

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

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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
<i>say</i>	<i>believe</i>	<i>doubt</i>	<i>regret</i>	<i>discover</i>
<i>Claim</i>	<i>think</i>	<i>deny</i>	<i>be sad about</i>	<i>understand</i>

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

¹ For Icelandic, additional predicates from all classes were tested, see Wiklund et al. (2008: §4).

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

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)

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 have 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*

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

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-initial 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 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

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 predicates

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 þessar bækur.
 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*

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

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

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), (28A₁), or from the embedded clause (identifying the reason why you had not met the queen), (28A₂).

- (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
 A₁ Ég sagði það af því að mér fannst þú ættir að vita það.
 I said it because me found you should to know it
 A₂ 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

A₁ #Þeir sögðu það á Austurvelli.

they said it on Austurvöllur.square

A₂ 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, without 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 dependency 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 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

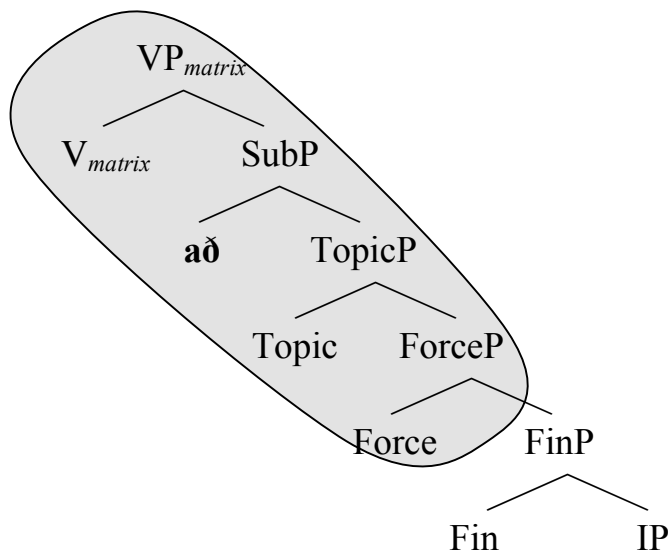
follows I will concentrate on root phenomena, leaving the extraction facts for future research.

6 A tentative analysis

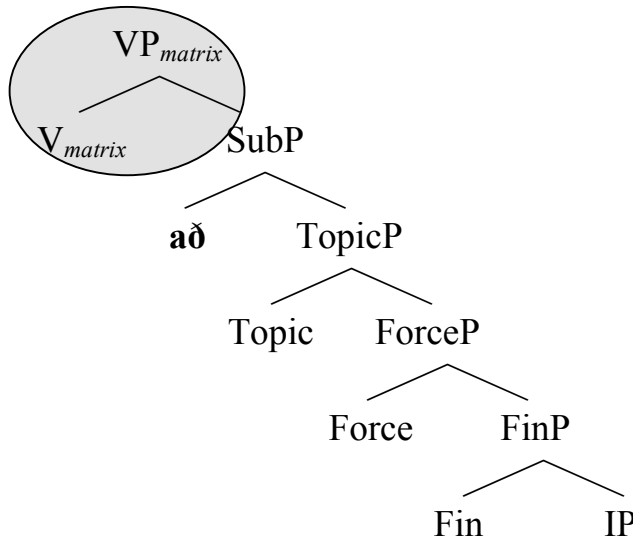
I propose that the difference between Class A, B, and E predicates on the one hand and Class C and D predicates on the other hand is that the latter use parts of the clauses they embed to spell out their meaning. This is why they normally do not allow root phenomena in the embedded clause. Exactly what 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*

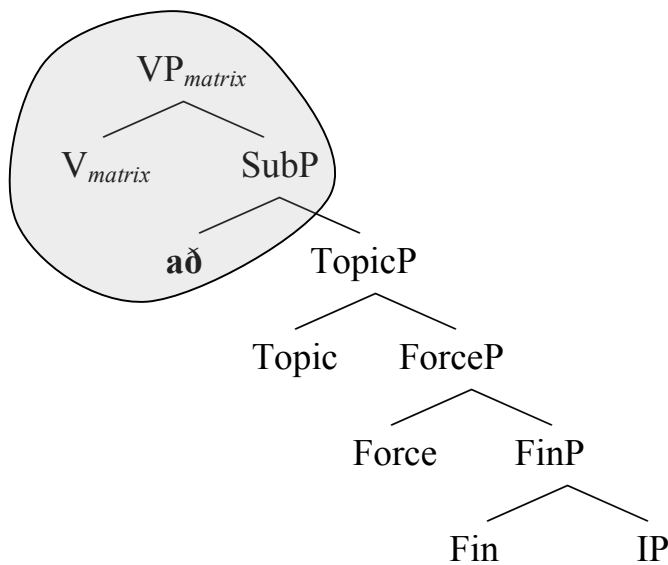
In essence, my proposal implies that factive predicates and non-assertive predicates employ more structure than assertive (and semi-factive) predicates. Although the present analysis, in one sense, shares with the truncation analysis of Haegeman (2006) and Hrafnbjargarson et al. (2007) the proposal that 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 Zubizarreta (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

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*

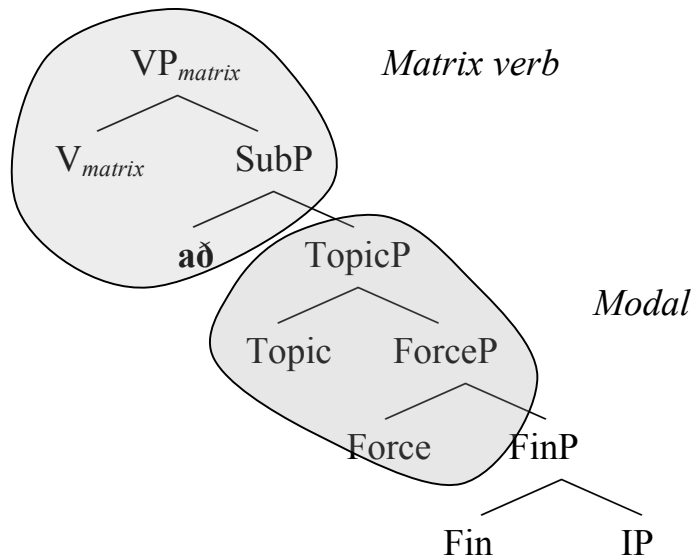


The complementizer does not spell out parts of the meaning of assertive verbs and semi-factives, which in turn means, that the complementizer is not a part of the matrix predicate, and therefore, not obligatorily present in all languages.

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*



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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