Liberalizing modals and floating clause boundaries[*]

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Abstract. In this paper, the distribution of modals in Icelandic *that*-clauses is explored. It will be shown that the presence of certain modals overturns restrictions on root transformations and extraction. Based on this finding, the paper makes two claims: (i) the size of the left periphery is constant irrespective of selectional properties of matrix verbs, and (ii) the observed differences between root and non-root environments arise from a difference in how much of the left periphery of the complement clause is part of the matrix predicate itself. The presence of modals decreases the amount of structure available to the matrix verb.

1   Introduction

In this paper, the distribution of modals in Icelandic *that*-clauses will be explored. We will see that the presence of certain modals overturns restrictions on root transformations and availability of extraction in specific environments. More precisely, some modals overturn:

(i)   *restrictions on embedded V2*
(ii)   *ban on extraction from islands*

I will present data that demonstrate in which way modals affect non-root environments. In terms of a syntactic analysis, I make two claims concerning the selectional properties of matrix verbs. Unlike previous analyses, e.g. Haegeman (2006) and Hrafnbjargarson et al. (2007), where it is argued that embedded clauses differ with respect to the amount of projections present in the left periphery, I follow e.g. Haegeman (2007) by assuming that the size of the left periphery is constant. In contrast to Haegeman (2007), however, I

will not argue in favor of an analysis of covert operator movement. Instead, I will argue that the observed differences between root and non-root environments may be deduced from differences in how much of the left periphery of the complement clause is employed, or "taken over", by the matrix verb. As will become clear, the idea is that matrix predicates that do not allow root phenomena such as non-subject initial V2 in their complements employ parts of the embedded left periphery to spell out parts of their meaning. Predicates that allow root phenomena do not.

2   Background: Embedded V2

According to standard assumptions about the Scandinavian languages, Mainland Scandinavian (i.e. Danish, Norwegian, and Swedish) and Faroese display limited embedded V2 in the sense that both subject-initial and non-subject initial V2 is restricted to the complements of so-called *bridge verbs* (e.g. Vikner 1995). Unlike these languages, Icelandic has been claimed to always allow embedded V2, also in the complements of non-assertive and factive predicates (e.g. Magnússon 1990, Rögnvaldsson and Thráinsson 1990, Vikner 1995).

(1)   a. *Jon   tvivlar på   att   i morgon   vaknar Maria   tidigt.
         John   doubts   *that tomorrow   wakes Mary   early*
      b. *Jon   ångrar   att   den här boken   har   han   läst.
         John   regrets   *that this here book   has   he   read*

(2)   a. Jón   efast um   að   á morgun   fari   María   snemma á fætur.
         John   doubts   *that tomorrow   get   Mary   early   up*
      b. Jón   harmar   að   þessa bók   skuli   ég   hafa lesið.
         John   regrets   *that this book   shall   I   have read*

A closer investigation reveals that none of the Scandinavian languages display generalized embedded V2 in the sense that both subject-initial and non-subject-topicalization are possible across the relevant environments.

Wiklund et al. (2008) study embedded V2 in Faroese, Icelandic, Norwegian, and Swedish. Their investigation shows that Faroese and Icelandic (or at least varieties of these languages) are subject to the same

restrictions on V2 word order as the other Scandinavian languages. Wiklund et al. test at least two predicates from the five predicate classes in Hooper and Thompson (1973), Class A (strongly assertive predicates – *say*), Class B (weakly assertive predicates – *believe*), Class C (non-assertive predicates – *doubt*), Class D (factive predicates – *regret*), and Class E (semi-factive predicates – *discover*), see Table 1.[1] A brief description of each class will be given in the next section.

Table 1: *Predicate classes*

Class A	Class B	Class C	Class D	Class E
say	*believe*	*doubt*	*regret*	*discover*
Claim	*think*	*deny*	*be sad about*	*understand*

With respect to the possibility of subject-initial and non-subject initial V2, Class A, B, and E pattern alike; in the complements of these predicates, both V2 word orders are unrestricted. This is illustrated by a Class A predicate from Swedish in (3), and for Icelandic in (4).

(3) a. Han sa   att   han **kunde inte** sjunga på bröllopet.
        he   said that he   could not sing   on wedding-the
     b. Han sa   att **den här sången**   kunde han sjunga på bröllopet.
        he   said that this here song-the could he   sing   on wedding-the

(4) a. Hann sagði að   hann **gæti ekki** sungið í   brúðkaupinu.
        he   said that he   could not   sung   in wedding-the
     b. Hann sagði að **þetta lag** gæti hann ekki sungið í   brúðkaupinu.
        he   said that this song could he   not sung   in wedding-the

Class C predicates behave differently depending on language. Neither of the two V2 word orders (V>Neg or non-subject initial V2) are allowed in the complements of Class C predicates in Norwegian and Swedish, whereas only

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non-subject initial V2 is restricted under such predicates in Icelandic and Faroese.[2] This is illustrated for Swedish in (5) and for Icelandic in (6).

(5) a. *Han tvivlar på att hon **har inte** träffat den här mannen.
he   doubts on that she has not met   this here man-the
b. *Han tvivlar på att **den här mannen** har hon inte träffat.
he   doubts on that this here man-the   has she not met

(6) a. Hann efast   um   að   hún **hafi ekki** hitt þennan mann.
he   doubts about that she has not   met this man
b. *Hann efast   um   að   **þennan mann** hafi hún ekki hitt.
he   doubts about that this man   has she not met

Complements of factive predicates (Class D) pattern with complements of non-assertive predicates (Class C). In Faroese and Icelandic, only non-subject initial V2 is restricted in the complements of these predicates, whereas both V2 word orders are restricted in Norwegian and Swedish. This is illustrated for Swedish in (7) and for Icelandic in (8). Table 2 summarizes the findings of Wiklund (2008).

(7) a. *Han ångrade   att   han **hade inte** sjungit.
he   regretted that he had not   sung
b. *Han ångrade   att   **den här sången**   hade han inte sjungit.
he   regretted that this here song-the   had he   not sung

(8) a. Hann sá eftir   að   hann **hafði ekki** sungið.
he   regretted that he   had not sung
b. *Hann sá eftir   að   **þetta lag** hafði hann ekki sungið.
he   regretted that this song had   he   not sung

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[2] Whether subject-initial embedded clauses display V2 or V-to-I/T movement has been debated for over a decade without any results. Such a debate lies outside the scope of the present paper and the analysis I present does not hinge on either of the two alternative analyses. Nevertheless, I follow Wiklund et al. (2008) in their assumption that the word order V > Neg in embedded clauses indicates movement of the verb to the C system instead of the I system, or in other words, subject-initial V2 instead of V-to-I movement. For a more detailed discussion and arguments in favor of this view, see Hrafnbjargarson et al. (2007), Hróarsdóttir et al. (2007), Wiklund et al (2007), and Wiklund et al. (2008).

Table 2: *The distribution of embedded V2*

		Swedish	Norwegian	Faroese	Icelandic
Class A/B/E	V>Neg	√	√	√	√
	Top	√	√	√	√
Class C/D	V>Neg	*	*	√	√
	Top	*	*	*	*

As Wiklund et al. (2008) point out, the above pattern is quite different from the pattern reported in e.g. Magnússon (1990) Rögnvaldsson and Thráinsson (1990), Vikner (1995), and subsequent work on Icelandic, where it is claimed that Icelandic displays non-subject initial V2 across the board. We show that the verb used to demonstrate this property of Icelandic (i.e. *harma* 'regret') differs from the Mainland Scandinavian counterparts (No. *angre*/ Sw. *ångra*) with regard to presuppositional properties.[3] Apart from this, Wiklund et al. clearly demonstrate that there exists a variant of Icelandic where non-subject initial V2 is restricted to root environments: For the majority of our informants, non-subject topicalization is restricted in the complements of Class C and D predicates. For the same speakers, non-subject topicalization is not restricted in the complements of Class A, B, and E predicates.

Wiklund et al. (2008) conducted two tests on the possibility of V2 word orders in embedded clauses in Icelandic. In the first test, the effect of modals was not controlled for and we observed that some of the informants that were generally skeptical towards embedded topicalization had a tendency to add modals (either *munu* 'will' or *skulu* 'shall') to the example sentences in an attempt to make them grammatical.[4] It is this observation that prompted the present investigation. In a second test, three (of totally thirty)

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[3] There are two notable differences between Swedish *ångra* 'regret' and Icelandic *harma* 'regret'. First, Icelandic *harma*, but not Swedish *ångra* may be used to regret something someone else has done, cf. (1b) and (2b). Second, the content of clauses embedded under *harma*, but not *ångra* may be new information to the addressee, indicating a weaker kind of presupposition, see Wiklund et al. (2008) for further discussion.

[4] Wiklund et al. (2008) consulted six informants, all of whom are linguists with Icelandic as their mother tongue. Admittedly, some of the informants had the reverse tendency, viz. removing modals from test sentences or grading sentences with modals equal to sentences without modals. Given this, it is clear that there is variation with respect to the effect of modals on embedded topicalization. The variant displaying the reverse tendency will not be discussed in the present paper.

test sentences contain modals, two of which may be contrasted with test sentences without modals. Both cases involve a Class D predicate, *sjá eftir* 'regret' and *skammast sín* 'be ashamed', respectively, and the modal *skulu* 'shall'. The examples in (9) and (10) are slightly modified versions of the test sentences used by Wiklund et al.

(9) a. *Hún sá eftir því   að   þessar bækur hefði   hún lesið.
         she   regretted   that these books   had   she   read
     b. ?Hún sá eftir því   að   þessar bækur skyldi hún hafa lesið.
         she   regretted   that these books   should she   have read

(10) a. *Hún skammaðist sín   fyrir að   þessa bók hafði   hún ekki lesið enn.
         she   was.ashamed SELF for   that this book   had   she not read yet
     b. ?Hún skammaðist sín   fyrir að   þessa bók skyldi hún hafa lesið.
         she   was.ashamed SELF for   that this book   should she havе read

Given that there are only two minimal pairs, we can only interpret the results as an indication of what is going on: It seems as if the presence of modals cancels the restrictions on non-subject topicalization in the complements of Class D predicates. A natural question to ask at this point is whether this is also the case in the complements of Class C predicates, which according to Wiklund et al. pattern with Class D predicates regarding restrictions on non-subject topicalization in Icelandic. At first sight, this seems to be the case. Topicalization is less marked in clauses embedded under Class C predicates if the embedded clause contains a modal, cf. (11a), which does not contain a modal, vs. (11b), which contains the modal *munu* 'will'.

(11) a. *Hún efast um að   þessar bækur hafi börnin   nokkurn tíma lesið.
          she   doubts   that these books   have children-the ever   read
     b. ?Hún efast um að   þessar bækur muni börnin   nokkurn tíma lesa.
          she   doubts   that these books   will children-the ever   read

As we will see, there are still differences to be found between Class C and D predicates as to which modals may occur in their complements. In the remaining parts of the present paper, judgments are based on my own intuitions about Icelandic. In cases where I have been in doubt, I have

consulted at least two additional speakers of Icelandic.[5] In the next sections. I show that modals have an effect on non-root environments and islandhood of embedded clauses in Icelandic.

3   Modals and embedded topicalization

Icelandic has twelve modals, most of which may occur with a root or a non-root sense, see Table 3. The table is based on Eide (2005: 84–85), who in turn cites Thráinsson and Vikner (1995). As we will see, the availability of modals in the complements of Class C and D predicates seems to be dependent on what kind of complements the modal selects. Modals that select bare infinitives occur more easily in the complements of these predicates as opposed to modals that select infinitival complements introduced by the infinitive marker *að*. Therefore, I have reordered the modals alphabetically according to the type of complement they select. Note that I have also added the infinitive marker *að* to the modals that require it.

Table 3: *Icelandic modals*

Modal	Gloss	Root sense	Non-root sense
mega	'may'	deontic	epistemic
munu	'will'	?	epistemic (future?)
skulu	'shall'	deontic	evidential
vilja	'will'	dynamic	tendency
geta	'can'	dynamic	epistemic
eiga að	'ought to'	deontic	epistemic
fá að	'be allowed to'	deontic	?
hljóta að	'must'	deontic	epistemic
kunna að	'can/may'	dynamic, deontic	epistemic
verða að	'must'	deontic	evidential, epistemic
þurfa að	'need'	dynamic	?
ætla að	'intend'	dynamic	evidential?

As I have mentioned, not all modals may occur in all types of *that*-clauses in Icelandic. The test in the following sections is therefore twofold. We have to

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[5] The two speakers I consulted are both women, approx. age 45 and 65. Both come from Northeast Iceland, as I do too. Both have lived in Reykjavík for a long time.

find out which of the modals may occur in *that*-clauses in the first place (which will be tested in subject-initial V2 clauses). We also have to find out which of the modals enable non-subject topicalization in non-root contexts. Again, we will be concerned with the predicate classes listed in the above Table 1. We have already seen that non-subject topicalization is restricted in the complements of Class C and D predicates. Nevertheless, I include (ungrammatical) examples of non-subject topicalization in the complements of these classes below, to make the contrast between clauses with and without modals clearer. The below test will be applied on both subject-initiial as well as non-subject initial embedded clauses for each class in turn. The test is illustrated by four examples: The (a)-examples involve the perfect auxiliary *hafa* 'have' instead of a modal. The (b)-examples involve the modals that select bare infinitives. The (c)-example involves the modal geta 'can', which selects a participle. The (d)-example involves the modals that select infinitival complements introduced by the infinitive marker *að*.

(12) a. $[_{Matrix}$ XP V$_{Matrix}$ $[_{Embedded}$ that XP ***Auxiliary**$_{perfect}$* V$_{participle}$ ...]
    b. $[_{Matrix}$ XP V$_{Matrix}$ $[_{Embedded}$ that XP ***Auxiliary**$_{modal}$* V$_{infinitive}$ ...]
    c. $[_{Matrix}$ XP V$_{Matrix}$ $[_{Embedded}$ that XP ***Auxiliary**$_{modal}$* V$_{participle}$ ...]
    d. $[_{Matrix}$ XP V$_{Matrix}$ $[_{Embedded}$ that XP ***Auxiliary**$_{modal}$* *að* V$_{infinitive}$ ...]

3.1 Class A: Strongly assertive predicates
Class A predicates embed complements that are cited or reported assertions in the discourse (*indirect assertions* in Hooper and Thompson 1973). These are compatible with root phenomena such as V2 and they allow epistemic modality. The examples in \Next show compatibility of modals with subject-initial V2 clause embedded under the verb *segja* 'say'.

(13) Hún sagði að   ...
    she   said   that
    a. nemendurnir hefðu lesið þessar bækur fyrir prófið.
       students-the   had   read   these books   for   exam-the
    b. nemendurnir myndu/ mættu/ skyldu / vildu   lesa þessar bækur fyrir prófið.
       students-the would   may   should would readthese books   for   exam-the

   c. nemendurnir gætu   lesið þessar bækur fyrir prófið.
     students-the   could   read these books   for   exam-the

   d. nemendurnir ættu / fengju /   kynnu / hlytu / þyrftu / ætluðu /
     students-the ought were.allowed.to may   must   needed intended
     yrðu að lesa þessar bækur fyrir prófið.
     must to read these books for exam-the

As can be seen from the examples, all of the modals may occur in subject-initial V2 complements of Class A predicates. Depending on context, each of the modals may occur in a root or a non-root sense. The same holds for non-subject initial V2 complements:

(14) Hún sagði að   *...*
     she   said that
   a. þessar bækur hefðu nemendurnir lesið fyrir prófið.
     these books   had   students-the read for   exam-the
   b. þessar bækur myndu/mættu / skyldu / vildu nemendurnir lesa fyrir prófið.
     these books would may   should would students-the read for   exam-the
   c. þessar bækur gætu nemendurnir lesið fyrir prófið.
     these books   could students-the read for   exam-the
   d. þessar bækur ættu / fengju   /   kynnu / hlytu / þyrftu / ætluðu /
     these books ought were.allowed.to may   must needed intended
     yrðu nemendurnir að lesa fyrir prófið.
     must students-the to read for   exam-the

3.2   *Class B: Weakly assertive predicates*

Class B predicates, like Class A predicates, embed assertions. Class B predicates indicate a weaker commitment to the truth of the embedded statement on behalf of the speaker. Complements of Class B predicates have also been shown to be compatible with V2 and they allow epistemic modality. The examples in (15) show compatibility of modals with subject-initial V2 clause embedded under the verb *halda* 'believe'.

(15) Hún hélt   að   ...
she believed that

  a. nemendurnir hefðu lesið þessar bækur fyrir   prófið.
    students-the   had   read these books for   exam-the

  b. nemendurnir   myndu / mættu / skyldu / vildu
    students-the   would   may   should   would
    lesa   þessar bækur   fyrir prófið.
    read these books   for exam-the

  c. nemendurnir gætu lesið þessar bækur fyrir prófið.
    students-the could read these books   for   exam-the

  d. nemendurnir ættu / fengju /   kynnu / hlytu / þyrftu / ætluðu/
    students-the ought were.allowed.to may   must   needed intended
    yrðu að lesa þessar bækur fyrir prófið.
    must to read these books for   exam-the

In the same way as modals may occur in the complements of Class A predicates, they are compatible with the complements of Class B predicates. The same holds for non-subject initial V2 clauses embedded under Class B predicates:

(16) Hún hélt   að   ...
she believed that

  a. þessar bækur hefðu   nemendurnir lesið fyrir prófið.
    these books   had   students-the read for   exam-the

  b. þessar bækur myndu / mættu /skyldu / vildu   nemendurnir lesa fyrir prófið.
    these books   would   may   should would students-the read for exam-the

  c. þessar bækur gætu nemendurnir lesið fyrir prófið.
    these books   could students-the read for   exam-the

  a. þessar bækur ættu / fengju   /   kynnu / hlytu /þyrftu / ætluðu /
    these books   ought were.allowed.to may   must   needed intended
    yrðu nemendurnir að lesa fyrir prófið.
    must students-the   to read for   exam-the

3.3   Class C: Non-assertive predicates

Complements of Class C predicates are neither asserted nor presupposed. The examples in (17) illustrate the compatibility of modals with subject-initial V2 clauses embedded under the verb *efast* 'doubt'.

(17) Hún   efaðist um   að   ...
      she   doubted   that
  a. nemendurnir hefðu   lesið   þessar bækur fyrir   prófið.
     students-the had   read these books for   exam-the
  b. nemendurnir   myndu / mættu / skyldu   / vildu
     students-the   would   may   should   would
     lesa   þessar bækur   fyrir prófið.
     read   these books   for exam-the
  c. nemendurnir gætu lesið þessar bækur fyrir prófið.
     students-the could read these books   for   exam-the
  d. nemendurnir ættu   / fengju /   kynnu / *hlytu / þyrftu / ætluðu/
     students-the ought were.allowed.to may   must   needed intended
     yrðu að lesa þessar bækur fyrir prófið.
     must to read these books for   exam-the

The only modal that is not possible in the above context is the modal *hljóta* 'must'.

   As was mentioned above, non-subject topicalization is restricted in the complements of many Class C predicates in varieties of Icelandic, see Wiklund et al. (2008). In my variety, *efast* 'doubt' is one of the verbs that do not allow topicalization in the embedded clause. The effect of inserting a modal is illustrated below:

(18) Hún   efaðist um   að   ...
      she   doubted   that
  a. *þessar bækur   hefðu   nemendurnir lesið fyrir prófið.
     these books   had   students-the read for   exam-the
  b. þessar bækur   myndu / mættu   / ?skyldu / *vildu nemendurnir lesa
     these books   would   may   should   would students-the read
     fyrir   prófið.
     for   exam-the

c. þessar bækur   gætu nemendurnir lesið fyrir   prófið.
   these books   could students-the read for   exam-the
d. þessar bækur ?ættu   / ?fengju   /   *kynnu / *hlytu / ?þyrftu /
   these books ought   were.allowed.to may   must   needed
   *ætluðu / ?yrðu nemendurnir að lesa fyrir prófið.
   intended must students-the to read for   exam-the

Example (18a) shows that non-subject topicalization is ungrammatical, under normal circumstances, in a clause embedded under the Class C predicate *efast* 'doubt', i.e. when the embedded clause does not contain a modal. Examples (18b–d) show that non-subject topicalization is much less marked if the embedded clause contains a modal. However, not all modals are able to reverse the restriction on non-subject topicalization under Class C predicates. Noteworthy, modals that select bare infinitives and participles seem better than modals that select infinitival complements introduced by the infinitive marker *að* in this context, cf. (18b and c) with (18d). The pattern we have seen with Class C predicates is further strengthened by the pattern found with Class D predicates.

3.4   Class D: Factive predicates
Class D predicates embed facts. They express some emotion or subjective attitude about an event, the existence of which is presupposed. Root phenomena are normally not possible in the complements of these verbs. The examples in (19) illustrate the possibility of modals in subject-initial clauses embedded under the predicate *vera ánægður með* 'be content with'.

(19) Henni þótti leitt að   ...
     her   regretted that
  a. hún hafði ekki lesið þessar bækur.
     she had   not read   these books
  b. hún myndi / mátti / skyldi / vildi   ekki lesa þessar bækur.
     she would   may   should would not   read these books
  c. hún gat   ekki lesið þessar bækur.
     hún could not   read   these books

d. hún átti / fékk   /   *kunni /*hlaut / þurfti / ætlaði /
she ought were.allowed.to may   must   needed intended
varð ekki að lesa þessar bækur.
must not to read these books

The only modals that are not possible are the modals *kunna* 'may' and *hljóta* 'must'. All the other modals occur in both root and non-root senses. Although the root sense is more salient in the above context, contexts involving only epistemic reading in complements of Class D predicates are easily found, see Bentzen et al. (2008) and §5 below. As was the case with modals in the complements of Class C predicates, modals cancel restrictions on non-subject topicalization in the complements of Class D predicates. (20a) is ungrammatical in my variant, but the examples in (20b and c) are fully grammatical.

(20) Henni þótti leitt að   ...
    her   regretted that
  a. *þessar bækur hafði hún ekki lesið.
    these books   had she no   read
  b. þessar bækur   myndi / mátti / skyldi / vildi   hún ekki lesa.
    these books would may   should would she   not   read
  c. þessar bækur gat   hún ekki lesið.
    these books   could she not read
  d. þessar bækur *átti / *fékk   /   *kunni / *hlaut / *þurfti / *ætlaði /
    these books   ought were.allowed.to may   must   needed intended
    *varð hún ekki að lesa.
    must she not to read

Here too, we observe a difference between the modals that select bare infinitives and participles on the one hand and modals that select infinitival complements introduced by the infinitive marker on the other. The former seem to be more capable of overturning restrictions on non-subject topicalization than the former.

3.5   Class E: Semi-factive predcates

Class E predicates are perception verbs and verbs of knowledge. These pattern with Class D predicates in embedding complements that are facts. However, they differ from truly factive predicates in that they may lose their factivity in questions, if embedded in the antecedent of a conditional, and under certain modals, see Karttunen (1971). This class patterns with Class A and B in many respects, including the fact that non-subject topicalization is possible in the complements of these predicates, for further discussion, see Wiklund et al (2008). Example (21) shows the compatibility of modals with subject-initial V2 in clauses embedded under the Class E predicate *uppgötva* 'discover'.

(21) Hún   uppgötvaði   að   ...
    she   discovered   that
   a. nemendurnir höfðu ekki   lesið þessar bækur.
      students-the   had   not   read   these books
   b. nemendurnir myndu / máttu / skyldu / vildu ekki lesa þessar bækur.
      students-the would   may   should   would ekki readthese books
   c. nemendurnir gátu   ekki   lesið   þessarbækur.
      students-the   could not   read   these books
   d. nemendurnir áttu / fengu   /   kynnu / *hlutu / þurftu / ætluðu /
      students-the ought were.allowed.to may   must   needed intended
      urðu   ekki að lesa þessar bækur.
      must   not   to readthese books

The examples in (21) reveal one difference between Class A and B predicates on the one hand and E predicates on the other. As we saw, there were no restrictions on the occurrence of modals in the relevant context embedded under Class A and B predicates. Class E predicates seem to pattern with Class C and D predicates in that the modal *hljóta* 'must' is not possible in embedded subject-initial V2 clauses. The pattern is reversed in case of non-subject topicalization, as *hljóta* may occur in a non-subject initial clause embedded under *uppgötva* 'discover':

(22) Hún   uppgötvaði að   ...
she   discovered   that

a. þessar bækur höfðu   nemendurnir ekki lesið.
these books   had   students-the not   read

b. þessar bækur myndu / máttu /skyldu / vildu   nemendurnir ekki lesa.
these books   would   may   should would students-the not read

c. þessar bækur gátu   nemendurnir ekki   lesið.
these books   could students-the not   read

a. þessar bækur áttu / fengu   /   kynnu / hlutu /þurftu / ætluðu /
these books   ought were.allowed.to may   must   needed intended

urðu nemendurnir ekki að lesa.
must students-the   ekki to read

Since topicalization is always unrestricted in the complements of Class E predicates, and since the modal is restricted to contexts of topicalization, as illustrated in (22), one could suspect, from the difference between subject vs. non-subject initial V2 and *hljóta* 'must' above, that the claim that modals overturn restrictions on root transformations is based on false premises and that topicalization opened up for the insertion of modals in the embedded clause. Even if this potentially could explain the grammaticality of *hljóta* 'must' in (22d), topicalization is not possible in the absence of modals in the complements of Class C and D predicates. This we saw above. Thus, modals enable root transformations, not the other way around.

3.6   Summary
Only two modals (*kunna* 'can/may' and *hljóta* 'must') cannot occur in finite *that*-clauses. *Kunna* cannot occur in clauses embedded under factive (Class D) predicates, whereas *hljóta* is prevented from occurring in the complements of non-assertive (Class C), factive (Class D), and semi-factive (Class E) predicates. Neither of the two modals enable non-subject topicalization in the embedded clause (although Class E seemed problematic in this respect, as we have seen). Table 4 summarizes the distribution of modals in finite subject-initial *that*-clauses.

Table 4: *Distribution of modals in subject-initial* that-*clauses*

Modal	Gloss	Class A / B	Class C	Class D	Class E
mega	'may'	√	√	√	√
munu	'will'	√	√	√	√
skulu	'shall'	√	√	√	√
vilja	'will'	√	√	√	√
geta	'can'	√	√	√	√
eiga að	'ought to'	√	√	√	√
fá að	'be allowed to'	√	√	√	√
kunna að	'can/may'	√	√	*	√
hljóta að	'must'	√	*	*	*
verða að	'must'	√	√	√	√
þurfa að	'need'	√	√	√	√
ætla að	'intend'	√	√	√	√

The above data suggest that modals differ as to how capable they are at canceling restrictions on non-subject topicalization in *that*-clauses under certain predicates in Icelandic. Modals that select bare infinitives (e.g. *munu* 'will' and *skulu* 'shall') and modals that select participles (*geta* 'can') are more capable of overturning such restrictions than modals that select for infinitival complements with the infinitival marker. The results are summarized in Table 5.

Table 5: *Modals and non-subject topicalization*

Modal	*Gloss*	Class A / B / E	Class C	Class D
mega	'may'	√	√	√
munu	'will'	√	√	√
skulu	'shall'	√	?	√
vilja	'will'	√	*	√
geta	'can'	√	√	√
eiga að	'ought to'	√	?	*
fá að	'be allowed to'	√	?	*
kunna að	'can/may'	√	*	*
hljóta að	'must'	√	*	*
verða að	'must'	√	?	*
þurfa að	'need'	√	?	*
ætla að	'intend'	√	*	*

A natural question to ask at this point is whether modals also have an effect on the possibility of topicalization in embedded questions, relative clauses, etc. (i.e. the *traditional* non-V2 contexts). The answer to such a question is negative:

(23) a. *Hún spurði hvort   þessar bækur hefðu nemendurnir ekki lesið.
         she   asked whether these books   had   students-the not   read
     b. *Hún spurði hvort   þessar bækur skyldu nemendurnir ekki lesa.
         she   asked whether these books   should students-the not   read

(24) a. *Öllum börnum sem svona bækur hafa foreldrar gefið ...
         all children   that such books   have parents   given
     b. *Öllum börnum sem svona bækur skyldu foreldrar hafa gefið ...
         all children   that such books   should parents   have given

As the examples illustrate, modals do not enable non-subject topicalization in embedded questions, (23), nor in object relative clauses, (24).

So, perhaps there is something about the nature of *að* 'that'? Subject clauses, which are also introduced by *að*, normally resist root phenomena and Icelandic shows no exception to this generalization, see (25a). Subject

clauses involving modals, however, follow the above pattern: Non-subject topicalization is possible in the presence of the modal *skulu* 'shall', (25b).

(25) a. *Að þessar bækur höfðu nemendurnir ekki lesið ...
      that *these books* *had* *students-the* *not* *read*

   b. ?Að þessar bækur skyldu nemendurnir ekki hafa lesið ...
      that *these books* *should* *students-the* *not* *have* *read*

    ... kom virkilega á óvart.
      came *really* *on surprise*

Having shown that modals enable non-subject topicalization in non-root environments in Icelandic, I will now turn to another phenomena that has also been related to the root status of embedded clauses, namely extraction and islandhood.

4   Extraction

As discussed by Bentzen et al. (2007), subject-initial V2, as well as non-subject initial V2, is an island for extraction in Norwegian and Swedish. In Faroese and Icelandic, only non-subject initial V2 is. Bentzen et al. relate the differences observed between the languages to differences in root status of V2 in the relevant languages. According to them, subject-initial V2 as well as non-subject initial V2, is a root phenomenon in Norwegian and Swedish, whereas in Faroese and Icelandic, only non-subject initial V2 counts as a root phenomenon:[6]

Table 6: *Islandhood and root status of V2*

		Fa.	Ic.	No.	Sw.
Subject-initial V2	Root	–	–	+	+
	Island	–	–	+	+
Non-subject initial V2	Root	+	+	+	+
	Island	+	+	+	+

Class belonging does not seem relevant for the possibility of extraction in Icelandic since extraction is equally grammatical from complements of Class

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[6] Table 6 is taken from Bentzen et al. (2007).

C and D predicates as extraction from complements of Class A, B, and E. The example in (26) is meant to illustrate the islandhood of non-subject initial V2 in Icelandic. Example (26a) is an attempt to extract a subject from a clause in which the direct object has been topicalized. Example (26b) shows extraction of an indirect object from the same clause.

(26) a. *$Hver_i$ sagði hann að   þessar bækur hefði t_i ekki gefið Kára?
    who   said he   that these books   had   not given Kári
    b. *$Hverjum_i$ sagði hann að   þessar bækur hefði hann ekki gefið t_i?
    who   said he   that these books   had he   not given

Subject-initial V2 is not an island in Icelandic, and as the examples in (27) illustrate, both subject and object extraction are possible from such clauses.

(27) a. $Hver_i$ sagði hann að t_i gæti   ekki sungið þetta lag?
    who said he   that   could not sing   this song
    b. $Hvað_i$ sagði hann að   hann gæti ekki   sungið t_i?
    what said he   that he   could not   sing

Likewise, adjuncts can be extracted from subject-initial V2 clauses in Icelandic. As the answers to the question in (28Q) indicate, the adjunct may either originate from the matrix clause (identifying the place of utterance), ($28A_1$), or from the embedded clause (identifying the reason why you had not met the queen), ($28A_2$).

(28) Q Af $hverju_i$ sagðirðu t_i að   þú   hefðir ekki hitt drottninguna t_i?
    why   said.you   that you had   not met queen-the
    A_1 Ég sagði það af því að   mér fannst þú   ættir   að vita   það.
    I   said it   because   me found you should to know it
    A_2 Hún hafði   ekki tíma til að hitta mig.
    she had   not time to to meet me

As we have already seen, the presence of modals enables non-subject initial V2 in non-root contexts in Icelandic. Interestingly, the presence of modals also enables object extraction from non-subject initial V2 clauses, (29a). For

some reason, subject extraction is equally marked regardless of whether a modal is present or not, (29b).

(29) a. Hverjum$_i$ sagði hann að þessar bækur myndi hann ekki gefa t$_i$?
  who   said he   that these books   would he   not give
 b. *Hver$_i$ sagði hann að þessar bækur myndi t$_i$ ekki gefa Kára?
  who   said he   that these books   would   not give Kári

The presence of modals also overturns the ban on extraction from adjuncts in non-subject initial V2 clauses, cf (30) and (31). Although it is clear that the extracted constituent originates from within the adjunct, any doubt should be eliminated by the question/answer sequence in (31). The answer to such a question cannot identify the place of utterance, it can only identify the place where ships should not search for cod.

(30) *Hvaða svæði segja fiskifræðingar   að á hrygningartímanum
  which   area say   marine.biologists that in spawning.season-the
  leiti   skipin   ekki eftir þorski á?
  search ships-the not after cod   on

(31) Q Hvaða svæði segja fiskifræðingar   að á hrygningartímanum
  which   area say   marine.biologists that in spawning.season-the
  skuli skipin   ekki leita   eftir þorski á?
  shall ships-the not search after cod   on
 A$_1$ #Þeir sögðu það á Austurvelli.
   they said   it   on Austurvöllur.square
 A$_2$ Undan   ósum Þjórsár.
   from.under mouth Þjórsá.river

It should now be clear that not only does the presence of modals change the root status of embedded clauses, but also their islandhood. The presence of modals renders object extraction and adjunct extraction possible.

Before I turn to the tentative analysis that I would like to propose, I will discuss in which way epistemic modality in non-root contexts gives support to the idea that the size of the left periphery of the complement clause is constant.

5   Epistemic modality

Epistemic modality is normally considered to be restricted to root environments, see e.g. Haegeman (2006) and Whitman (1989) who postulates a link between topicalization and the availability of epistemic modal markers in Korean. But in many languages, including the Scandinavian languages, modals may occur in their epistemic sense in non-root contexts, i.e. in the complements of non-assertive and factive verbs, see Bentzen et al. (2008). Example (32) illustrates how the two modals *geta* 'can' and *skulu* 'shall' may turn up in their epistemic/evidential sense in the complements of non-assertive predicate *efast* 'doubt'.

(32) a. Jón   efast um að   veðrið   geti batnað   á morgun
        John doubts   that weather.the can get.better tomorrow
     b. Jón   efast um að   norskur fiskur   skuli   vera besti fiskur í heimi.
        John doubts   that Norwegian fish should be   best fish   in the world

In a similar way, both modals may have an epistemic/evidential sense in the complement of the factive predicate *þykja leitt* 'regret':

(33) a. Jóni   þykir leitt að   veðrið   getur versnað   á morgun.
        John regrets   that weather.the can   get.worse tomorrow
     b. Jóni þykir leitt að   norskur fiskur   skuli   vera besti fiskur í heimi.
        John regrets   that Norwegian fish should be   best fish   in the world

Haegeman (2007) draws a parallel between epistemic modality and various root phenomena which she relates to the Force projection in the left periphery. The data that I have presented here support the existence of such a link, although the nature of this link seems rather complex. Looking at the Class A, B, and E environments, we find both epistemic modality and non-subject topicalization, whithout one depending on the other. Turning to Class C and D environments, however, non-subject topicalization is dependent on the presence of modals in the Icelandic examples that we have seen. A further complication is the fact that also some of the root modals seem capable of making non-subject topicalization available. I will leave this latter fact for future research and make a tentative proposal on the depency relation between "higher" modals and root phenomena.

On the assumption that non-root (epistemic) modality is relatively high in the clausal domain, the data in (32) and (33), where the modal occurs in its non-root sense, suggest that these high positions are present in the embedded clauses under Class C and D predicates. Based on the link mentioned above, I take these positions to be the upper part of the left periphery. I will it leave open whether or not these projections are identical to those proposed by Cinque (1999: 106) or related to them via some kind of Agree relation. In essence, I am proposing that the size of the CP domain is constant across complement types, following Haegeman (2007), contra Haegeman (2006) and Hrafnbjargarson et al. (2007) who propose that complements where root phenomena is restricted only contain the lower part of CP, i.e. Fin. The latter analysis can only be maintained if one assumes that the relevant modals may exceptionally force the presence of more structure. Rather than focusing on the potential exceptionality involved in these cases, I will present an approach where their existence is predicted from the structure that is already there.

Haegeman (2007) argues that the differences between root and non-root status of certain embedded clauses may be derived from covert operator movement into the Force projection, thereby preventing various root phenomena from occurring in the relevant clauses. It is not entirely clear how the Icelandic facts presented above should be accounted for in such an analysis. If we maintain the covert operator movement analysis, the modal should in theory not have any effect on the root status or the islandhood of the relevant embedded clause. The data point in a different direction. The modal, which arguably employs the upper part of the CP layer, opens up for topicalization, extraction, and other kinds of root transformations. A natural question to ask at this moment, then, is how we account for the fact that root transformations are possible in clauses containing modals, but not in clauses without them. In the next section, I will present a tentative analysis that does not involve covert operator movement. Instead, I propose that parts of the CP layer of the embedded clause are needed to convey the meaning of the matrix predicate. As we will see, my proposal does not eliminate the operator itself, but it eliminates the need for covert movement of the relevant operator. If a modal is present in the embedded clause, it will take over part of the CP layer making it available for root transformations and extraction. In what

follows I will concentrate on root phenomena, leaving the extraction facts for future research.
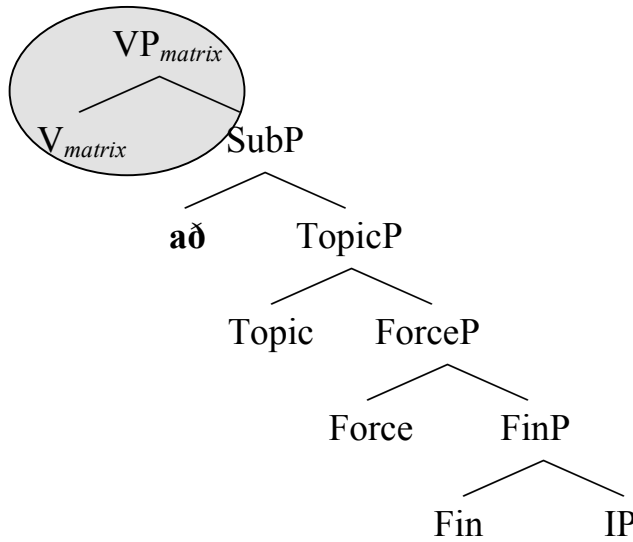
6   A tentative analysis

I propose that the difference between Class A, B, and E predicates on the one hand and Class C and D predicates on the other hand is that the latter use parts of the clauses they embed to spell out their meaning. This is why they normally do not allow root phenomena in the embedded clause. Exactly what this meaning is in semantic terms and how it maps onto the relevant structure remains unsolved in the current paper, but I assume that it has to do with e.g. the presuppositional and factive properties of the verb involved.

The tree structure in (34) illustrates how Class C and D predicates use the lowest part of the matrix clause and the upper part of the embedded clause, including the complementizer. The gray areas in the tree structure are the part of the clausal spine needed for these predicate classes to spell out the meaning of the matrix verb.

(34)   *Class C and D*
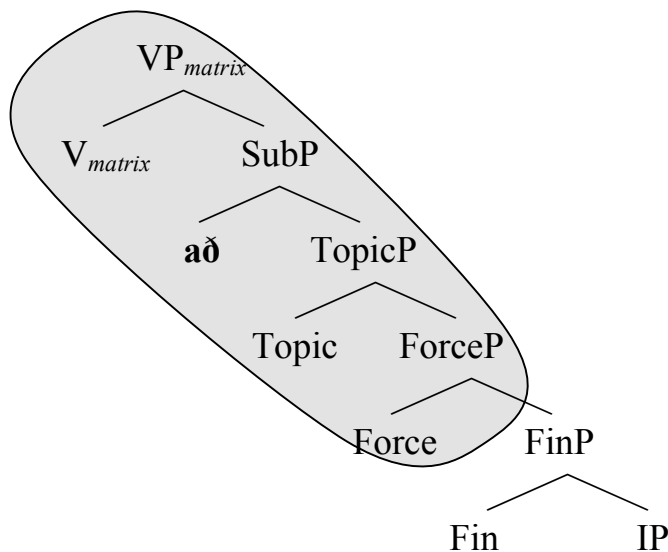
In (35), which illustrates Class A, B, and E predicates, the gray area only covers the lowest part of the matrix clause. i.e. these predicates do not need more structure to spell out their meaning.

(35) *Class A and B*

```
            VP_matrix
           /      \
     V_matrix      SubP
                  /    \
                 að    TopicP
                      /      \
                  Topic      ForceP
                            /      \
                         Force      FinP
                                   /    \
                                 Fin     IP
```

In essence, my proposal implies that factive predicates and non-assertive predicates employ more structure than assertive (and semi-factive) predicates. Although the present analysis, in one sense, shares with the truncation analysis of Haegeman (2006) and Hrafnbjargarson et al. (2007) the proposal that factive complements are smaller than non-factive complements, the structure is not missing on the present analysis. It is used by the matrix predicate. Since the size of the CP in the complement clause is kept constant, the present analysis can be seen as a hybrid between the truncation analysis and Haegeman (2007).[7] It is precisely this hybridity, I claim, that captures the Icelandic data presented above as we will see shortly. Whether these are exceptional or not, I have nothing to say about.

According to Zubizaretta (2001), factive predicates, unlike propositional attitude verbs (or, in different terminology, assertive predicates), contain an assertion operator which is lexicalized by the complementizer. According to her, this explains why the complementizer is obligatory in the complements verbs like *regret*, but not in the complements

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[7] A truncation analysis that goes in a different direction seem to be proposed by Barbiers (2002: 51) who implies that factive complements involve more structure than non-factive complements. His claim is that the difference comes from the presence of a Force feature which is present in factive clauses, but not in propositional clauses. According to Barbiers, "factive clauses can trigger movement to SpecForceP because Force is complete and may be assigned an EPP feature. On the other hand, propositional clauses are defective in that they lack Force".

of verbs like *think*. The complementizer *að* 'that' is less prone to delete in Icelandic, compared to e.g. Swedish *att* 'that', and given certain assumptions, the present analysis captures the generalization that the complementizer is obligatory in the complement of factive verbs, even in Swedish. In Swedish, *att* is obligatorily present in the complements of both factive (*ångra* 'regret') and non-assertive (*förneka* 'deny') predicates. In stead of assuming that the complementizer is a lexicalized assertion operator, it may be the case that the complementizer spells out parts of the meaning of the matrix verb and that it may spell out different types of features depending on the matrix predicate. For verbs like *regret*, the complementizer would serve as a factive operator. This may also be the case for semi-factive verbs (Class E) which require the overt realization of a complementizer in Swedish. Class E, however does not employ larger chunks of the left periphery, and does therefore pattern with Class A and B predicates with respect to root phenomena:

(36)   *Class E*
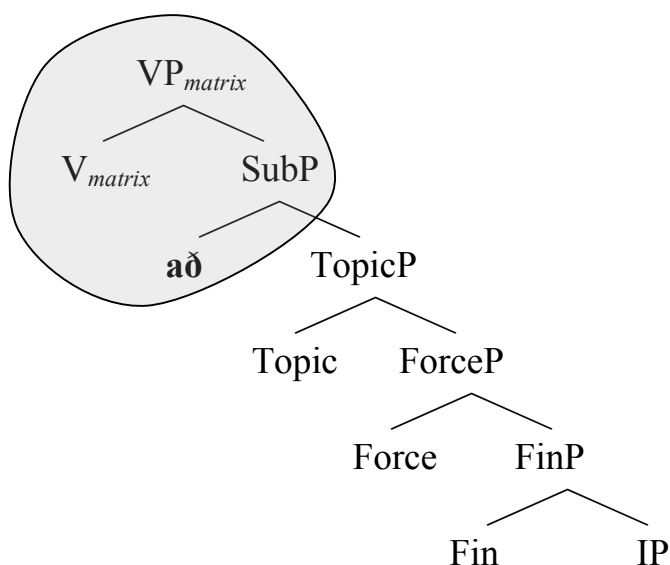
The complementizer does not spell out parts of the meaning of assertive verbs and semi-factives, which in turn means, that the complementizer is not a part of the matrix predicate, and therefore, not obligatorily present in all languages.

If there is a modal in the clause, it will take over the part of the clause which the matrix verb (a Class C or D predicate in the relevant case) would otherwise use, but the complementizer would still be part of the space used to

spell out the meaning of the matrix predicate. The modal, so to say, releases the part of the CP domain that is usually related to root phenomena.

(37) *Class C and D: Modal in the embedded clause*

Matrix verb
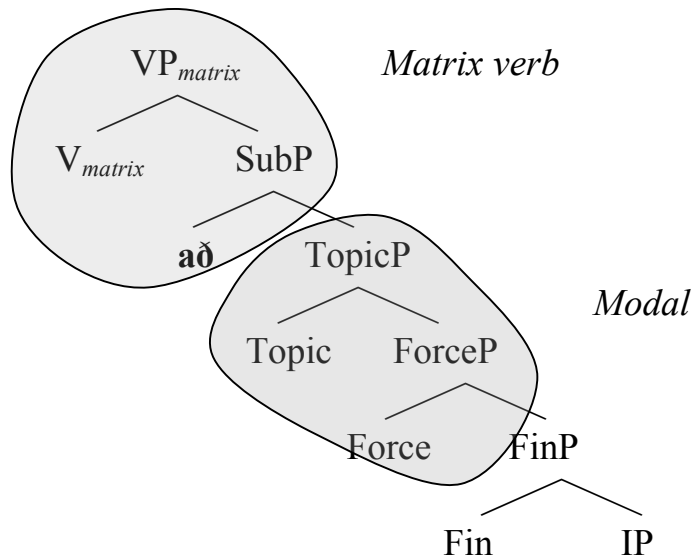
Modal

7   Conclusions

I have presented data from Icelandic concerning modals and their ability to overturn certain restrictions on root transformations, extraction, and epistemic reading. More precisely, the presence of certain modals has an effect on the structure of the embedded clause, such that non-subject topicalization, extraction become possible in contexts where they are otherwise impossible. In all of these cases, the presence of modals seems to involve parts of the left periphery. I have argued for a tentative analysis, suggesting that certain matrix verbs employ parts of their embedded clauses to spell out their meaning. This ability to grab into the embedded clause is cancelled by the presence of modal verbs, which in turn opens up for the possibility of a wide range of phenomena which are normally restricted in the relevant contexts. The advantage of such an analysis is twofold. The size of the left periphery of embedded clauses is kept constant, and there is no need for covert operator movement to explain the absence of root phenomena in these environments.

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