen 1990:18, 43ff; Coates 1983:5):

We will now illustrate these distinctions further and deal with the epistemic senses first. While this
list is a purely descriptive illustration, intended as a basis for the comparison in section 2 and the
theoretical account in section 3, it is of some comparative interest since it shows the similarities
between Danish and Icelandic (and English) with respect to the semantic (and syntactic)
development of cognate verbs in these languages:

(13) Epistemic sense - possibility:

<table>
<thead>
<tr>
<th>Danish</th>
<th>Icelandic</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Det kan være sandt.</td>
<td>(Da) bað kann að vera satt.</td>
</tr>
<tr>
<td>'It may to be true'</td>
<td>it may to be true</td>
</tr>
<tr>
<td>b. Det skulle være nok .</td>
<td>(Ic) bað skulur að hafa rígt.</td>
</tr>
<tr>
<td>'It ought to be enough'</td>
<td>it must to have rained</td>
</tr>
<tr>
<td>c. Det burde vara i kvöld.</td>
<td>(Ic) bað verður að rigna í kvöld.</td>
</tr>
<tr>
<td>'It must rain tonight'</td>
<td>it must to rain tonight</td>
</tr>
<tr>
<td>d. Det behøver ikke være sandt.</td>
<td>(Da) bað behøver ikke vara satt.</td>
</tr>
<tr>
<td>'It need not be true.'</td>
<td>'It need not to be true.'</td>
</tr>
<tr>
<td>e. Det må have regnet.</td>
<td>(Da) bað þarf ekki að vera satt.</td>
</tr>
<tr>
<td>'It must have rained.'</td>
<td>'It ought to be enough.'</td>
</tr>
<tr>
<td>f. Det må ha regnet mikla.</td>
<td>(Ic) bað má ha rigna mikla.</td>
</tr>
<tr>
<td>'Then it is necessary that it rains a lot.'</td>
<td>'Then it is necessary that it rains much.'</td>
</tr>
</tbody>
</table>

(14) Epistemic sense - necessity:

<table>
<thead>
<tr>
<th>Danish</th>
<th>Icelandic</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Det må have regnet.</td>
<td>(Da) bað þarf ekki að vera satt.</td>
</tr>
<tr>
<td>'It must have rained.'</td>
<td>'It need not to be true.'</td>
</tr>
<tr>
<td>b. It must to have rained.</td>
<td>(Ic) bað skulur að hafa rígt.</td>
</tr>
<tr>
<td>'It ought to be enough.'</td>
<td>it must to have rained</td>
</tr>
<tr>
<td>c. Det må have regnet.</td>
<td>(Ic) bað verður að rigna í kvöld.</td>
</tr>
<tr>
<td>'It must to rain tonight.'</td>
<td>it must to rain tonight</td>
</tr>
<tr>
<td>d. Det behøver ikke være sandt.</td>
<td>(Da) bað behøver ikke vara satt.</td>
</tr>
<tr>
<td>'It need not be true.'</td>
<td>'It need not to be true.'</td>
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<tr>
<td>e. Det må have regnet.</td>
<td>(Da) bað þarf ekki að vera satt.</td>
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<td>'It must have rained.'</td>
<td>'It ought to be enough.'</td>
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<td>f. Det må ha regnet mikla.</td>
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</tr>
</tbody>
</table>

(15) Epistemic sense - probability:

<table>
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<th>Danish</th>
<th>Icelandic</th>
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<tbody>
<tr>
<td>a. Det skulle være nok.</td>
<td>(Da) bað þarf ekki að vera satt.</td>
</tr>
<tr>
<td>'It ought be enough.'</td>
<td>'It ought be enough.'</td>
</tr>
<tr>
<td>b. Det skulle være nok.</td>
<td>(Da) bað þarf ekki að vera satt.</td>
</tr>
<tr>
<td>'It ought be enough.'</td>
<td>'It ought to be enough.'</td>
</tr>
</tbody>
</table>
Having given some idea of the semantic possibilities of Danish and Icelandic modals we now turn to some of the syntactic differences between epistemic modals and root modals. In the following sections we will frequently only distinguish between the two major classes, epistemic and root, but the interested reader may want to refer to the more detailed classification just described.

2. Some syntactic differences between epistemic and root modals

2.0 Introduction

In this section we list some of the more obvious syntactic differences between epistemic modals and root modals. It will be seen that many of these differences will follow from a suggestion that goes back at least to Ross (1969), Kiparsky (1970), and Perlmutter (1970), namely that epistemic modals (like raising verbs) do not assign a thematic role to their subject whereas root modals (like control verbs) do. Other differences between and properties of these two types of modal verbs will require a more sophisticated analysis of their argument structure. We will return to those problems in section 3.
2.1 Non-argument subjects

If epistemic modals do not assign a thematic role to their subject whereas root modals do, we might expect the former to occur with expletive subjects, like raising verbs do, whereas the latter might be expected to pattern with control verbs, which do not allow expletive subjects e.g. in English (see also Thráinsson 1986:252-253; Olschläger 1989:77; Davidsen-Nielsen 1990:32-35). These expectations are basically borne out, although the general situation is somewhat more complicated than the simplified discussion in this section would seem to indicate, cf. the continuation of this discussion in section 3.4 below.12

An expletive is possible with raising verbs, as shown in (21):

(21) a. Der ser ud til at komme ti studenter til foredraget. (Da)
   'There seem to come ten students to talk-the-
   'It seems that 10 students will come to the talk.'

Comparable structures with control verbs are bad, on the other hand:

(22) a. *Der prøver et komme ti studenter til foredraget. (Da)
   'There try to come ten students to talk-the-
   'There want to come 10 students to the talk.'

Parallel constructions with modal verbs can only have the epistemic reading and the root reading is just as impossible as the control constructions in (22):

(23) a. 'Der vil komme ti studenter til foredraget.'
   'There will come ten students to the talk.'

b. *Da só virðast koma tí stúdentar á fyrirlæturinn. (Ic)
   'There seem come ten students to talk-the-
   'There are able to/know how to listen to...'"

Notice that the following structures with the same modal verbs but without an expletive subject have both epistemic and root readings:

(24) a. Ti stúdentar vil komme til foredraget. (Epistemic)
   'Ten students will come to the talk.'

b. *Du stúdentar kunna að hlusta tí stúdentar á fyrirlæturinn.
   'Ten students can listen to the talk the-
   'Ten students may listen to the talk.'

Contrasts similar to those discussed above may be observed with weather detþað 'it' (cf. Thráinsson 1986)13. A weather verb can be embedded under an epistemic modal but not under a root modal or a control verb. This is illustrated in (25)-(26) where the a-examples and b-examples can only have the epistemic reading and the c-examples and d-examples (with the control verbs) are ungrammatical (see also Thráinsson 1986):

(25) a. Det kan regne i morgen. (Da)
   'It can to rain tomorrow.'

b. *Da só kann að rigna á morgun. (Ic)
   'There is something seriously wrong.') (Root impossible)

c. *Det prøvede at regne i går. (Da)
   'It tried to rain yesterday'

d. *Da só reyni að rigna í fares. (Ic)
   'There is said to be something seriously wrong.') (Root impossible)

(26) a. Det vil regne i morgen. (Da)
   'It will rain tomorrow.'

b. *Da só vil rigna miklø í Reykjavík. (Ic)
   'It will rain much in Reykjavík'

c. *Det lover at regne i morgun. (Da)
   'It is going to rain tomorrow'

d. *Da só lofar að rigna á morgun4 (Ic)
   'It promises to rain to morrow'

Third, a related contrast can be seen in sentences like the ones in (27b), where the subject of the modal is a non-argumental (or quasi-argumental) "idiom chunk" licensed by the infinitival verb embedded under the modal verb (cf. Chomsky 1981:35-37; Thráinsson 1986:252-253).14 In such cases only the epistemic reading is possible:

(27) a. Skörin farist upp i bekkinn.
   'This knows to/is able to...')
   ('Lit. 'Those who used to sit in the lower seats (on the skór 'steep'), are now sitting in the higher seats (on the bekku 'bench').')

b. *Skörin kann að færa upp á bekkinn.
   'There is said to be something seriously wrong.' (Root impossible)

(28) a. Fanden er lås.
   'There must dog-the to lie buried'

b. *Fanden skal ´ære lås.

(29) a. Der ligger hunden begravet.
   'There lies dog-the buried

b. *Darna liggur hundurinn grafinn.
   'There is said to be something seriously wrong.'
   ('Lit. 'Those who used to sit in the higher seats (on the bekku 'bench'), are now sitting in the lower seats (on the skór 'steep')).'

c. *Der má hunden ligja begravet.
   'There is said to be something seriously wrong.'
   ('Lit. 'Those who used to sit in the lower seats (on the skór 'steep'), are now sitting in the higher seats (on the bekku 'bench')).'

d. *Darna hiljur hundurinn að lígga grafinn.
   'There is said to be something seriously wrong.'

As shown by Thráinsson (1986), epistemic modals can take quirky subjects whereas root modals cannot. Here again the root modals pattern with control verbs. The case of the quirky subject is

2.2 Quirky subjects

As shown by Thráinsson (1986), epistemic modals can take quirky subjects whereas root modals cannot. Here again the root modals pattern with control verbs. The case of the quirky subject is
determined by the embedded verb (which also assigns thematic role to it). Since Danish does not have any quirky subjects this can only be illustrated by Icelandic examples. First, note that the verbs *vant* 'lack' and *líka* 'like' take Acc. and Dat. subjects, respectively (for arguments for the subjecthood of these NPs see Sigúrðsson 1989:204ff, and references cited there):

(30) a. Harald/*Haraldur vant peninga. (Ic) Harald(A)/*Haraldur looks money(A)
   b. Harald/*Haraldur líkar vel í Stuttgart. (Ic) Harald(A)/*Haraldur likes well in Stuttgart
   'Harald likes it in Stuttgart.'

Now consider the following:

(31) a. Harald vill oft vanta peninga. (Ic) Harald(A) will frequently look money
   'Harold frequently tends to lack money.' (*'H. frequently wants...')
   b. Harald atlar að líka vel í Stuttgart. (Ic) Harald(D) intends to like well in Stuttgart
   'It looks like Harold will like it in Stuttgart.' (*'H. intends...')

As indicated here, these modal verbs can only have the epistemic sense in this context. It is not easy to embed verbs that take quirky subjects under control verbs but whenever that is possible the case of the subject of the control verb must be nominative (as determined by the control verb itself), not quirky:

(32) a. Haraldur/*Harald vonast til að vanta ekki peninga. (Ic) Harald/N wants not money(A)
   Harald hopes not to lack money.
   b. Haraldur/*Harald vonast til að líka vel í Stuttgart. (Ic) Harald/N hopes for to like well in Stuttgart
   'Harald hopes to like it in Stuttgart.'

Note, however, that it does not seem possible to get the root sense at all when a verb that takes a quirky subject is embedded under a modal. Thus the following are bad with the subject of the root modal in the nominative:

(33) a. *Haraldur vill vanta ekki peninga. (Ic)
   Harald(N) wants not money(A)
   (intended meaning: 'Harald wants not to lack money.')
   b. *Haraldur atlar að líka vel í Stuttgart. (Ic)
   Harald(N) intends to like well in Stuttgart
   (intended meaning: 'Harald wants to like it in Stuttgart.')

2.3 Pseudo-cLEFTs and (pronominal) complements

As discussed by Thráinsson (1986:255) and Vikner (1988:11; see also Davidsen-Nielsen 1990:25ff.), root modals may occur in the so-called pseudo-cleft construction whereas epistemic modals cannot. The sentences in (34) are all fine with the indicated root modal readings:16

(34) a. Det eneste han vil er at svarae på spørresmålet. (Da) the only he wants is to answer question-the
   'The only thing he wants to (do) is to answer the question.'

When epistemic readings are forced, pseudo-cLEFTs become impossible:

(35) a. *Det han vil i morgen er at tabe kampen om mesterskabet. (Da)
   'He will tomorrow is to lose the fight-the about championship-the
   (intended meaning: 'What he will do tomorrow is to lose the fight...')
   b. *Det hun er at have sovet over sig. (Da)
   'She will have to have slept over self
   (intended meaning: 'What is possible that she has overslept.')

(36) a. *Dað sem mig vill er að vanta peninga. (Ic)
   'It is I will to lack money
   (intended meaning: 'What I tend to be is (to be) short on money...')
   b. *Dað sem hun kann er að hafa sofið yfir sig. (Ic)
   'It is she can is to have slept over self
   (intended meaning as in (35b).')

This phenomenon is presumably related to the fact that root modals take objects more readily than epistemic modals, as pointed out by Davidsen-Nielsen (1990:21; see also Thráinsson 1986:250; and Platzack (on Swedish) 1979:45-46). Thus Davidsen-Nielsen claims that the examples in (37) are good in the "non-epistemic" readings in Danish but not in epistemic sense (his glosses):

(37) Hun kan/vil/ må/ skal en masse.
   she can/wants/is-allowed-to/is-about-to a lot
   'She can/wants to/is allowed to/is about to (do) a lot of things.'

The difference is less than crystal clear here, however. First, some of the modal verbs may also function as regular transitive verbs, such as Danish *kunne* and Icelandic *kunna* in the sense 'know by heart', for instance (cf. Vikner 1988:11, n.5). Second, it is usually possible in Danish to get a topicalized object-like *det* 'it', that with epistemic modal verbs, although it is much worse when it is not topicalized (cf. Vikner 1988:10-11):

(38) Han vil være hjemme hele dagen.
   'He will be home all day.'

Det vil hun desuden også./*Hun vil det desuden også.
that will she actually too/*she will it actually too
'So will she, actually.'
3. Accounting for the facts

3.0 Introduction

In this section we suggest a theoretical account of the Scandinavian modal verbs discussed and show how our proposals account for the facts described above. In section 4 we then demonstrate how our proposals explain the possibility of having double modals in Scandinavian and explain the differences between these and their English (dialectal) counterparts. Some of the observed differences within Scandinavian will also be explained.

3.1 Epistemic modals do not assign a thematic role to their subject

As we have seen, it is fairly obvious that the epistemic modals do not assign a thematic role to their subject (or do not take an external argument). Hence they:

(39) a. Occur freely with non-argument subjects licensed by the embedded infinitival verb, as seen in section 2.1.
   b. Can take quirky subjects (in Icelandic), licensed by the embedded infinitival verb, as seen in section 2.2.

Recall also the difference between epistemic modals and root modals in pseudo-cleft sentences, discussed in section 2.3 above. Let us look at typical pseudo-cleft sentences of the type under discussion:

(40) a. Det eneste i [CP (som) Marie købte tj] var klipflisk. (Da)
   b. Da gjemsem Maria køptj tj var hardfliskur. (Ic)

Schematically, then, we can say that these sentences have the structure in (41) (cf. Vikner 1991b):

(41) X | CP (OPj | that) ... tj ... | was Y

where X is the correlate of the relative clause inside the cleft construction (det eneste in (40a) and da i (40b)), tj is the wh-TACE in the relative clause and Y is the focussed constituent of the construction (cf. Thráinssson 1986:255). What we saw in section 2.3 above was that the complement of root modals could undergo pseudo-clefting (i.e., turn up as Y in a construction like (41)), whereas the complement of epistemic modals could not. Under the standard assumptions that wh-TAREs need Case and verbs that do not assign a thematic role to their subject cannot assign structural Case (Burzio's generalization), we can say that the complement of root modals and epistemic modals in pseudo-cleft constructions is just what we would expect if epistemic modals do not assign a thematic role to their subject but root modals do.10

So far we have not yet said anything about the thematic nature of the external argument of root modals, nor even whether it is necessary to assume that all root modals assign a thematic role to their subject. Before we consider these questions it is useful to consider what kind of complement the different types of modal verbs might take. A priori, the possibilities could include at least the following:

(42) CP (= complementizer projection), IP (= inflectional proj.), VP

With the expansion (or explosion) of IP since Pollock (1989), one could add the following (or, rather, substitute them for IP):

(43) AgrP (= agreement proj.), MP (= modal proj.), TP (= tense proj.)

In addition, several linguists have argued for various types of the notion of "small clause" (for some discussions relevant to Icelandic see Sigurðsson 1989 and Sigurjónsdóttir 1989; for a more general comparative discussion of Scandinavian infinitives see Thráinsson 1993 and Johnson and Vikner 1994). The discussion of the nature of complements of this sort is sometimes said to have to do with whether they are "clausal" or not. Needless to say, it is quite difficult to find empirical arguments to decide between all these different possibilities. So rather than go through the various possibilities in detail here, we will propose particular analyses for the complements of Danish and Icelandic modal verbs here, epistemic and root, and present the arguments that bear on these proposals. We will return to the question in section 4.1. We will then return briefly to the "clause-hood" issue.

3.2 Danish modal verbs as raising verbs

The basic choice of complement type is obviously between a raising complement and a control complement, whatever the categorial status of the complement may be. Following Vikner (1988:13 ff.), we will propose that all Danish modal verbs are raising verbs. This implies that the subject of all modals is base-generated in their complement and moved (raised) into subject position. This is straightforward for epistemic modals, of course, since we have already seen ample evidence for the claim that they do not assign a thematic role to their subject. For epistemic skal 'shall', for instance, this would give a derivation like the following:11

(44) a. [NP el] skal [han, more sig, ]
   b. Han skal [tj more sig, ]

'He is said to enjoy himself.'

As indicated here, the subject (or, more precisely, the chain (han, tj)) ends up with one thematic role, assigned by the embedded verb more to its subject which is then raised to the subject position of the epistemic modal, which is not assigned a thematic role by the modal. Thus this analysis predicts that we should be able to get various kinds of subjects licensed (or subcategorized for) by the embedded verb raised to the subject position of the epistemic modal, such as the weather-den, non-argument subjects that are parts of downtiers idiom chunks, etc. This is borne out by the facts, as we saw in section 2.1 above.

As the reader will recall, we have claimed that (at least some) root modals assign a thematic role to their subject. How is that compatible with the claim made here that they are
raising verbs? Following Vikner (1988:12), we will argue that they typically assign an "additional" thematic role to their subject. The crucial properties of additional thematic roles are listed in (45):

(45) a. No argument may have more than one additional theta-role.
b. Each additional theta-role must be assigned to one and only one argument.
c. An additional theta-role may be assigned to an argument that already has a theta-role.

The first two parts of (45) are similar to the theta-criterion, except that it is not required in (45a) that every argument bear an additional thematic role. But the third part is different in that it states that an argument can carry an additional theta-role in addition to the "normal" one.

Several linguists have proposed thematic roles that are different from the "normal" thematic roles assigned to arguments. Thus Zubizarreta (1982: 41, 123) argues for the existence of thematic roles that are invisible for the theta-criterion. Grimshaw has also discussed argument adjuncts (e.g. 1990:108 ff.) that are licensed by argument structure but not theta-marked like arguments. She argues further that argument-adjuncts (a-adjuncts) are "licensed only by suppressed argument positions, not by syntactically satisfied a-structure positions" (1990:149). This is because "arguments always specify all knowable information, [and hence] they will always be incompatible with any a-adjunct" (ibid.). But since a-adjuncts can be of different types, they can in principle co-occur.

The concept of additional thematic roles suggested here is somewhat reminiscent of these ideas. Note, however, the crucial differences: First, the additional theta-roles can be assigned to arguments already bearing a "regular" thematic role. Second, we are assuming here that additional theta-roles cannot cooccur, possibly because they are not "of different types". Based on this, then, the derivation in (46) is appropriate for the sentence Han skal more sig with the root sense, and it should be compared to the derivation of the corresponding sentence in the epistemic sense in (44). Note that the additional thematic role is indicated by (8):

(46) a. \[ \text{Han skal [\text{[\text{more sig}]}]} \text{Han skal [\text{more sig}]} \]
b. \[ \text{Han skal [\text{more sig}]} \text{Han skal [\text{more sig}]} \]

In (46), then, the subject, or rather the chain (\text{Han skal [\text{more sig}]}), ends up with one regular thematic role (assigned by more to its subject which is raised) and one additional thematic role assigned to the subject position by the root modal itself.

The difference between epistemic and root modals just outlined explains the observed difference in their behavior with respect to non-argument subjects discussed in 2.1, under the standard assumption that non-arguments cannot be assigned thematic roles. Thus if the verb embedded under a root modal has a non-argument subject (an expletive, a weather-if, or a part of an idiom-chunk), this non-argument cannot raise and receive the additional thematic role assigned to the matrix subject position by the root modal, whereas it can be raised to the subject position of an epistemic modal which does not assign any thematic role to its subject. This analysis also explains the pseudo-cleft facts discussed in 2.3 and 3.1, assuming that verbs that assign additional thematic roles can assign Case to their complement just like verbs that assign regular thematic roles.

A control analysis of the root modals would seem to be an obvious alternative to the raising analysis suggested here. Under such an analysis the sentence Han skal more sig would have the following structure in its root sense:

(47) \[ \text{Han skal [\text{[\text{more sig}}]} \text{Han skal [\text{more sig}} \]

Under this analysis the root modal would assign a regular thematic role to its subject and the embedded infinitival verb would assign a thematic role to its PRO subject. Such an analysis would obviously also account for the facts about non-argument subjects and pseudo-clefting just discussed. But there are further sets of facts which can be explained by the raising analysis and not by the control analysis. Some of these have to do with double modals and they will be discussed in section 4, but we will briefly review some of the other facts here.

First, observe the difference between the following expressions of state (the left hand column) and event (the right hand column) (cf. Vikner 1988:13):

(48) a. Han har tre biler. Han får tre biler. 'He has three cars.' 'He gets three cars.'
b. Hun er professor/rig. Hun bliver professor/rig. 'She is a professor/rich.' 'She becomes a professor/rich.'

The intuition is "that the event expressions have all the implications of the state ones plus some more" (ibid.). This could be expressed by saying that the event verbs assign an additional thematic role to their subject. But now recall that according to (45a) above, no argument may have more than one additional thematic role. Hence this analysis predicts that it should be possible to embed the event expressions in (48) under epistemic modal verbs, since they do not assign any thematic role to their subject, but it should not be possible to embed them under root modals that assign an additional thematic role to their subject. This prediction is borne out. As shown in (49)-(50), the state expressions and event expressions in (48) can easily be embedded under epistemic modals (cf. Vikner 1988:15 ff.):

(49) a. Han vil have tre biler i 1995. Han vil få tre biler i 1995. 'He will have three cars in 1995.' 'He will get three cars in 1995.'
b. Hun vil være professor/rig. Hun vil blive professor/rig. 'She will be a professor/rich.' 'She will become a professor/rich.'

It is not possible, on the other hand, to embed the event expressions under these modal verbs in the root sense:
The so-called s-passive, on the other hand, is grammatical when embedded under root modals, passives under epistemic modal verbs but not under root modals of the type just discussed, and additional thematic role. Such an analysis would predict that it should be possible to embed

b. Hun vil blive professor/rig. *Hun vil blive professor/rig. ‘She wants to be a professor/rich.’ she wants become.

This can be explained if we assume a raising analysis for Danish root modals and that Danish root modals and Danish event expressions of the type under discussion both assign an additional thematic role to their subject. That would mean that the subject of the root modals in (50) would end up with two additional thematic roles when an event expression is embedded under it but not when a state expression is embedded. Hence the sentences in the right hand column are bad whereas the ones in the left hand column (containing state expressions) are good. There is no reason to expect this correlation under a control analysis of the root modals.

Further evidence for the analysis suggested here comes from the Danish blive-passive, exemplified in (51):

(51) Hun blev arresteret af politiet. ‘She was arrested by the police.’ (Lit.: ‘She became arrested...’) Since the semantics of the blive-passive is similar to that of the (predicative) blive+ NP/AP exemplified above, it would seem natural to suggest that blive in the blive-passive also assigns an additional thematic role. Such an analysis would predict that it should be possible to embed blive-passives under epistemic modal verbs but not under root modals of the type just discussed, and that is exactly the right prediction (cf. Vikner 1988:15 ff.; Davidsen-Nielsen 1990:21):

(52) Hun vil blive arresteret af politiet. ‘She will be arrested by the police.’ (Lit.: ‘She will become...’) (**’She wants to be...’

The so-called s-passive, on the other hand, is grammatical when embedded under root modals, which can be explained if we assume that the s-passive construction does not assign an additional thematic role to the passive subject:

(53) Hun vil arresteres af politiet. she wants be-arrested by police-the ‘She wants to be arrested by the police.’

(54) Hun skal arresteres af politiet. she shall be-arrested by police-the ‘She must be arrested by the police.’

Thus the difference between the blive-passive and the s-passive when embedded under root modals is expected under a raising analysis of the root modals, like the one suggested here, but not under a control analysis.

Thus in C-position, would not be expected to block raising out of the raised subject carries the thematic role and the case along with it to the subject position of the epistemic modal verb, which is not assigned a theta-role by the modal. The pseudo-cleft facts discussed in 2.3 are also explained, of course, just the same way they were in the Danish case: Epistemic modal verbs do not assign a thematic role, hence they do not assign Case to their complement, hence they cannot occur with a wh-trace complement, because it needs Case (cf. also Sigurjónsdóttir 1989).

The reader may recall that some of the Icelandic modal verbs take complements with the infinitival ad whereas Danish modal verbs take bare infinitives. Since the Icelandic infinitival ad looks (and sounds, pace Holmberg 1986:164, n.7) like the finite clause complementizer ad ‘that’, it might seem natural to assume that all infinitival ad-complements in Icelandic are CPs. That is in fact what Sigurjónsdóttir (1989) argues, whereas Sigurðsson (1989) maintains that the ad-complements of modal verbs are IPs but the ad-complements of “regular” control verbs like reyn ‘try’ are CPs. This controversy need not concern us. What is important for our purposes is that the presence of infinitival ad, even in C-position, would not be expected to block raising out of modals because there is no that-trace phenomenon in Icelandic, as first shown by Maling and Zaenen (1978; see also Sigurðsson 1986:52). This is shown in (56):

(56) a. Hver heldur þu [aɔ tɔ vera bestur] Who you think you that ‘Hervor may be best.’

b. Þessi heldur [aɔ tɔ vera bestur] this I think I best ‘This one is the best.’

Hence the ECP is not violated in a raising analysis of a grammatical sentence like (57), even if ad is a complementizer:

(57) Haraldur kann [aɔ tɔ vera bestur] Harold may be best

Harold may be best.’ (= ‘It is possible that...’

We will return to the categorial status of modal complements in Icelandic in section 4.1. It seems, however, that none of the arguments given in section 3.2 for a raising (as
opposed to control) analysis of root modals in Danish can be reproduced for Icelandic. In particular, there is no ban against embedding event expressions under root modals in Icelandic:

    'He wants to get three cars in 1995.'

   b. Hún vill verða professor/rík.
    'She wants to become a professor/rich.'

(59) a. Hann verður að fá þrjá tíla.
    'He must to get three cars.
    'He must get three cars.'

   b. Hún verður að verða professor/rík.
    'She must to become professor/rich.'
    'She must become a professor/rich.'

In addition, there is no dichotomy in passive constructions comparable to the Danish blive vs. s-passives. In Icelandic the auxiliary vera 'be' is the normal passive auxiliary, the auxiliary verða 'become' being restricted to expressions with future sense and there is no systematic s-passive as in Danish (or other Mainland Scandinavian languages). But even the passives with verða can be embedded under root modals in Icelandic:

(60) Hún vill endilega vera konin forseti.
    'She wants by-all-means become elected president.'
    'She desperately wants to be elected president.'

Finally, as we will see in section 4, there does not seem to be anything gained from a raising analysis of Icelandic root modal constructions when it comes to explaining restrictions on Icelandic double modals.

The obvious alternative, then, is to assume a control analysis of root modal constructions in Icelandic, as suggested by Thráinsson (1985:260) and Sigurðsdóttir (1989), for instance. This implies, of course, that root modals assign a regular thematic role to their subject, as illustrated in (61):

(61)

Since the root modal assigns a theta-role to its subject, the behavior of the root modals in pseudo-cleft sentences illustrated in section 2.3 is predicted.

A control analysis of the root modals also explains the following set of facts (cf. Thráinsson 1985:253-254). First, it is well known that passive and active sentences have roughly the same truth conditions:

(62) a. Lögreglan leyta verkefnið.  
    'The police solved the problem.'

b. Verkefnið var leyat af lögreglunni.
    'The problem was solved by the police.'

Now it should be possible to embed these constructions under a raising verb and get roughly synonymous sentences, whereas no such correlation holds for control verbs, as originally discussed by Chomsky (e.g. 1965:22). Facts of this sort are well known and they have been pointed out in previous discussions of Icelandic (cf. Thráinsson 1979:410):

(63) a. Lögreglan virðist háfa leyat verkefnið. (raising)
    police-the seems have solved problem-the
    'The police seems to have solved the problem.'

   b. Verkefnið virðist háfa leyat af lögreglunni.
    problem-the seems have been solved by police-the
    'The problem seems to have been solved by the police.'

(64) a. Lögreglan reynyi að leyta verkefnið. (control)
    'The police tried to solve the problem.'

   b. *Verkefnið reynyi að vera leyat af lögreglunni.
    problem-the tried to be solved by police-the
    'The problem tried to be solved by police-the'

Now note that if epistemic modals in Icelandic are raising verbs but root modals are control verbs, we would expect them to pattern with the raising constructions and control constructions in (63)-(64), and that is exactly what we find (cf. Thráinsson 1986:254):

(65) a. Lögreglan kann að háfa leyat verkefnið. (epistemic)
    police-the can to have solved problem-the
    'The police may have solved the problem.'

   b. Verkefnið kann að hverið leyat af lögreglunni.
    problem-the can to have been solved by police-the
    'The problem may have been solved by the police.'

(66) a. Lögreglan kann vel að leyta svona verkefni. (root)
    police-the can well to solve such problems
    'The police are perfectly able to solve such problems.'

   b. *Svona verkefni kunna vel að vera leyat af lögreglunni.
    such problems can well to be solved by police-the
    'Such problems can well to be solved by police-the'

This can be considered an additional argument for analyzing Icelandic root modals as control verbs.

3.4 Non-argument subjects revisited

As already mentioned in sections 3.2 and 3.3, the analysis suggested here accounts for why expletive subjects are impossible with root modals, even though they are possible with epistemic modals. Since we have suggested somewhat different analyses for Danish and Icelandic root modals, it is worth looking at this in phenomenon in some detail.

First, consider sentences with control verbs like (22) in section 2.1 above, repeated here for convenience:

(22) a. *Der prøver at komme ti studenter til foredraget. (Da)
    b. *Daða reyna að koma til studentar á fyrirlesturinn. (Ic)

    there try to come ten students to talk-the
Schematically, we have an underlying structure like (67) (using the Danish words for illustration):

\[(67) \left[ \text{NP expletive} \right] \text{vil} \left[ \text{komme \ NP ti studenter} \right] \]

The embedded verb *komme* has one theta-role to assign and let us assume it assigns it to the NP *ti studenter* (as it would in an unaccusative analysis of *komme*). The matrix verb *vil*, on the other hand, cannot assign its theta-role to the semantically empty expletive and it cannot assign it to the NP *ti studenter* either, presumably because it is "too far away" in some sense (and the infinitival verb *komme* intervenes). This works exactly the same way in and Icelandic.

Now consider constructions with modal verbs, as in the sentences in (23) in section 2.1, repeated here for convenience:

\[(23) \text{a. } \text{Der vil komme ti studenter til foredraget.} \quad \text{('There will come ten students to the talk.' )} \]
\[(23) \text{b. } \text{bad kunna sň hlusta ti studentar s fyrirlesturinn.} \quad \text{('Ten students may listen to the talk.' )} \]

As already discussed, only the epistemic readings are possible here and they are straightforwardly accounted for in terms of theta-role assignment (using Danish again for illustration):

\[(68) \left[ \text{NP expletive} \right] \text{vil} \left[ \text{komme \ NP ti studenter} \right] \]

Here the embedded verb *komme* can again assign its theta-role to the NP *ti studenter* in the epistemic sense the modal *ville* has no theta-role to assign, so no problem arises. The same is true for the Icelandic modal *kunna* in the epistemic sense.

For the root modals, on the other hand, we have suggested different analyses for Danish and Icelandic. For the root-interpretation of the Danish modal *ville* the relevant structure would be the same as in (68). The only difference would be that Danish root modals have an additional theta-role to assign. Since they cannot assign the additional theta-role to a semantically empty expletive, sentences like (23a) cannot have the root sense. But since Icelandic root modals are control verbs, the reason why the root sense is impossible in the Icelandic sentence (23b) is exactly the same as the one given for the control verbs in (22) and (67) above: The root modal cannot assign its thematic role to the semantically empty expletive and it cannot assign it either to the indefinite NP that follows the infinitive verb because it is too far down in the structure.

We are now in a position to see why some constructions with expletive subjects are nevertheless possible with root (and epistemic) modals in Icelandic, though not in Danish:

\[(69) \text{a. } \text{Der kan ti studenter komme til foredraget.} \quad \text{('There will come ten students to the talk.' )} \]
\[(69) \text{b. } \text{bad kunna sň hlusta ti studentar s fyrirlesturinn.} \quad \text{('Ten students may listen to the talk.' )} \]

As already discussed, only the epistemic readings are possible here and they are straightforwardly accounted for in terms of theta-role assignment (using Danish again for illustration):

\[(70) \left[ \text{NP expletive} \right] \text{vil} \left[ \text{komme \ NP ti studenter} \right] \]

We see, then, that the discussion in 2.1 was somewhat simplified since there we only considered cases with expletives where the indefinite NP could not possibly be licensed by the definite modal (or control) verb. When the cases are taken into consideration where the modal verb itself is the licenser (via its moving into or through *I*), in the system assumed here, the picture is more complex. Nevertheless, we hope to have shown that all the cases can be accounted for in a way compatible with the analysis proposed in the preceding sections.

4. Double modals in Scandinavian and English

4.1 Differences between English and Scandinavian

First, recall that there are some important differences between English and Scandinavian modal verbs, as mentioned in section 1.1. Thus the modal verbs agree in person and number with the subject, just like any other finite verb, in Icelandic and Faroese, whereas English modal verbs do not take the 3rd person sg. -s as other verbs do. We repeat examples from section 1.1 for illustration:

\[(71) \text{a. } \text{Bengt har kunnat tala grekiska.} \quad \text{('Bengt has been able to speak Greek.' )} \]
\[(71) \text{b. } \text{Han har villet tjene mange pengar.} \quad \text{('He has wanted to earn many money.' )} \]
\[(71) \text{c. } \text{Viil munum koma.} \quad \text{('We will come.' )} \]

In addition, the modal verbs occur in non-finite forms in the Scandinavian languages whereas they do not in English. Again, we repeat examples from section 1.1:

\[(72) \text{a. } \text{Bengt har kunnat tala grekiska.} \quad \text{('Bengt has been able to speak Greek.' )} \]
\[(72) \text{b. } \text{Han har villet tjene mange pengar.} \quad \text{('He has wanted to earn many money.' )} \]
\[(72) \text{c. } \text{Viil munum koma.} \quad \text{('We will come.' )} \]
It should also be noted that the double modal constructions in Scandinavian are of a very
different nature than those that can be found dialectally in English. As implied by our analyses so 
far, the first modal verb looks like a regular finite verb whereas the second modal in a double 
modal construction seems to behave like any other non-finite (embedded) verb. Thus while the 
special status of the English double modal constructions is very evident in question inversion, as 
shown in (72) (cf. Battistella 1992), only the first modal can precede the subject in direct yes/no 
questions in Scandinavian, as illustrated in (73)-(74):

(72) a. You might could buy that at Bruno's.
b. *Might you could buy that at Bruno's?
c. Could you might buy that at Bruno's?
d. Might could you buy that at Bruno's?

(73) a. De skal ville bygge et hus. (Da)
b. Skal de ville bygge et hus?
c. *Ville de skal bygge et hus?
d. *Skal ville de bygge et hus?

(74) a. Hann verður að kunna að synja.
   'He has to be able to swim.'
b. Verður hann að kunna að synja?
   'Does he have to be able to swim?'
c. *Kunna hann verður að (að) synja?
d. *Verður að kunna hann að synja?

This indicates that the Scandinavian double modal construction is very different from the dialectal 
double modals of Modern English.

One question that could be raised here is to what extent modal complements are "clausal" 
in nature in different languages. In other words, do the two modal verbs belong to different 
clauses or are they members of the same clause? Is there, for instance, a difference in "clause- 
hood" between English and Scandinavian modal complements? As the reader has undoubtedly 
noticed, we have been fairly non-committal about the categorical status of the Scandinavian modal 
complements discussed here. The main reason for this is that we did not want to complicate the 
argumentation since most of the arguments we have considered are to some extent independent 
of the exact phrasal category of these complements and also independent of the framework 
assumed. But whether or not a given type of complement is considered "clausal" will depend very 
heavily on the framework chosen. Consider the following partial structures:

(75) a. Comp S' 
   NP 
   S 
   v 
   VP 
   NP 
   b. Spec CP C' 
      Spec I' 
      Spec VP V' 
      Spec I 
      Spec v 
      Spec' 
      VP 
      Spec 
      v' 
      v 
      NP 

In a framework like (75a), it is fairly clear that a clausal complement would be either S' or S. A 
VP-complement would not be "clausal" in any sense, as it would not even have a syntactic subject 
at any stage of the derivation (cf. the controversy on the VP-complement analysis of infinitives 
exemplified by Andrews (1976) and Koster and May (1982), for instance). If we, on the other 
hand, assume something like (75b), together with the so-called "VP-Internal Subject Hypothesis", 
(see e.g. Burton and Grimshaw 1992 and references cited there), the difference between VP and 
the higher (functional) projections in terms of clausal properties is not as clear as before. More 
specifically, a raising analysis of modal complements, for instance, does not necessarily imply that 
they are "more clausal" than a VP under this hypothesis. A partial derivation of a Danish raising 
modal, consistent with this hypothesis, could look like (76):

(76) ... IP I' VP 
   Spec v V' VP 
   Spec I' VP V' 
   Spec VP V' 
   Spec CP C' 
   Spec' T' T 
   Spec VP V' 
   Spec NP 

dey 
   skal 
   ti 
   ville 
   ti 
   bygge 
   et 
   hus 
   "They are said to want to build a house."

Under an analysis like this, the subject of a Danish double modal construction of this type would 
be base-generated in the lowest SpecVP and assigned a thematic role by the non-modal main verb, 
rased to SpecVP of the root modal (where it would acquire an additional thematic role (cf. the 
discussion in 3.2 above)), then raised again to SpecVP of the higher modal (which is epistemic 
in this case and thus does not assign any thematic role) and then moved to the canonical SpecIP 
position.30

It is frequently assumed that English modal verbs and (other) auxiliaries are base-generated 
in the I-position in structures like (75b) rather than under a V-node like regular verbs. This is 
meant to reflect their special status. One could, of course, assume a similar analysis of epistemic 
modals in Danish. That would mean leaving out the topmost VP in (76) and base-generate skal 
under I instead of the topmost V. The problem with such an analysis is that modal verbs are just 
like any other finite verbs in Danish in that they follow adverbials like the negation in embedded 
clauses, as illustrated in (77):

(77) a. 
   b. 
   c. 
   d. 

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contain more "functional projections" and are in that sense more clausal than the (raising) modal 
by Danish root modals and the restriction that a given argument can only carry one additional 
thematic role. This prediction is borne out in examples like the ones in (78) (cf. Vikner 1988: 10):

If negation is adjoined to VP in Danish, as is frequently assumed (cf. Vikner 1994, fn. 5; see also 
Thráinsson 1994), then the modal verb skal should precede it in embedded clauses of the type 
exemplified in (77) if it were base generated under I. But if epistemic modals in Danish are base 
generated under V like other verbs and Danish has no V-to-I movement in embedded clauses 
(except in the complements of bridge verbs, cf. Vikner 1994a and 1994), then the word order in 
(77) is just as expected. As can be seen from the gloss, on the other hand, the English modal shall 
would precede the negation. That would be consistent with its being base generated under I or 
moved to I in English. But nothing in our analysis indicates that there is any difference in 
"clausehood" between, say, English modal complements and the complements of Danish epistemic 
modals.

We have argued elsewhere, on the other hand, that complements of Icelandic control verbs 
contain more "functional projections" and are in that sense more clausal than the (raising) modal 
complements in Danish. Thus Johnson & Vikner (1994) argue (as does Vikner 1992) that Icelandic 
control complements are CP's. Thráinsson (1993), on the other hand, has argued that there is even 
a difference between complements of regular control verbs and complements of modals in 
Icelandic, which can be accounted for assuming an expanded IP as in (75c). It would not directly 
serve our present purposes, however, to go further into the syntactic details of these analyses here. 
Hence we will instead turn to restrictions on the Scandinavian double modals. We will review 
these and see which ones can be explained syntactically in terms of the analyses suggested here 
and which ones must await further investigation.

4.2 Restrictions on double modals in Scandinavian

4.2.1 Root modals under root modals

The analyses outlined in section 3 only make one prediction as to restrictions on double modals 
in Danish and Icelandic: It should be impossible to embed root modals under root modals in 
Danish under the raising analysis suggested for these, because of the additional theta-role assigned 
by Danish root modals and the restriction that a given argument can only carry one additional 
thetaic role. This prediction is borne out in examples like the ones in (78) (cf. Vikner 1988:10):

This is clearly unexpected, assuming the same analysis for kunne as other Danish root modals. But 
there is actually independent evidence that kunne is different from other root modals in Danish. 
Recall that event expressions with fā 'get' and blive 'become' typically cannot be embedded under 
Danish root modals, as illustrated in section 3.2 above. This restriction does not hold for the root 
modal kunne, as shown in (80) (cf. Vikner 1988:18):

The verb kunne in these examples may have the root sense of permission or ability. It seems 
therefore that we need a different analysis of the root modal kunne. One possibility would be to 
say that root kunne is like epistemic verbs in that it does not assign any theta-role to its subject (cf. 
Vikner 1988:22-23). That is not entirely satisfactory, however, since root kunne patterns with 
other root modals and not with epistemic modals in the pseudo-cleft construction, as we saw in 
section 2.3 above. This is also illustrated in (81) (cf. Vikner 1988:11):

Another possibility would be to analyze root kunne as a control verb, along the lines suggested 
above for Icelandic root modals. Such an analysis would obviously be compatible with the pseudo­ 
cleft facts in (81) and should not create problems for an account of the double modal constructions 
in (79) or the event expressions in (80) since no clash of two additional thematic roles would be 
involved. But such a solution has its problems too, as pointed out in footnote 28.

As pointed out by Vikner (1988:9-10), however, the root modal kunne 'can, be able to' appears 
to be an exception here in that it can be embedded under other root modals:

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Thus it is not surprising from a syntactic point of view to find epistemic modal verbs embedded under epistemic modals in Icelandic:

There are, however, restrictions on the embedding of epistemic modals under epistemic modals in Scandinavian. As shown in Vikner (1988:9-10), it seems that epistemic + epistemic combinations are only good if the second verb is kunne:

4.2.2 Epistemic modals under epistemic modals

Since we have suggested here that epistemic modal verbs are like "regular" raising verbs in not assigning any thematic role to their subject, there is no clear syntactic reason to expect restrictions on double epistemic modals in Scandinavian. Non-modal raising constructions can be embedded under raising verbs in English, Icelandic and Danish, as shown in (85):

(85) a. He seems to be believed to be smart.
    b. *Hann virðist vera talinn vera gíði.
    c. *Han ser ud til at forekomme hende at være begavet.

Thus it is not surprising from a syntactic point of view to find epistemic modal verbs embedded under epistemic modals in Icelandic:

There are, however, restrictions on the embedding of epistemic modals under epistemic modals in Scandinavian. As shown in Vikner (1988:9-10), it seems that epistemic + epistemic combinations are only good if the second verb is kunne:

(87) a. Det må kunne stå på en side.
    b. Der vil kunne gå noget galt.

Otherwise double epistemic modals tend to be ungrammatical in Danish:

It is totally mysterious under our analysis why kunne should again behave in a special way.31

We have no syntactic explanation to offer for this at present.

4.2.3 Root modals under epistemic modals

There do not seem to be any particular restrictions on embedding root modals under epistemic modals in Scandinavian, and none are expected under our analyses. Thus the following are all fine (cf. Vikner 1988:9):

(88) a. *Han vil skulle have læst bogen.  
    b. *Han skal ville opføre sig pant.

We do not have any particular solution to offer under the control analysis of root modals suggested here. But we emphasize that these restrictions are not really unexpected since there are also known to be restrictions on embeddings under "regular" control verbs. Note the examples in (84), for instance:

(84) a. *Hann reynði að eiga að synda.
    b. *Hún vonaest til að hljóta að fara.

Despite this, all combinations of epistemic modal verbs with munu and skulu as the second element seem to be bad:

(89) a. *Skulu komu munu reka á land.
    b. *Mig skal við munu reka á land.
    c. *Han skal við munu reka á land.

We have no syntactic explanation to offer for this at present.

(90) a. *Mig mun skulu reka á land.
    b. *Mig skal við munu reka á land.
    c. *Mig skal við munu reka á land.

(91) a. *De skal ville bygge et hus.
    b. *Han vil ville bygja hóde.
    c. *Han vil can svømme over Kanalen.

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This is probably the most common and natural type of double modals in Scandinavian.

4.2.4 Epistemic modals under root modals

Finally, we have not been able to come up with recent examples of epistemic modals embedded under root modals. The following, for instance, are all bad (cf. Vikner 1988:9):

(92) a. *De vil gerne skulle have tjent en million. (Da)
   (Intended meaning: 'They want much shall have made a million.')
   he must to can to do to swim
   (Intended meaning: 'He has to be able to swim.')
   c. *Han verður að kunna að kunna að syna. (Ic)
   (Intended meaning: 'He has to be able to swim.')
   d. *Ég verð að vilja reka & land. (Ic)
   (Intended meaning: 'I have to tend to drift ashore.')

This is hardly surprising from a semantic point of view. Since epistemic modals predicate of one of the arguments (typically the subject) whereas root modals predicate of one of the arguments (typically the subject), it is unlikely that root modals can take scope over epistemic modals. The fact that the judgments seem to vary somewhat between Danish and Icelandic may indicate that the verbs in question do not have exactly the same meaning in the two languages.

5. Double modals in Old Norse

Finally, it would be interesting to study the development of modal verbs in general and double modals in particular in the Scandinavian languages from the common Old Norse language to the present. While we have not undertaken a diachronic analysis of that kind we have studied a collection of double modals from the Icelandic Sagas, provided by Eirikur Rognvaldsson. The data is drawn from a recent edition of the Sagas (Íslendinga sögur 1985-1986), which will soon be available to linguists and other researchers in a computer accessible form on a CD (cf. Rognvaldsson 1991). The language of the Sagas may be considered to be representative of Old Icelandic prose from the 13th - 14th centuries, depending on individual Sagas and the manuscripts preserved. It is likely that all the Scandinavian languages or dialects were similar at this point with respect to the phenomena under discussion. What follows are just a few remarks on the modals and double modals found in the corpus mentioned above.

First, it should be noted that at least some of the modal verbs appear to have had epistemic sense in Old Icelandic. Note the following, for instance (cf. Rognvaldsson 1991:374 - the name of the Saga in question and a page reference to the edition used is given in parentheses after the gloss):

(94) Ei mun þig hér mat skórtu.
   'You are not going to lack food here.'
   (Svarfíða saga, p. 1806)

If we accept Rognvaldsson’s conclusion that “there seems to be no reason for assuming that the status of quirky subjects is different in Old Icelandic than in Modern Icelandic” (1991:377), then we have here a case of a quirky subject of a modal verb and we have seen that this would seem to suggest a raising-type epistemic modal (cf. section 2.2 above).

Second, it should be noted that most of the examples of double modals in the Sagas are instances of root modals embedded under the epistemic modals munu ‘will’ and skulu ‘shall’. As we saw above, the epistemic + root combination is the most common and natural type of double modals in the modern languages and it is possible that the verbs munu and skulu developed epistemic sense earlier than the other modals or are more common in the epistemic sense than other modal verbs. A few representative examples are given in (95):

(95) a. að þu skalt eyg kunna frá þiðindum að segja...
   'that you will not be able to tell news to tell
   'that you will not be able to tell any news.'
   (Njála, p. 129)
   b. Fleiri munu kunna að höggva stórt en þu einn...
   'More people than you will be able to strike great blows.'
   (Njála, p. 165)
c.  

\[
\text{pví að menn munu vilja hitta þig.} \\
\text{for that men will will meet you} \\
\text{\hspace{1cm} because some men will want to meet you.}
\]

(Hamna-Þóris saga, p. 1420)

d.  

\[
\text{að Ólókfrí skyldi eigi lengi þurfa síms} \\
\text{hiuta að búaða...} \\
\text{that O. \hspace{1cm} should not long need self's share to wait} \\
\text{\hspace{1cm} that Ólókfrí would not have to wait long for his share.}
\]

(Ólókfrí saga, p. 2076)

There are, however, a few subjectless ("impersonal") constructions with double modals that could perhaps be interpreted as epistemic + epistemic. This is illustrated in (96):

\[
\text{96a. ef ekki skal mega sjá ð ykkur að þið hafið þardaga verið.} \\
\text{if not shall may see on you that you have in light been} \\
\text{\hspace{1cm} if it is not going to be possible to see that you have been fighting.} \\
\]

(Njála, p. 199)

\[
\text{96b. að þig mun mega færa nauðigan ð konungs fund.} \\
\text{that you(A) will may bring unwilling to king's meeting} \\
\text{\hspace{1cm} that it will be possible to take you unwillingly to the king.} \\
\]

(Olafsfjörður, p. 199)

Finally, it should be noted that the second modal verb in double modal constructions sometimes follows its complement. This is not surprising since OV order is quite frequent in Old Icelandic texts (cf. Sigurðsson 1988). This is illustrated in (97):

\[
\text{97a. eigi veit eg hvort þeir munu taka vilja settur.} \\
\text{not know I whether they will take will settlement} \\
\text{\hspace{1cm} 'I don't know whether they will want to reach a settlement.'} \\
\]

(Njála, p. 231)

\[
\text{97b. Deðan mun sigla mega inn til Drangejyar...} \\
\text{from-there will sail may in to Drangey} \\
\text{\hspace{1cm} 'From there it will be possible to sail to Drangey.'} \\
\]

(Grettis saga, p. 1077)

We conclude, then, that epistemic + root and apparently also epistemic + epistemic double modal constructions can be found in the language of the Sagas, and probably also in other types of Old Icelandic or Old Norse texts.

6. Concluding remarks

In this paper, we have given an overview of the semantic and syntactic properties of modal verbs in Scandinavian (even if we had to limit ourselves to Danish and Icelandic for the most part).

In the introduction and in section 4, we tried to show in what respects Scandinavian modals differ from their English counterparts, whereas elsewhere in the paper, particularly in section 3, we discussed the respects in which Danish and Icelandic modals differ from each other.

In section 1 we attempted to define the class of modal verbs, and here we found particularly relevant the semantic distinction between epistemic and root readings. In section 2, we discussed some syntactic consequences of this semantic distinction, especially with respect to non-argument subjects, subjects with quirky case, and pseudo-clefts.

Section 3 suggested a syntactic analysis of the distinction between epistemic and root. According to this analysis, epistemic modals do not assign any thematic roles at all whereas root modals do: Root modals assign a "normal" theta-role in Icelandic and an "additional" theta-role in Danish. In other words, epistemic modals are like raising verbs in both languages, root modals are like control verbs in Icelandic, but root modals in Danish have a status somewhat in-between these two categories: Danish root modals are like control verbs in that they do assign a theta-role, but they are like raising verbs in that an argument which is base-generated as an argument of the embedded main verb is moved into the subject position of the modal verb (where it is then assigned an "additional" theta-role). It was furthermore shown how these proposals could account for a wide range of data concerning not only the phenomena discussed in section 2 but also e.g. the difference between state and event predicates as well as various constructions involving passive main verbs.

We addressed the possible and impossible combinations of two (or more) modals in section 4, and found that a number of facts fall out as expected on the basis of the syntactic properties of the analysis proposed, for others a plausible semantic account suggested itself (such as for the impossibility of embedding epistemic modals under root modals), but some had to be left unaccounted for here. This section discussed some differences between modal combinations in Scandinavian and those found in various dialects of English, e.g. that the second of two modals is always an infinitive in Scandinavian whereas it would seem to be (and behave like) a finite verb in the English construction.

Finally, section 5 gave some examples of modal combinations in Old Norse, the common ancestor of Danish and Icelandic, and we found no reason to assume that the properties of Old Norse differ significantly from the modern languages with respect to combinations of modals.

References


This paper was originally written in the summer of 1992 and revised in the summer of 1993. It was written for a volume on double modals, but for reasons mysterious to us this volume has never materialized. The paper is partially based on two earlier papers of ours, namely Thorlindsson 1986 and Vikner 1988, but we have had to change our previous ideas to some extent, especially in light of the comparative evidence that our recent work has uncovered. We have also benefited greatly from the work of various colleagues, especially Davidsen-Nielsen (1990), whose influence should be particularly evident in the first sections of the paper. We also owe special thanks to Eiríkur Røgnvaldsson for providing us with examples of double modals from the Sagas. Parts of this material were presented in classes at Harvard University in the fall of 1992 and spring of 1993, and to the Jersey Syntax Circle in December 1992 and the audience deserves thanks for many useful comments. Special thanks also to Carl Vikner, Sabine Latréou, Akira Watanabe, Erich Great, Johannes Gíslason, Samuel D. Epstein, Carole Chaski, Joan Maling, and Rex Sprague for comments, judgments and suggestions. None of their people should be held responsible for the ways in which we have (or have not)

4. This class is sometimes called "subject oriented" since "the source of the modality is the referent of the subject noun phrase" (Davidsen-Nielsen 1990:44). As the gloss indicates, this appears to be true for English have-constructions too.

5. There are modals in the languages under discussion. See Davidsen-Nielsen (1990:45) for discussion.

6. The label "volition" here is not only meant to cover pure volition like Danish vilje 'will, want to' but also "intentional" verbs like Icelandic skala 'intend' and "courage" verbs like Danish turde 'dare'. A more detailed subclassification is irrelevant for our purposes, however.

13. For a detailed analysis of expletives and weather jafðaðar in Scandinavian see Vikner (1995, chapter 7). He argues, for instance, that the "weather words" are arguments rather than true expletives. Such differences are not crucial here, nor are the differences in behavior between overt expletives in Icelandic and Mainland Scandinavian discussed in Vikner and references cited there. What matters is that weather words are licensed by weather expressions and can be raised to a position that is not assigned a thematic role.

14. Note that although English promise can be used as an epistemic modal (or at least a raising verb), Danish love and Icelandic ljofa 'promise' cannot. Hence these verbs are not considered modals here (cf. also that Danish vilje takes an infinitival complement with at whereas Danish modal verbs in general do not).

15. Again, the potential distinction between non-arguments and quasi-arguments is not important for our purposes.

16. Note, however, that in all these cases the infinitival "complement" has the infinitival at/at. This is both true in Danish where the complements of modals do not have the infinitival at and in complements of Icelandic modal verbs like vilje 'will' which also do not take infinitival at as a rule. Who have no explanation for this phenomenon.

17. In this case and some of the following, (the demonstrative pron.) 'that' might be a more appropriate gloss than the (personal pron.) 'it' for jafð. The same holds for some of the instances below where det is glossed as 'it'. There is no morphological difference between a demonstrative and personal pronoun in the neuter in Icelandic or Danish.

similar "reportive" meaning as Danish skala: Havn skal vist vera skemningar 'I think he is said to be interesting.'
18. As Johannes Gløi Jonsson has pointed out to us, some root modals seem more reluctant than others to occur in the pseudo-cleft construction. Thus (ib) seems rather unnatural:

(i) a. Jón verður að selja bilinn.
   J. has-to sell the-car
   'John has to sell the car.'

   b. *Það sem Jón verður er að selja bilinn.
   it that J. has-to is to sell the-car
   'What John has to do is to sell the car.'

   It seems necessary to add the verb geru 'do' to make (ib) good:

   (i) a. *Það sem Jón verður að geru selja bilinn.
   it that J. has-to do is to sell the-car
   'What John has to do is to sell the car.'

   We have no explanation to offer for this.

19. Whatever the reason for this topicalization requirement, we note that something similar holds in English in constructions like these:

   (i) Will you help me with my homework tomorrow?
      That I certainly will.
      *It I certainly will.
      *I certainly will that.
      *I certainly will it.
      I certainly will do that.

20. The wh-trace in a pseudo-cleft construction can also show up in subject position or in the position of a prepositional object, both of these being case marked positions:

   (i) a. Den enestæder [der tj kan rede os nu] er Superman. (Da)
      the only that I can save us now is Superman
      (Da)

   b. Det enestæder [som kan han ikke var forberedt på tj] var
      the only that he not was prepared for was
      that you would show up

   21. Since the choice of an Agr or TP or even CP complement is not really important for our purposes here, we have left the complement unlabelled. For some discussion of Scandinavian infinitival complements see Jonsson and Vikner (1994), Thransson (1993) and references cited there. See also the discussion in section 4.1 below.

22. Interestingly, however, the state-expressions are ambiguous when embedded under the root modals: in addition to the state meaning they can take on the event meaning. If the event meaning follows from the additional thematic role, as suggested in the text, then one would expect the event meaning itself to be incompatible with the root modals, not just the event expression (cf. Vikner 1988:20). We recognize this as a potentially serious problem for our analysis, but we note that it originates in object position and that verbs taking quirky subjects are unaccusative (or ergative). It is obvious that it is the embedded verb that determines the case and the thematic role of the quirky subject, not the epistemic modal verb. Where, when or how the embedded verb does this is immaterial.

23. As Vikner (1988:23-24) points out, however, it is not entirely clear how to explain the fact that s-passives are ungrammatical with epistemic modals (cf. also Davidsen-Nielsen 1990:21; Skyum-Nielsen 1971:73).

24. As Vikner (1988:23-24) points out, however, it is not entirely clear how to explain the fact that s-passives are ungrammatical with epistemic modals (cf. also Davidsen-Nielsen 1990:21; Skyum-Nielsen 1971:73).

   (i) a. Politiet ser ud til at have løst problemet. (raising)
      The police seems to have solved the problem.

   b. Problemet ser ud til at være blevet løst af politiet. (raising)
      The problem seems to have been solved by the police.

   (ii) a. Politiet prøvede at løse problemet. (control)
      (i) a. *Politiet prøvede at have løst problemet.
      (i) a. Politiet prøvede at blive løst af politiet.

   b. Problemet prøvede at løse problemet.
      The problem tried to be solved by the police

   c. *Problemet prøvede at løses af politiet.
      the problem tried to be solved by the police

   (iii) a. Politiet kan have løst problemet. (epistemic)
      The police may have solved the problem.

   b. Problemet kan være blevet løst af politiet.
      'The problem may have been solved by the police.'

   (iv) a. Politiet kan godt løse problemet. (root)
      The police can easily solve this type problem
      'The police can easily solve such problems.

   b. *Der har passiver som ord blevet løst af politiet.
      *The passive can have been solved by the police
      'Such problems can easily be solved by the police.'

   25. Sigurjonsdottir (1989) assumes that the complementizer að properly governs the empty category in sentences like this - and that is why we do not get an ECP violation here.

   26. The so-called s-passives in Icelandic correspond historically to the Mainland Scandinavian s-passives, but these only rarely have a passive sense, the more typical senses being anti-causative, reflexive or reciprocal (cf. Anderson 1990; Ottunsson 1986).

27. It should be pointed out that Danish seems to differ from Icelandic here. Thus compare the following examples to (65)-(68), respectively:

   (i) a. Politiet ser ud til at have løst problemet. (raising)
      'The police seems to have solved the problem.'

   b. Problemet ser ud til at være blevet løst af politiet. (raising)
      'The problem seems to have been solved by the police.'

   (ii) a. Politiet prøvede at løse problemet. (control)
      'The police tried to solve the problem.'

   b. *Problemiet prøvede at blive løst af politiet.
      *The problem tried to be solved by the police

   c. *Problemet prøvede at løses af politiet.
      *The problem tried to be solved by the police

   (iii) a. Politiet kan have løst problemet. (epistemic)
      'The police may have solved the problem.'

   b. Problemet kan være blevet løst af politiet.
      'The problem may have been solved by the police.'

   (iv) a. Politiet kan godt løse problemet. (root)
      'The police can easily solve this type problem
      'The police can easily solve such problems.'

   b. *Der har passiver som ord blevet løst af politiet.
      *The passive can have been solved by the police
      'Such problems can easily be solved by the police.'

   28. The licensing differences between Danish and Icelandic just discussed can also be seen in examples like the following:

   (i) a. *Der er blevet spist et æble her.
      (Da)
      There has somebody eaten an apple here

   b. *Der har nogen spist et æble her.
      (Da)
      There has somebody eaten an apple here

   (ii) a. bað hefur verið bórðað epí hér.
      (1c)
      There has somebody eaten apple here

   b. *bað hefur einhvær bórðað epí hér.
      (1c)
      There has somebody eaten apple here

   (iii) a. *Der prøvede nogen at stjæle et æble.
      (Da)
      *The nongene tried to steal an apple

   b. *bað reyndi einhvær að stjæla epí.
      (1c)
      *Somebody tried to steal an apple

   c. *Sommebody tried to steal an apple
      'Somebody tried to steal an apple.'

   (a) is fine in Danish since there is no NP to be licensed in the I" position, but (ib) is bad where such a licensing would be required. Both (ia) and (ib) are fine in Icelandic, on the other hand, since the relevant NP can be licensed by I" in (ib). Similarly, if we look at the sentences with control verbs in (iii), we see that (iia) is bad in Danish but the corresponding (iiib) is fine in Icelandic, as expected.
29. One could argue, of course, that the Icelandic modals are more "vernal" than their Danish counterparts since they do not only show tense distinctions but also person and number distinctions (cf. Groø 1993), but this is a more general difference between verbs in Icelandic (and to some extent also Faroese) on the one hand and Danish (and Norwegian and Swedish) on the other.

30. We are not considering the V2 effects here since they are irrelevant for the points being made.

31. It is interesting to note that the English modal can/could figures prominently as the second element of many of the attested double modal constructions in Modern English. Note also that although it is sometimes said that epistemic modals must precede all auxiliaries (or aux-like verbs) in Swedish (cf. Platzack 1993:46), sentences like the following are acceptable in Swedish (cf. Thörnqvist 1986:262, n.13):

\[\text{Det är kunna hända att flygplan kolliderar i luften.} \]

\[\text{It is said can happen that airplanes collide in air-the} \]

\[\text{It is said that it may happen that airplanes collide in mid air.}\]

Note that here too the second modal is kunna 'can'. Thus it seems that can and its cognates may have some special properties worth investigating in more detail.

32. They do not, however, have a past participle (or supine) form, although it is reported that skulu 'shall' may have a supine dialectally, as evidenced by the example hefolt skulu 'had should' from Northern Iceland, cited by Guðmundsson (1977:323, n.7; see also Rognvaldsson 1983:18, n.11).

33. As Sabine Iatridou has pointed out to us, it would be interesting to investigate the scopal interaction between tense and epistemic vs. root modals (cf. also Iatridou 1990), but such investigations are beyond the scope of this paper.

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