‘By’-Phrases and Implicit Arguments
in the Icelandic Impersonal Modal Construction

Einar Freyr Sigurðsson
Qualifying Paper, Department of Linguistics, University of Pennsylvania
Committee: Julie Anne Legate, Florian Schwarz

December 2014

Contents

1 Introduction 3
  1.1 On the Impersonal Modal Construction 3
  1.2 ‘By’-phrases are not ungrammatical in the IMC 7
  1.3 Aim 9

2 Modal verbs and their structure 11
  2.1 Conversational backgrounds 11
  2.2 Verbs used in the IMC are root modals 11
    2.2.1 Epistemic modal verbs are structurally higher than root modal verbs 11
    2.2.2 IMC verbs are root modals 13
    2.2.3 Interim summary 15
  2.3 IMC verbs are raising verbs 15
    2.3.1 Case preservation 15
    2.3.2 Embedded passive 18
    2.3.3 Non-argument subjects 20
    2.3.4 Idiom chunks 23
    2.3.5 Interim summary 25
  2.4 The structure 26
  2.5 Summary 28

3 Implicit arguments 29
  3.1 Restriction and saturation 29
  3.2 Weak and strong implicit arguments 30
  3.3 The New Impersonal Passive 31
  3.4 Summary 36
4 ‘By’-phrases and implicit arguments in the IMC 37
   4.1 Properties and propositions ........................................ 37
   4.1.1 Modal verbs in the IMC taking propositions .................... 37
   4.1.2 Modal verbs in the IMC taking properties: ‘By’-phrases allowed . 39
   4.1.3 Modal \textit{-st} passive ............................................. 40
      4.1.3.1 A clitic generated in SpecVoiceP ......................... 40
      4.1.3.2 Verbs requiring an agent incompatible with \textit{-st} ........ 43
      4.1.3.3 Modal \textit{-st} passives ........................................ 43
   4.2 ‘By’-phrases, scope and properties ................................ 46

5 Conclusion 50

References 51
1 Introduction

1.1 On the Impersonal Modal Construction

Modals as well as implicit arguments and properties of Voice are widely studied topics of syntax and semantics. ¹ The Impersonal Modal Construction (IMC) combines the two and gives us a great chance to improve our understanding of the intersection of modality and implicit arguments.

Even though null subjects are normally not allowed in finite, active clauses in Icelandic,² certain modals allow their use. Examples of the IMC are shown in (1). (2) serves as an example to show that not all modals allow null subjects:³ ⁴

(1) a. Hér má byggja nýja brú.
   here may build.INF new.ACC bridge.ACC
   ‘Here, one is allowed to build a new bridge.’
   (H.Á. Sigurðsson and Egerland 2009:169)

   b. Það á/verður/þarf að lesa bókina.
      EXPL is.supposed/has.to/needs to read.INF book.the.ACC
      ‘One has to read the book.’

(2) *Hér getur byggt nýja brú.
    here can build.PTCP new bridge
    Intended: ‘Here, one can build a new bridge.’

¹I am grateful to Julie Anne Legate and Florian Schwarz for very helpful comments and discussions on the topic of the paper. Their contribution to the semantic analysis of the IMC and ‘by’-phrases is especially important. I am also thankful to Anton Karl Ingason and Jim Wood for comments on a draft of this paper. Thanks to Dave Embick for many insightful comments and to the audience at the poster session at MACSIM 4, held 17–18 October 2014 at Rutgers, in particular Valentine Hacquard and Alexander Williams. Special thanks to Hlíf Árnadóttir for many discussions on data and for giving her native Icelandic judgments. Finally, thanks to my cohort in the QP seminar for comments and questions, Haitao Cai, Amy Goodwin Davies, Duna Gylfadottir, Betsy Sneller and Robert Wilder.

²An example of this is shown in (i) below:

(i) a. *Hér bygðir nýja brú.
   here builds new.ACC bridge.ACC
   Intended: ‘Here, one/someone/people build(s) a new bridge.’

   b. *Pað las bókina í ger.
      EXPL read book.the.ACC yesterday
      ‘One/Someone/People read the book yesterday.’

³Note that the expletive pað in the IMC, as in (1b), is a first-position element. It is not overtly present when other elements topicalize or when the verb moves to form a yes-no question.

⁴The following abbreviations are used in the glosses in this paper: ³ = 3rd person, acc = accusative, dat = dative, f = feminine, inf = infinitive, intr = intransitive, m = masculine, na = -na morphology, nom = nominative, pst = past tense, pl = plural, ptcp = participle, refl = reflexive, subjv = subjunctive, st = -st morphology, tr = transitive.
The IMC, which has been studied most extensively by H.Á. Sigurðsson (1989) and H.Á. Sigurðsson and Egerland (2009) (see also E.F. Sigurðsson 2012) has no overt subject but still the embedded infinitival verb can take a structural accusative object (1). The object cannot move to subject position as shown below with word order (see discussion on this subject test in, e.g., Thráinsson 2007).

(3) a. *Hér má nýja brú byggja.
   here may new.ACC bridge.ACC build.INF
   Intended: ‘Here, one may build a new bridge.’

b. *Verður bókina að lesa?
   has.to book.the.ACC to read.INF
   Intended: ‘Does one have to read the book?’

The ungrammaticality of these examples shows that SpecTP is unavailable to the object DP. This may suggest that the IMC contains an implicit subject argument. What supports that is the fact that secondary predicates are possible.

(4) a. Má ekki vera hérna fullur?
   may not be here drunk.NOM.M.SG
   ‘Is it not allowed to be here drunk?’

b. Pað á/verður/þarf að gera þetta óþreyttur.
   EXPL is.supposed/has.to/needs to do this.ACC untired.M.NOM.SG
   ‘One has to do this while not tired.’

Here, the adjectives fullur ‘drunk’ and óþreyttur ‘untired’ must be predicated of an implicit subject. This suggests that the IMC is truly an impersonal construction. Binding of anaphors is also grammatical in the IMC:

(5) Pað verður/á/þarf að reka sjálfan sig.
   EXPL has.to/is.supposed/needs to fire self.ACC REFL.ACC
   ‘One has to/is supposed to/needs to fire oneself.’

In accordance with Binding Principle A (Chomsky 1981), we do not expect the use of a reflexive pronoun to be possible without it being bound by another element (here, an implicit argument).

In addition, in (6), the implicit argument can control PRO in the infinitival clause (án þess að hafa næga menntun ‘without having enough education’).5

(6) Pað má ráða tvo menn án þess að hafa næga menntun.
   EXPL may hire two.ACC men.ACC without to have enough education
   ‘Somebody who doesn’t have enough education is allowed to hire two men.’

5The example in (6) is based on Jónsson’s (2009) passive examples shown in (91b) and (92) below.
We have now seen a few of the core properties of the IMC. In all the IMC examples above, we can insert an overt subject and get all the same properties: accusative objects, secondary predicates, binding of reflexives and control. That is to say, it looks like there is a covert subject in the structure that is like a pronoun or a full DP, see (7)–(10).

(7) a. Hér má fólk byggja nýja brú.
   here may people build.INF new.ACC bridge.ACC
   ‘Here, people are allowed build a new bridge.’

   b. Pú verður að lesa bókina.
   you have.to to read.INF book.the.ACC
   ‘You have to read the book.’

(8) Jón á/verður/þarf að reka sjálfan sig.
   John is.supposed/has.to/needs to fire self.ACC REFL.ACC
   ‘John is supposed to/has to/needs to fire himself.’

(9) a. Má maður ekki vera hérna fullur?
   may one not be here drunk.NOM.M.SG
   ‘Is one not allowed to be here drunk?’

   b. Páll á/verður/þarf að gera þetta óþreyttur.
   Paul is.supposed/has.to/needs to do this.ACC untired.M.NOM.SG
   ‘Paul has to do this while not tired.’

(10) Maður má ráða tvo menn án þess að hafa næga menntun.
   one may hire two.ACC men.ACC without it to have enough education
   ‘One is allowed to hire two men without having enough education.’

A logical conclusion is to say that the IMC contains either a PRO or pro subject. Given that, it is surprising that agentive ‘by’-phrases are sometimes grammatical in the IMC.

(11) a. Pað þarf að rannsaka þetta betur af fræðimönnum.
    EXPL needs to investigate.INF this.ACC better by scholars
    ‘This needs to be studied further by scholars.’

   b. Í dag þarf að skila skattframtali (*af útlendingum).
    today needs to hand.in.INF tax.return by foreigners
    ‘Foreigners have to hand in their tax returns today.’

As expected, ‘by’-phrases are not possible in a modal structure with overt DPs, see (12).6

(12) *Maður þarf að rannsaka þetta betur af fræðimönnum.
    one needs to investigate.INF this.ACC better by scholars

---

6The subject in (12) is the impersonal pronoun maður ‘one’ (literally ‘man’). It should be noted that it is not an overt realization of the null subject of the IMC (or that the null subject simply amounts to null maður), as argued by H.Á. Sigurðsson and Egerland (2009).
This raises the question whether the IMC involves an implicit argument at all. It has been argued, however, that there is not only one type of implicit arguments, pro/PRO. On that view, there are implicit arguments that have less internal structure than pro and PRO. Landau (2010) argues that pro and PRO, which he calls Strong Implicit Arguments (SIAs), are DPs, with a D-head. He furthermore argues that there are Weak Implicit Arguments (WIAs) which lack D. Under his analysis, WIAs do not license secondary predicates nor bind anaphors. I will argue in this paper that the IMC comes in two flavors, one with an SIA (secondary predicates and binding of reflexives grammatical, ‘by’-phrases ungrammatical) and the other with a WIA (with the opposite properties: secondary predicates and binding of reflexives ungrammatical, ‘by’-phrases grammatical).

The IMC is restricted to six modal verbs: mega ‘may, be allowed to, have the permission to’, eiga ‘have to, have the obligation to, be supposed to, ought (to)’, verða ‘must, have to’, purfa ‘need to, be necessary to’, skulu ‘shall, have to, must’ and bera ‘have the (moral) obligation to’. I will limit my research to the first four of these, which I argue to be raising verbs as well as root modals (when used in the IMC).  

These six verbs are only a subset of the inventory of Icelandic modal verbs, as seen in (13).

(13) a. Icelandic modal verbs taking bare infinitival complements:
   mega ‘may’, munu ‘will’, skulu ‘shall’, vilja ‘will’

b. Icelandic modal verbs taking infinitival að-complements:
   bera ‘have the (moral) obligation to’, eiga ‘be supposed to, ought (to)’, hljóta ‘must’, kunna ‘can’, verða ‘must’, purfa ‘need’, ætla ‘intend, be going to’

c. An Icelandic modal verb taking a participial complement:
   geta ‘can, may, be able to’

   (cf. Thráinsson 2007:422)

Here, the modal verbs are categorized based on what kind of complements they take. The set of IMC verbs does not form a single class in this respect, as mega (and skulu) take bare infinitival complements whereas the rest take infinitival að ‘to’-complements (að being an infinitival marker).

---

7Even though bera ‘have the (moral) obligation to’ and skulu ‘shall, have to, must’ seem to be IMC verbs, they have different properties than eiga, mega, verða and purfa. I argue that these four are root modals and raising verbs. As discussed in Section 2.3.1, the four verbs behave like raising verbs with respect to case preservation. When bera takes on overt subject, however, it is in the dative case, regardless of the subject case of the embedded verb. I also argue that eiga, mega, verða and purfa are root modals, generated lower than epistemic modal verbs. Even though skulu has a deontic (root) reading in the IMC, it seems to be generated higher than root modals. These two verbs, bera and skulu, require a further study. I will not discuss them further in this paper, however.
Now, as ‘by’-phrases play a major role in this paper (see especially Section 4), in part determining what kind of an implicit argument the IMC can take, it is important that the reader accepts the claim made here that ‘by’-phrases are indeed grammatical in the IMC (as first observed in E.F. Sigurðsson 2012). This is the topic of Section 1.2.

1.2 ‘By’-phrases are not ungrammatical in the IMC

Agentive ‘by’-phrases in Icelandic are usually considered to be restricted to passives only (e.g., Jónsson 2009:294). They are possible in eventive passives, that is, of the kind shown in (14), where a passive participle is what defines something as a passive construction.

(14) a. Dyrunum var lokað af dyraverðum klukkan sjö.
   doors.DAT was close-PASS by doorkeeper.the clock seven
   ‘The door was closed by the doorkeeper at seven o’clock.’ (Thráinsson 2009)

   b. Þetta var rannsakað af fræðimönnum.
      this.NOM was investigate-PASS by scholars
      ‘This was investigated by scholars.’

With this in mind and the fact that Jónsson (2009) says that ‘by’-phrases cannot be used to refer to the understood agent of the IMC, it comes as a surprise that ‘by’-phrases are argued in this paper to be grammatical in the IMC. Consider Jónsson’s (2009) example:

(15) *Það þarf að þvo gólfið af einhverjum.
   EXPL needs to clean floor.the.ACC by someone
   Intended: ‘The floor needs to be cleaned by someone.’ (Jónsson 2009:294)

I agree that this example is not really an acceptable sentence without context. That might have more to do more pragmatics than the properties of the IMC, however. The sentence gets much better if we make the agent DP heavier by adding a relative clause.

(16) Það þarf að þvo gólfið af einhverjum sem kann til verka.
   EXPL needs to clean floor.the.ACC by someone who knows how to do it
   ‘The floor needs to be cleaned by someone who knows how to do it.’

Attested examples support the claim made here that ‘by’-phrases are possible in the IMC. The oldest example I have found (from a 1927 newspaper) is shown in (17).

---

8Whether an agentive ‘by’-phrase is acceptable in such examples is often used to distinguish between an eventive passive and stative passive.

9Example (17) taken from http://timarit.is/view_page_init.jsp?issId=171175.
(17) [...] að er hann var búsettur í Síberíu árið 1920 og átti að that when he was resided in Siberia year 1920 and was.supposed to handtaka hann af stjórnarvöldum bolsivíka, þá komst hann undan [...] arrest him.ACC by government Bolshevik then came he away ‘that when he was residing in Siberia in 1920 and was supposed to be arrested by the Bolshevik government, he escaped’

More attested examples, relatively recent, are shown below. I find them all grammatical.\textsuperscript{10,11,12}

(18) a. Það verður að rannsaka þetta af hlutlausum aðila EXPL has.to to investigate this by unbiased party og komast til botns í því. and come to bottom of it ‘This has to be studied by an unbiased party and be understood.’

b. Það verður því að tala við lækninn. EXPL has.to thus to talk to doctor.the not though by reporters ‘The doctor has to be spoken to. Not by reporters, though.’

c. [...] þess vegna er ég að segja að það verði að skoða þetta af fagmanni therefore am I to say that EXPL has.to to look.at this by professional ‘Therefore I’m saying that this has to be looked at by a professional.’

d. 10. regla: Lunch Beat má setja upp hvar sem er af hverjum sem er 10th rule Lunch Beat may set up wherever by whoever svo framarlega sem það er auglýst opið öllum, er ekki notað til fjáröflunar as.long.as it is advertised open everyone is not used for fund.raising og þessum reglum er fylgt. and these rules are followed ‘10th rule: Anyone is allowed to set up Lunch Beat anywhere as long as it is advertised as open for everyone, it is not used for fund raising and these rules are followed.’

In addition, Hlíf Árnadóttir included the following sentence in her online judgment task in 2012 which over 1,000 speakers participated in. The sentence is almost the same as in (11a) above. Note, though, that \textit{þurfa} ‘need’ is in the past subjunctive here (rather than present indicative).

(19) Það \textit{þyrfti} að rannsaka þetta mun betur af frædimönnum. EXPL needed.SBJV to investigate.INF this.ACC much better by scholars ‘This needs to be studied much further by scholars.’

\textsuperscript{10}Examples (18a)–(18b) taken from http://nimbus.blog.is/blog/nimbus/entry/294504/

\textsuperscript{11}(18c) taken from https://bland.is/messageboard/messageboard.aspx?advtype=60&advid=30395325

A large ratio accepted the sentence: 761 (72%) found it acceptable, 182 (17%) questionable, and 115 (11%) judged it unacceptable. I will be arguing that when ‘by’-phrases are allowed, an implicit argument, “smaller” than pro/PRO is in the specifier position of the embedded VoiceP, that is, the same kind of an implicit argument as Legate (2014) argues to be in SpecVoiceP in the so-called New Impersonal Passive (NIP; see discussion on it in Section 3). The NIP is a recent innovation in Icelandic and mainly used and accepted by younger speakers. If the NIP and IMC (when ‘by’-phrasas are acceptable) have the same kind of implicit argument in SpecVoiceP, we might think that ‘by’-phrases being acceptable in the IMC is also a recent innovation. If that were the case, we might assume that NIP and ‘by’-phrases in the IMC are accepted by the same speakers. In Hlíf Árnadóttir’s study, however, the ratio of speakers accepting the NIP was much lower. Only 45 (5%) speakers accepted the NIP sentence in (20), 25 (3%) found it questionable and 853 (92%) found it unacceptable.

(20) Það var ekki skoðað myndina fyrr en næsta dag.  
  EXPL was not looked.at picture.the.ACC until next day  
    ‘The picture wasn’t looked at until the day after.’

The results therefore do not support the claim that the NIP and IMC are part of the same innovation in Icelandic. In fact, we do not know whether ‘by’-phrases in the IMC are an innovation at all.

1.3 Aim

The data discussed in this section raise many important questions, including the following:

Q1 What kind of an implicit argument, if any, does the IMC contain?
Q2 Are ‘by’-phrases in the IMC compatible with secondary predicates and binding of reflexives?
Q3 When are ‘by’-phrases possible in the IMC and when are they not?
Q4 Why are implicit arguments allowed under certain modals?

In short, (A1) I argue that the IMC takes two different types of implicit arguments, weak and strong (WIA and SIA, respectively, cf. Landau 2010, Legate 2014). (A2-A3) When ‘by’-phrases are allowed, the IMC contains a WIA. Following Legate (2014), I argue that WIA in SpecVoiceP, restricts that position but does not saturate it (cf. Chung and Ladusaw’s 2004 predicate restriction). In such cases, secondary predicates and binding of reflexives are not possible. When they are, the IMC contains an SIA and ‘by’-phrases are not allowed.
It is somewhat surprising that Icelandic, which is not a pro-drop language, allows implicit arguments with certain modals. I will argue that IMC verbs can both take propositions (of semantic type \( \langle s_w, t \rangle \)) and properties (of type \( \langle e, s_w, t \rangle \)). When they take properties as arguments, the external argument position (SpecVoiceP) needs to be saturated — we accomplish saturation by writing existential closure into the lexical entries of these modal verbs. I argue that ‘by’-phrases are only possible when the existential has narrow scope. With existential closure in the lexical entries of IMC verbs, the modal scopes over the existential quantifier.

The structure of the paper is as follows: Section 2 discusses briefly conversational backgrounds and argues that epistemic modal verbs are structurally higher in Icelandic than root modals. Furthermore, I argue that IMC verbs are raising verbs and propose how much structure their complement (the infinitival phrase) can consist of. Section 3 discusses different types of implicit arguments. Legate’s (2014) analysis of the New Impersonal Passive in Icelandic is reviewed as I will be adopting her analysis for the IMC when ‘by’-phrases are allowed. Section 4 gives an analysis of the IMC. Section 5 concludes.

---

\[\text{As is standard in intensional semantics literature, I will assume possible world semantics, with modal operators quantifying over possible worlds. In some cases, for example when comparing derivations for the NIP and the IMC, I use event semantics. There I abstract away from possible world semantics, for ease of exposition. I do not include event semantics in those cases where I discuss possible world semantics, for the same reason. Since the letter used for both world arguments and event variables is } s, \text{ this can get confusing. Therefore I use subscript ‘w’ when referring to world semantics and subscript ‘e’ when referring to event semantics, that is, } s_w \text{ and } s_e, \text{ respectively.}\]
2 Modal verbs and their structure

2.1 Conversational backgrounds

I am mostly concerned with epistemic vs. deontic modality in this paper. There are, however, more types, such as teleological, ability, dynamic and circumstantial modals, which I will ignore as such. When I discuss the syntactic structure of modals, I will often talk about root modals, to distinguish them from epistemic modals.

Take a look at the following example.

(21) Mary must have left by 7pm.

This sentence is at least two-ways ambiguous: It could have a deontic reading, where some rules say that it is necessary that Mary leaves by some specific time, in this case 7pm. It could also have an epistemic reading, where we conclude from some available evidence or what we know that Mary has already left and that she did so by 7pm.

We could say that must in this example is ambiguous, that we have two elements or verbs must, one for epistemic use and one for deontic use. Kratzer (1977), however, argues that we have only one verb must and that it depends on the so-called conversational background what it means.

(22) a. In view of what I know, Mary must have left by 7pm.
      b. In view of the rules, Mary must have left by 7pm.

A conversational background is a function from worlds to sets of propositions (type \( \langle s_w, \langle s_w, t, t \rangle \rangle \)) (Kratzer 1977; cf. also Portner 2009 and von Fintel and Heim 2011). The two conversational backgrounds in (22), in view of what I know and in view of the rules give us two readings, epistemic and deontic, respectively. The difference involves what worlds we quantify over in each case. For epistemic modality, we are quantifying over worlds compatible with what is known in \( w \). For deontic modality, we are quantifying over worlds in which the rules or regulations are followed as they are in \( w \). Kratzer (1981) uses the term modal base for the conversational background, which determines the set of accessible worlds. The modal base in (22a) is epistemic, deontic in (22b).

2.2 Verbs used in the IMC are root modals

2.2.1 Epistemic modal verbs are structurally higher than root modal verbs

It has often been argued in the literature that epistemic modals are structurally higher than root modals (see Hacquard 2009 and references cited there). Hacquard (2009), for
example, argues that modals can appear in two positions which correlate with two kinds of interpretation: right above Tense (epistemic interpretation) or right above VP, below Aspect (root interpretation).

Icelandic shows a contrast between epistemic and root modal verbs which suggests that the former are structurally higher than the latter. Thráinsson and Vikner (1995) discuss modal “stacking” in Icelandic. They show that (i) epistemic modals can be stacked under epistemic modals, (ii) root modals can be stacked under epistemic modals, (iii) root modals can be stacked under root modals, (iv) epistemic modals cannot be stacked under root modals.

(23) ✓ Epistemic modals under epistemic modals
   a. Það mun vilja rigna meðan þið eru þar.
      EXPL will tend rain while you are there
      ‘It will tend to rain while you are there.’
   b. Strákana ætlaði að vilja reka á land.
      boys.the.ACC were.going to want drift to land
      ‘It looked like the boys tended to drift ashore.’

(Thráinsson and Vikner 1995:76)

(24) ✓ Root modals under epistemic modals
   a. Þau munu vilja byggja hús.
      they will want build house
      ‘They will want to build a house.’
   b. Hann kann að vera að selja húsið.
      he can to have.to to sell house.the.ACC
      ‘It is possible that he will have to sell the house.’

(Thráinsson and Vikner 1995:77–78)

(25) ✓ Root modals under root modals
   a. Hann vill verða að fara.
      he will have.to to go
      ‘She wants to have to go.’
   b. Hún verður að vilja fara.
      she has.to to want go
      ‘She has to want to go.’
   c. Hann á að kunna að synda.
      he is.supposed to know to swim
      ‘He is supposed to be able to swim.’
   d. Hann verður að eiga að gera eitthvað.
      he has.to to be.supposed to do something
      ‘He has to be supposed to do something.’ (Thráinsson and Vikner 1995:75)
(26) *Epistemic modals under root modals
*Hann verður að kunna að kunna að synda.
he must to can to know to swim
Intended: ‘He has to may be able to swim.’ (Thráínsson and Vikner 1995:78)

The conclusion that can be drawn from this is that epistemic modal verbs are structurally higher than root modal verbs.

2.2.2 IMC verbs are root modals

When the auxiliary hafa ‘have’ is used with modal verbs, it can either come above or below the modal. However, when the modal base is epistemic (‘in view of what is known’), the modal verb is always above ‘have’ (if ‘have’ is included).

(27) a. A: Hver byggði þessa brú?
   who built this bridge
   ‘Who built this bridge?’
   B: Jón má hafa byggt hana, ég er ekki viss.
      John may have built.PTCP it.F.ACC I am not sure
      ‘John may have built it, I’m not sure.’

b. Jón á að hafa drepið konuna,
   John is.supposed to have killed.PTCP woman.the.ACC
eftir því sem ég best veit.
   after that which I best know
   ‘Supposedly, John killed the woman, as far as I know.’

We cannot, however, omit the subject in an epistemic modal base, as we see by looking at B’s ungrammatical answers in (28). This is shown below with the unergative dansa ‘dance’ and the transitive verb drepa ‘kill’.

(28) a. A: Var dansað í veislunni?
   was danced.PASS in party.the.
   ‘Was there dancing at the party?’
   B: *Það má hafa dansað, ég bara man það ekki.
      EXPL may have.INF danced.PTCP I just remember it not
      Intended: ‘There may have been dancing, I just can’t remember.’

b. A: Veistu hvernig konan dó?
   know.you how woman.the died
   ‘Do you know how the woman died?’
   B: *Það á að hafa drepið hana,
      EXPL is.supposed to have.INF killed her.ACC

14In (28) I leave verða ‘have to’ and þurfa ‘need’ out, as these do not seem to be possible as epistemic modals.
eftir því sem ég best veit.
after that which I best know

Intended: ‘She is supposed to have been killed, as far as I know.’

This suggests that epistemic modals are not possible as IMC verbs.

We have seen that root (non-epistemic) modals work fine in the IMC. When *hafa* ‘have’ is higher than the modal, we get a root reading. Therefore the modal verbs in (29) can only be interpreted on a root reading (with a conversational background like ‘in view of the rules’). Epistemic reading (with an epistemic modal base) would not be possible. This is in line with epistemic modals being structurally higher than root modals.

(29) a. Það *hefur* alltaf mátt dansa í veislum.
   EXPL has always may.PTCP dance.INF in parties
   ‘Dancing in parties has always been allowed.’

b. Undanfarið *hefur orðið* að selja marga bíla í þessu fyrirtæki.
   lately has had.to.PTCP to sell.INF many.ACC cars.ACC in this firm
   ‘Lately, this firm has had to sell a lot of cars.’

c. Það *hefur* alltaf án átt að borga reikninga á réttum tíma.
   EXPL has always been.supposed to pay.INF checks.ACC on right time
   ‘People have always been supposed to pay (their) checks on time.’

d. Það *hefur* alltaf þurft að greiða skatta.
   EXPL has always needed.PTCP to pay taxes.ACC
   ‘People have always needed to pay their taxes.’

Although epistemic modal verbs cannot come under *hafa* ‘have’, it is not true that root modal verbs cannot be above *hafa*. As seen in (30), the modal verb *þurfa* ‘need’ is below one auxiliary *hafa* but also above another auxiliary *hafa*.

(30) Við höfum aldrei þurft að *hafa* þegar borgað þegar við møtum.
   we have never needed.PTCP to have already paid when we show.up
   ‘It has never been the case that we have to have paid already when (before) we show up.’

I take this to show that root modal verbs, below Aspect, can embed clauses or phrases that in turn contain a separate Aspect layer. It makes it more difficult to distinguish between epistemic and deontic or root modal bases; this makes it all the more important to have the appropriate conversational background or context from which the modal base can be interpreted.

The conclusion here is therefore that only root modals are possible in the IMC as our examples above suggest that epistemic modal verbs are not possible in the construction.
2.2.3 Interim summary

In this subsection, we repeated Thráinsson and Vikner’s (1995) arguments for epistemic modal verbs being structurally higher than root modal verbs. The fact that auxiliary hafa ‘have’ can only be placed above root modal verbs but not epistemic modals supports this. Also, we came to the conclusion that only root modals are possible in the IMC. Next, we will argue that IMC verbs are raising verbs and look at the structure of their complement.

2.3 IMC verbs are raising verbs

As argued above, epistemic modal verbs are structurally higher than deontic modal verbs in Icelandic. In this subsection, I argue that all IMC verbs are raising verbs.\(^{15}\) I also argue, contra Wurmbrand (1999),\(^{16}\) that it is not the case that all modal verbs are raising verbs. Moreover, I agree with Thráinsson and Vikner (1995) in that epistemic modal verbs are raising verbs, whereas I disagree with them when they say that root modal verbs in Icelandic are control verbs.

We can use several diagnostics to determine whether all modal verbs in Icelandic are raising verbs (cf. Wurmbrand 1999) or whether it is true that epistemic modal verbs in Icelandic are raising verbs and root verbs are control verbs (cf. Thráinsson and Vikner 1995). For an overview of empirical distinctions between raising and control, see Davies and Dubinsky (2004).

2.3.1 Case preservation

For a language like Icelandic, where subjects can have other cases than nominative, case preservation is a good test to see whether a verb is a raising verb or not.

líka ‘like’ is a verb that takes a dative subject (31). When it is embedded under a raising verb, like virðast ‘seem’, the subject retains its case when it moves up (raises) (32a). On the other hand, when líka is embedded under a control verb like vonast til ‘hope to’ (32b), the latter verb takes an argument of its own which it assigns a thematic role. The external argument of the control verb vonast til gets nominative case but the lower argument, the subject of líka, is PRO. This is shown with the examples in (31)–(32).

\(^{15}\)It should be noted that where I discuss the raising versus control diagnostics and apply them to modal verbs, I do it with overt subjects but not with implicit arguments licensed in the IMC. This is because at least some of the diagnostics cannot be tested in the IMC. For example, we need overt DPs to check whether case is preserved and we of course cannot omit the subject in subject idiom chunks.

\(^{16}\)Wurmbrand’s claim is not made specifically for Icelandic, although she shows evidence i.a. from Icelandic.
Haraldi/*Haraldur líkar vel í Stuttgart.
Harold.DAT/NOM likes well in Stuttgart
‘Harold likes it in Stuttgart.’ (Thráinsson and Vikner 1995:60)

(32) a. Haraldi/*Haraldur virðist líka vel í Stuttgart.  (raising)
Harold.DAT/NOM seems like.INF well in Stuttgart
‘Harold seems to like it in Stuttgart.’

b. Haraldur/*Haraldi vonast til að líka vel í Stuttgart.  (control)
Harold.NOM/DAT hopes for to like.INF well in Stuttgart
‘Harold hopes to like it in Stuttgart.’ (Thráinsson and Vikner 1995:60)

Wurmbrand (1999) proposes that all modal verbs are raising verbs. One of her arguments is that in Icelandic, when líka ‘like’ is embedded under the deontic modal verb verða ‘must, have to’, the subject has dative case, as shown in (33).

(33) Haraldi/*Haraldur verður að líka hamborgarar.
Harold.DAT/NOM has.to to like.INF hamburgers
‘Harold must like hamburgers.’ (e.g., in order to be accepted by his new American in-laws)’ (Wurmbrand 1999:602)

Wurmbrand (1999) shows this only for verða ‘have to’ (i.e., that the case is preserved with root modals). This works for other IMC verbs as well (the verbs mistakast ‘fail’, líða (vel) ‘feel (good)’, batna ‘get better’ and leiðast ‘be bored’ in (34)–(40) all take dative subjects).17

(34) a. Þér má ekki mistakast.
you.DAT may not fail.INF
‘You are not allowed to fail.’

b. *Þú mátt ekki mistakast.
you.NOM may not fail.INF

(35) a. Þér þarf að líða vel.
you.DAT need to feel.INF well
‘You need to feel good.’

b. *Þú þarf að líða vel.
you.NOM need to feel.INF well

17This actually works for most modal verbs. This is shown for the non-IMC verb geta ‘can, be able to’ in (i):

(i) a. Þér getur batnæð fljótt ef þú tekur meðalið.
you.DAT can get.better.PTCP quickly if you take drug.the.ACC
‘You can get better quickly if you take the drug.’

b. *Þú getur batnæð fljótt ef þú tekur meðalið.
you.NOM can get.better.PTCP quickly if you take drug.the.ACC
The ungrammaticality of the b-examples in (34)–(37) shows that these root modal verbs are not control verbs. That is, *eiga* ‘be supposed to’, *mega* ‘may’, *verða* ‘have to’ and *þurfa* ‘need’, which all take part in the IMC, are raising verbs. Other modal verbs behave the same, except for three root modals, *kunna* ‘know how’, *vilja* ‘want’ and *ætla* ‘intend’.\(^\text{18}\)

\hspace{1cm}

\[(38)\] a. ?*Hafðu* ekki áhyggjur af mér, *ég* kann ekki að leiðast.
    have.you not worries of me I.NOM know not to be.bored
    ‘Don’t worry about me, I don’t know how to be bored.’

    have.you not worries of me me.DAT know not to be.bored

\[(39)\] a. ?*Hann* vill alls ekki mistakast.
    he.NOM wants not.at.all fail.INF
    ‘He does not want to fail at all.’

 b. *Honum* vill alls ekki mistakast.
    him.DAT wants not.at.all fail.INF

---

\(^{18}\)I do not find the a-examples in (38)–(40) perfect, as indicated by the question marks. Thráinsson (2007:426), on the other hand, claims that it is not possible to get nominative case with root modals when they take verbs that have oblique case subjects (he actually also claims that it is not possible to get the root reading when case is preserved). He shows this for *vilja* and *ætla* (the judgments are his).

\[(i)\] a. ?*Haraldur* vill aldrei vanta peninga.
    Harold wants never lack money

 b. *Haraldur* ætlar að líka vel í Stuttgart.
    Harold intends to like well in Stuttgart

(Thráinsson 2007:426)

This might suggest that speakers’ judgments in general differ in this regard. I agree with Thráinsson’s judgments, at least without context. I do not, however, have an explanation for why (i) is bad but the a-examples in (38)–(40) are much better. What is important here is that *kunna* ‘know how’, *vilja* ‘want’ and *ætla* ‘intend’ on a root reading are different from IMC verbs, in that oblique subject case is not preserved with these verbs.
(40) a. \textit{Liverpool ætlar að mistakast viljandi í lokaleiknum} \\
\textit{team.NOM Liverpool intends to fail.INF intentionally in final.game.the} \\
\textit{svo að} \textit{Everton falli.} \\
so that Everton fails \\
‘Liverpool F.C. is going to fail on purpose in the final game (against some other team than E.) so that Everton will lose their place in the league.’

b. *\textit{Liverpool ætlar að mistakast viljandi í lokaleiknum} \\
\textit{team.DAT Liverpool intends to fail.INF intentionally in final.game.the} \\
\textit{svo að} \textit{Everton falli.} \\
so that Everton falls

Now the judgments are opposite to what we had in (34)–(37) above in that preserving the case of the embedded verb is ungrammatical, cf. the b-examples in (38)–(40). This suggests that while IMC verbs are raising verbs, \\textit{kunna, vilja} and \\textit{ætla} are control verbs. These three verbs also have an epistemic reading, ‘may, be possible’, ‘tend’ and ‘going to’, respectively. When they have an epistemic modal base, case is preserved in examples like those in (38)–(40). That suggests they are raising verbs when they are epistemic but control verbs when they have root readings (which fits with Thráinsson and Vikner’s 1995 conclusion).

2.3.2 Embedded passive

Raising and control structures show different behavior when the complement of the predicate in question is a passive clause. In raising structures, the embedded clause (the verbal structure embedded under the raising verb) can be passivized, see (41) and (42). In control structures, this is impossible, see (43) and (44).

(41) Raising

a. Barnett seemed to have read the book.

b. The book seemed to have been read by Barnett. \\
\textit{(Davies and Dubinsky 2004:5)}

(42) a. Barði virtist hafa lesið bókina. \\
\textit{Barði seemed have.INF read book.the.ACC} \\
‘Barði seemed to have read the book.’

b. Bókin virtist hafa verið lesin af Barða. \\
\textit{book.the.NOM seemed have.INF been read.PASS by Barði} \\
‘The book seemed to have been read by Barði.’
Control

a. Barnett tried to read the book.

b. #The book tried to be read by Barnett. (Davies and Dubinsky 2004:5)

Try and reyna are both control verbs, meaning that they take their own thematic subject which is assigned a thematic role (agent in this case). The sentences in (43b) and (44b) are not possible because the book/bókin is now an agent, the thematic subject of try/reyna. That does not work because usually agents are human, at least animate. In the control structure, the book/bókin is not a theme as in the raising structures above and does not originate as the object of read/lesa (PRO in the infinitival clause, however, is the theme argument and originates as the object of read/lesa).

Now the question is: What is the behavior of IMC verbs in this respect?

Try and reyna are both control verbs, meaning that they take their own thematic subject which is assigned a thematic role (agent in this case). The sentences in (43b) and (44b) are not possible because the book/bókin is now an agent, the thematic subject of try/reyna. That does not work because usually agents are human, at least animate. In the control structure, the book/bókin is not a theme as in the raising structures above and does not originate as the object of read/lesa (PRO in the infinitival clause, however, is the theme argument and originates as the object of read/lesa).

Now the question is: What is the behavior of IMC verbs in this respect?

Try and reyna are both control verbs, meaning that they take their own thematic subject which is assigned a thematic role (agent in this case). The sentences in (43b) and (44b) are not possible because the book/bókin is now an agent, the thematic subject of try/reyna. That does not work because usually agents are human, at least animate. In the control structure, the book/bókin is not a theme as in the raising structures above and does not originate as the object of read/lesa (PRO in the infinitival clause, however, is the theme argument and originates as the object of read/lesa).

Now the question is: What is the behavior of IMC verbs in this respect?

Try and reyna are both control verbs, meaning that they take their own thematic subject which is assigned a thematic role (agent in this case). The sentences in (43b) and (44b) are not possible because the book/bókin is now an agent, the thematic subject of try/reyna. That does not work because usually agents are human, at least animate. In the control structure, the book/bókin is not a theme as in the raising structures above and does not originate as the object of read/lesa (PRO in the infinitival clause, however, is the theme argument and originates as the object of read/lesa).

Now the question is: What is the behavior of IMC verbs in this respect?

Try and reyna are both control verbs, meaning that they take their own thematic subject which is assigned a thematic role (agent in this case). The sentences in (43b) and (44b) are not possible because the book/bókin is now an agent, the thematic subject of try/reyna. That does not work because usually agents are human, at least animate. In the control structure, the book/bókin is not a theme as in the raising structures above and does not originate as the object of read/lesa (PRO in the infinitival clause, however, is the theme argument and originates as the object of read/lesa).

Now the question is: What is the behavior of IMC verbs in this respect?

Try and reyna are both control verbs, meaning that they take their own thematic subject which is assigned a thematic role (agent in this case). The sentences in (43b) and (44b) are not possible because the book/bókin is now an agent, the thematic subject of try/reyna. That does not work because usually agents are human, at least animate. In the control structure, the book/bókin is not a theme as in the raising structures above and does not originate as the object of read/lesa (PRO in the infinitival clause, however, is the theme argument and originates as the object of read/lesa).

Now the question is: What is the behavior of IMC verbs in this respect?

Try and reyna are both control verbs, meaning that they take their own thematic subject which is assigned a thematic role (agent in this case). The sentences in (43b) and (44b) are not possible because the book/bókin is now an agent, the thematic subject of try/reyna. That does not work because usually agents are human, at least animate. In the control structure, the book/bókin is not a theme as in the raising structures above and does not originate as the object of read/lesa (PRO in the infinitival clause, however, is the theme argument and originates as the object of read/lesa).

Now the question is: What is the behavior of IMC verbs in this respect?

Try and reyna are both control verbs, meaning that they take their own thematic subject which is assigned a thematic role (agent in this case). The sentences in (43b) and (44b) are not possible because the book/bókin is now an agent, the thematic subject of try/reyna. That does not work because usually agents are human, at least animate. In the control structure, the book/bókin is not a theme as in the raising structures above and does not originate as the object of read/lesa (PRO in the infinitival clause, however, is the theme argument and originates as the object of read/lesa).

Now the question is: What is the behavior of IMC verbs in this respect?

Try and reyna are both control verbs, meaning that they take their own thematic subject which is assigned a thematic role (agent in this case). The sentences in (43b) and (44b) are not possible because the book/bókin is now an agent, the thematic subject of try/reyna. That does not work because usually agents are human, at least animate. In the control structure, the book/bókin is not a theme as in the raising structures above and does not originate as the object of read/lesa (PRO in the infinitival clause, however, is the theme argument and originates as the object of read/lesa).

Now the question is: What is the behavior of IMC verbs in this respect?

Try and reyna are both control verbs, meaning that they take their own thematic subject which is assigned a thematic role (agent in this case). The sentences in (43b) and (44b) are not possible because the book/bókin is now an agent, the thematic subject of try/reyna. That does not work because usually agents are human, at least animate. In the control structure, the book/bókin is not a theme as in the raising structures above and does not originate as the object of read/lesa (PRO in the infinitival clause, however, is the theme argument and originates as the object of read/lesa).

Now the question is: What is the behavior of IMC verbs in this respect?

Try and reyna are both control verbs, meaning that they take their own thematic subject which is assigned a thematic role (agent in this case). The sentences in (43b) and (44b) are not possible because the book/bókin is now an agent, the thematic subject of try/reyna. That does not work because usually agents are human, at least animate. In the control structure, the book/bókin is not a theme as in the raising structures above and does not originate as the object of read/lesa (PRO in the infinitival clause, however, is the theme argument and originates as the object of read/lesa).

Now the question is: What is the behavior of IMC verbs in this respect?

Try and reyna are both control verbs, meaning that they take their own thematic subject which is assigned a thematic role (agent in this case). The sentences in (43b) and (44b) are not possible because the book/bókin is now an agent, the thematic subject of try/reyna. That does not work because usually agents are human, at least animate. In the control structure, the book/bókin is not a theme as in the raising structures above and does not originate as the object of read/lesa (PRO in the infinitival clause, however, is the theme argument and originates as the object of read/lesa).

Now the question is: What is the behavior of IMC verbs in this respect?

Try and reyna are both control verbs, meaning that they take their own thematic subject which is assigned a thematic role (agent in this case). The sentences in (43b) and (44b) are not possible because the book/bókin is now an agent, the thematic subject of try/reyna. That does not work because usually agents are human, at least animate. In the control structure, the book/bókin is not a theme as in the raising structures above and does not originate as the object of read/lesa (PRO in the infinitival clause, however, is the theme argument and originates as the object of read/lesa).

Now the question is: What is the behavior of IMC verbs in this respect?
These three verbs, when they have a root reading, behave like control verbs, such as try and reyna in (43b) and (44b), respectively. With an epistemic reading, the sentences would be fine.

The conclusion from this subsection is therefore that while kunna, vilja and ætla with a root reading seem to be control verbs, IMC verbs are raising verbs.

2.3.3 Non-argument subjects

In English, weather verbs (meteorological expressions) and existential clauses take expletive subjects, it and there, respectively.

(47) a. It is raining.
    b. There is a unicorn in the garden.

The subjects of the clauses above are not assigned any thematic role. Raising predicates do not either assign any thematic roles, therefore we expect expletives to be compatible with raising verbs, see (48) below. Control predicates, as we have already seen, assign a thematic role to their external argument and therefore expletives, which do not bear a thematic role, should not be compatible with control verbs. That is, in (49), the expletive would have to be able to take on the agent role assigned by try.19

(48) a. It seemed to be raining.
    b. There seems to be a unicorn in the garden. (Davies and Dubinsky 2004:7)

(49) a. *It tried to be raining.
    b. *There tried to be a unicorn in the garden.

Icelandic shows the same contrast between raising (51) and control predicates (52).

(50) a. Pað rignir.
    EXPL rains
    ‘It is raining.’
    b. Pað er einhyrningur í garðinum.
    EXPL is unicorn in garden.the
    ‘There is a unicorn in the garden.’

(51) a. Pað virtist rigna.
    EXPL seemed rain
    ‘It seemed to rain.’

19There are some complications here in that sentences like It tried to rain are not ungrammatical for all speakers. Julie Legate (p.c.) informs me that she finds the sentence not so bad and she finds It wanted to rain fine.
b. *Það expl reyni að rigna.
   EXPL tried to rain
   Intended: ‘It tried to rain.’

b. *Það expl reyni að vera einhyrningur í garðinum.
   EXPL tried to be unicorn in garden.

If IMC verbs are raising verbs, then they should be fine with sentences as in (50).

(53) a. *Það expl verður/þarf að rigna! Annars er ég í vondum málum
   EXPL has.to/needs to rain otherwise is I in bad things
   af því að ég spáði rigningu!
   because I predicted rain
   ‘It has to rain! If not, I’m in trouble because I predicted it would rain!’

b. *Það expl verður/þarf að vera einhyrningur í garðinum þegar krakkarnir koma.
   EXPL has.to/needs to be unicorn in garden the when kids come
   Ég var búinn að lófa þeim því.
   I was done to promise them it
   ‘There must be a unicorn in the garden when the kids arrive. I made them a promise.’

(54) a. Samkvæmt veðurspánni á að rigna á morgun.
   according weather.forecast the is.supposed to rain tomorrow
   ‘According to the weather forecast, it is supposed to rain tomorrow.’

b. *Það á alltaf að vera einhyrningur í garðinum
   EXPL is.supposed always to be unicorn in garden.
   þegar krakkarnir eru í heimsókn!
   when kids the are in visit
   ‘It’s always the case that a unicorn is supposed to be in the garden when the kids are visiting!’

(55) a. *Það má alls ekki rigna þess að þá verður fluginu mínu aflýst!
   EXPL may not.at.all rain because then will be flight the my cancelled
   ‘It may not rain because then my flight will be cancelled!’

b. Samkvæmt lögum má vera einhyrningur í garðinum.
   according laws may be unicorn in garden.
   ‘According to the law, a unicorn may be in the garden.’

These sentences are all fine, suggesting that IMC verbs are indeed raising verbs. It should be noted, however, that einhyrningur ‘a unicorn’ in these examples always gets narrow scope: For example, in (53b), there is some unicorn or other that must be in the garden, but not anyone in particular.
Let us now compare the data above with *kunna*, *vilja* and *ætla*, the modal verbs we think might be different from other modal verbs.

(56) a. *Pað kann aldeils að rigna.*
    EXPL knows totally to rain
    Intended: ‘It sure knows how to rain.’

    b. *Pað kann að vera einhyrningur í garðinum.*
    EXPL knows to be unicorn in garden.the

(57) a. *Pað vill rigna á morgun.*
    EXPL wants rain tomorrow
    Intended: ‘It wants to rain tomorrow.’

    b. *Pað vill vera einhyrningur í garðinum.*
    EXPL wants be unicorn in garden.the

(58) a. *Pað ætlar að rigna á morgun.*
    EXPL intends to rain tomorrow
    Intended: ‘It intends to rain tomorrow.’

    b. *Pað ætlar að vera einhyrningur í garðinum.*
    EXPL intends to be unicorn in garden.the

We see immediately that these verbs behave differently from IMC verbs as all these examples are ungrammatical. With an epistemic conversational background, examples parallel to these would all be grammatical.

Thráinsson and Vikner (1995:58–59) discuss the use of modal verbs with weather verbs. The modal verbs they discuss are, unfortunately, only *kunna* and *vilja*; they point out that examples similar to (56a) and (57a) are only possible if the modals have an epistemic interpretation.

They also show the following examples:

(59) a. *Pað virðast koma tíu stúdentar á fyrirlesturinn.*
    EXPL seem.3PL come ten students.NOM to talk.the
    ‘It seems that ten students will come to the talk.’

    b. *Pað reyna að koma tíu stúdentar á fyrirlesturinn.*
    EXPL try to come ten students.NOM to talk.the
    (Thráinsson and Vikner 1995:58)

(60) *Pað kunna að hlusta tíu stúdentar á fyrirlesturinn.*
    there may to listen ten students.NOM to talk.the
    ‘Ten students may listen to the talk.’

    *‘Ten students are able to/ know how to listen to the talk.’
    (Thráinsson and Vikner 1995:58)
Here, we see that control verbs behave differently from raising verbs in this respect: the former are ungrammatical in the structure whereas the latter are grammatical. In these examples, the DP *tíu stúdentar* ‘ten students’ stays low. Therefore it cannot be an argument of the control verb, as it is in the embedded clause. The control verb will need an external argument but there is none and the sentence is ungrammatical. In (60) we see that in the same kind of structure, a root interpretation of *kunna* ‘know how’ is not possible (with an epistemic reading, the sentence in (60) is fine). That is not surprising, we have already seen above that the root modal *kunna* behaves like a control verb. Using IMC verbs should be fine, however. That is indeed the case.

(61) Pað mega hlusta tíu stúdentar á fyrirlestrurinn.
EXPL may.3PL listen ten students.NOM to talk.the
‘Ten students (doesn’t matter which students) are allowed listen to the talk.’
*‘Ten students, namely John, Mary, Sue, Bill ..., are allowed to listen to the talk.’*

(62) Pað eiga/verða/purfa að hlusta tíu stúdentar á fyrirlestrurinn.
EXPL are.supposed/have.to.3PL/need.3PL to listen ten students.NOM to talk.the
‘It is necessary that ten students (doesn’t matter which students) will listen to the talk.’
*‘For ten students, namely John, Mary, Sue, Bill ..., it is the case that they are required to listen to the talk.’*

As with the unicorn examples above, *tíu stúdentar* ‘ten students’ can only have narrow scope. That is, the only reading for (61), for example, is where there are some ten students (or other) that are allowed to listen to the talk; the reading where there are certain ten students (namely John, Mary, Sue, Bill, etc.) allowed to listen, is unavailable. This needs further investigation but I leave it for future research.

The conclusion of this subsection is that IMC verbs are raising verbs and that *kunna*, *vilja* and *ætla* with root interpretations are control verbs.

### 2.3.4 Idiom chunks

Idiom chunks are frequently used to determine whether a verb is a raising predicate or a control predicate. Idioms have special meaning, not predictable from the parts that they consist of. When they are embedded under raising predicates, this special meaning is preserved, whereas under control, it is not. Take (63), for example.

(63) The cat is out of the bag.

This sentence is ambiguous: It has a literal reading, where some cat is no longer in some bag it was in before. It also has an idiomatic reading, ‘What used to be a secret is no longer a secret.’ Under this reading, *the cat* is an idiom chunk, referring to a secret.
When we combine (63) with a raising predicate, such as *seem*, and a control predicate, such as *try*, the outcome is as shown in (64a) and (64b), respectively.

(64) a. The cat seemed to be out of the bag.  
    (Davies and Dubinsky 2004:8)  

Only (64a) is ambiguous, it still preserves the idiomatic reading. (64b), on the other hand, has only a literal reading, where some cat makes an attempt to be or get out of the bag. Here, *the cat* cannot denote a secret.

We can test how this works for modal verbs in Icelandic. Thráinsson and Vikner (1995) argue that this is possible in Icelandic with epistemic modal verbs only (which excludes IMC verbs, which are root modals). They discuss the following idiom.

(65) Þarna ligur hundurinn grafinn.  
     there lies dog.the.NOM buried  
     Literal: ‘The dog lies there buried.’  
     Idiomatic: ‘This is where the problem is.’  
     (Thráinsson and Vikner 1995:59)  

Under the idiomatic reading, *hundurinn* is a subject idiom chunk which denotes ‘the problem.’

If we try to combine this idiom with *kunna* ‘know how’, *vilja* ‘want’ and *ætla* ‘intend’ with a root reading, that only gives us literal readings.

(66) a. ?Þarna kann hundurinn að liggja grafinn.  
     there knows dog.the.NOM to lie buried  
     ‘There, the dog knows how to lie buried.’  
    
    b. Þarna vill hundurinn liggja grafinn.  
     there wants dog.the.NOM lie buried  
     ‘There, the dogs wants to lie buried.’  
    
    c. Þarna ætlar hundurinn að liggja grafinn.  
     there intends dog.the.NOM to lie buried  
     ‘There, the dog intends to lie buried.’  

Turning to IMC verbs, it does not seem to be possible at first sight to embed the idiom under an IMC verb. If we give it appropriate context, however, such sentences give us the idiomatic reading as well as a literal reading.

(67) a. Þarna verður/þarf hundurinn að liggja grafinn  
     there has.to/needs dog.the.NOM to lie buried  
     til að tilgáta þín gangi upp.  
     for that hypothesis your work  
     ‘For your hypothesis to work, this needs to be where the problem is.’
b. Þarna á hundurinn að liggja grafinn.
   there is.supposed dog.the to lie buried
   ‘There is where the problem is supposed to be.’

c. Þarna má hundurinn alveg liggja grafinn,
   there may dog.the altogether lie buried
   það hefur engin áhrif á tilgátu mína.
   that has no effect on hypothesis my
   ‘The problem may be there, that doesn’t have any effect on my hypotheses.’

It looks like the idiom chunk in these examples is compatible with IMC verbs. It is, however, not as easy to use it with IMC verbs as it is with raising predicates such as virðast ‘seem’. The reason may be that virðast adds very little to the semantic derivation, unlike IMC verbs. My conclusion here is that this test suggests that IMC verbs are raising verbs. This needs to be studied further, nevertheless. I leave that for future research.²⁰

2.3.5 Interim summary

I have argued that the IMC verbs are different from kunna ‘know how’, vilja ‘want’ and ætla ‘intend’ in a few ways. While kunna, vilja and ætla are probably control verbs when they have a root interpretation, I argue that IMC verbs are raising verbs.

I summarize my results, based on four diagnostics, in Table 1 below.

<table>
<thead>
<tr>
<th></th>
<th>IMC</th>
<th>kunna</th>
<th>vilja</th>
<th>ætla</th>
</tr>
</thead>
<tbody>
<tr>
<td>Case preservation</td>
<td>raising</td>
<td>control</td>
<td>control</td>
<td>control</td>
</tr>
<tr>
<td>Emb. passive</td>
<td>raising</td>
<td>control</td>
<td>control</td>
<td>control</td>
</tr>
<tr>
<td>Non-arg. subj.</td>
<td>raising</td>
<td>control</td>
<td>control</td>
<td>control</td>
</tr>
<tr>
<td>Idiom chunks</td>
<td>raising</td>
<td>control</td>
<td>control</td>
<td>control</td>
</tr>
</tbody>
</table>

Table 1: Raising vs. control diagnostics.

²⁰Thráinsson and Vikner also discuss the idiom chunk in (ia) below. They note that it is not possible to use kunna with it on the root reading whereas it is fine on an epistemic reading.

(i) a. Skörin færist upp í bekkinn

   step.the moves up in bench.the
   ‘This is going too far.’

b. Skörin kann að færast upp í bekkinn.

   step.the can to move up in bench.the
   ‘This may go too far.’ (*‘This knows how ...’)

(Thráinsson and Vikner 1995:59)

This would need to be tested with more modal verbs, especially IMC verbs. I am not familiar enough with this idiom to be able to give native judgments on its use, however.
2.4 The structure

Since we have argued that IMC verbs are raising verbs, the structure of the complement of the modal verbs eiga, mega, verða and þurfa should be less than the structure of the complement of control verbs, which take CP complements. We want to know, though, how limited this structure is.

First of all, I take v to be the attachment point of manner adverbs, such as vandlega ‘carefully’, and Voice to be the locus of the external argument; when we have an (agentive) external argument, we can use agentive modifiers, such as af kappi ‘enthusiastically’ and viljandi ‘intentionally’. The grammaticality of the examples below suggests that in these examples we have both a vP and a VoiceP.

(68) a. Það á/verður/þarf að lesa bókina vandlega.
expl is.supposed/has.to/needs to read book.the.ACC carefully
‘One has to/is supposed to/needs to read the book carefully.’

b. Það má lesa bókina vandlega.
expl may read book.the.ACC carefully
‘One is allowed to read the book carefully.’

(69) a. Það þarf að brjóta lógin viljandi (til að fara í fangelsi).
expl needs to break law.the intentionally for to go to jail
‘One needs to break the law intentionally (in order to go to jail).’

b. Það má ekki svindla viljandi.
expl may not cheat intentionally
‘It is not allowed to cheat intentionally.’

We might think, given examples like (69a), that the modal locally selects a VoiceP without an overt subject. That cannot be the case, however, as Aspect is an intervener. The examples below, which contain hafa ‘have’ between the modal and VoiceP, show this.

(70) Af hverju á/verður/þarf að hafa skilað inn gögnum
why is.supposed/has.to/needs to have turned in documents
þegar maður sékir um?
when one applies
‘Why is it necessary that one has already turned in documents when one applies?’

Finally, negation in Icelandic is different from English negation not. Icelandic ekki ‘not’ is an AdvP left-adjoined to at least as high as the edge of the verb phrase (e.g., Collins and Thráinsson 1996, Thráinsson 2001, 2007). Negation is not possible within the infinitival in the IMC. Since the negation is lower than TP, this suggests that the complement of the modal has less structure.
It doesn't seem like it's allowed to dance here.

'It doesn't seem like it is needed to eat the cake.'

This is different from control verbs, like *reyna* ‘try’, which take a CP complement, which in turn contains a TP.

John tried not to eat the cake.

In the infinitival clause in (72), the verb moves above negation to at least T. We thereby see that control verbs embed richer structure (CPs) than IMC verbs. With IMC verbs, negation between Aspect and the infinitival phrase seems to be possible, as expected, even though it is not perfect (note that *maður* ‘one’ is within parentheses, indicating that the sentence is equally good with or without an overt subject).  

In order to be considered unbiased, one has to/needs to have not discussed this case before.

Based on the data above, we propose a syntactic structure for root modals (in the tree below, I do not include the higher (epistemic) modal verb position, as that is not of concern for the IMC). As seen in the tree, I argue that the infinitival phrase complement of the modal contains less structure than a TP, which is at least as rich as an AspP.

---

21 Thanks to Hlíf Árnadóttir for discussing the example in (73) and giving her judgment.
In the tree, we see that there is an AspP above and below the ModP. This is because we have seen examples where a root modal can be below *hafa* ‘have’ and at the same time be above another such auxiliary. See, e.g., example (30).

### 2.5 Summary

I argued in this section that root modals are structurally lower than epistemic modals in Icelandic. I furthermore argued that IMC verbs are root modals and that they are raising verbs. This goes against Thránsson and Vikner’s (1995) claim that root modals in Icelandic are control verbs. The results of the raising vs. control diagnostics discussed in Section 2.3 fit nicely with the results of the syntactic structure diagnostics in Section 2.4: If IMC verbs are not control verbs, they should embed less structure than control verbs do. That is indeed borne out.

In the next section, we will discuss different types of implicit arguments with the ultimate goal of figuring out how they fit into the IMC.
3 Implicit arguments

In this section, I discuss different types of implicit arguments, weak and strong. The distinction has been argued to be important for the New Impersonal Passive in Icelandic and it turns out that it seems to be important for the IMC, as discussed in Section 4. First, however, discussion on semantic argument saturation and restriction is in order.

3.1 Restriction and saturation

In semantics, unsaturated meaning components need to get saturated in the course of the derivation.\footnote{It should be noted that in this section we will only be concerned with extensional event semantics.} Once an argument position has been saturated, it is no longer available for semantic composition (cf. Chung and Ladusaw 2004). Often, but not always, an argument position is saturated with Function Application (FA).

(75) Function Application (Heim and Kratzer 1998:44)

If $\alpha$ is a branching node, $\{\beta;\gamma\}$ is the set of $\alpha$’s daughters, and $[\beta]$ is a function whose domain contains $[\gamma]$, then $[\alpha] = [\beta]([\gamma])$.

Take (76) as an example, with the lexical entries shown in (77).

(76) John fed Fido. (Chung and Ladusaw 2004:2)

(77) a. $[\text{John}] = j$
b. $[\text{Fido}] = f$
c. $[\text{feed}] = \lambda y. \lambda x. x \text{ feeds } y$

With this much we can apply the function $[\text{feed}]$ to $[\text{Fido}]$ and $[\text{John}]$.

(78) $\lambda y. \lambda x. [\text{feed}(y)(x)](f)(j)$ (Chung and Ladusaw 2004:2)

We start by applying the function to (f). By doing that we delete the $\lambda$-operator that scopes over the variable y and replace all variable y’s with f:

(79) $\lambda x. [\text{feed}(f)(x)](j)$

We repeat this when we apply the function to (j): now all variables x are replaced with j.

(80) $\text{feed}(f)(j) \ (= f \text{ feeds } j)$

Here, both argument positions have been saturated through FA. Saturation can also be accomplished through existential closure (EC). In (81), we have the same function as in (78), except that now we have added an event argument.
(81)  λy.λx.λe.[feed(y)(x)(e)](f)(j)

After FA, we still have the event argument unsaturated:

(82)  λe.[feed(f)(j)(e)]  (Chung and Ladusaw 2004:4)

By existentially closing over the event argument, however, we manage to saturate it:

(83)  ∃e.[feed(f)(j)(e)]  (Chung and Ladusaw 2004:4)

Chung and Ladusaw (2004) introduce another mode of composition, predicate restriction (Restrict). Restrict targets an argument but, importantly, does not saturate it. Now, assume that instead of John fed Fido, we have the sentence in (84), where dog is a property, of type 〈e,t〉.

(84)  John fed dog.  (Chung and Ladusaw 2004:4)

If feed is of type 〈e,〈et〉⟩, then there is obviously going to be a type-clash with the object being of type 〈e,t〉. We therefore need something else than FA here.

One way, Chung and Ladusaw suggest, would be to have a choice function operation mapping a property onto an entity (type e) that has the property (of type 〈e,t〉) (cf. Reinhart 1997; Partee’s 1987 type-shifting approach might possibly also do the job.)

The other way they suggest is predicate restriction.

(85)  Restrict(λyλx[feed(y)(x)], dog)
    = λyλx[feed(y)(x) ∧ dog(y)]  (Chung and Ladusaw 2004:5)

As we can see, Restrict does not saturate the object argument position. We need something else for the saturation part.

(86)  FA (EC(Restrict(λyλx[feed(y)(x)], dog)), j)
    = ∃y [feed(y)(j) ∧ dog(y)]  (Chung and Ladusaw 2004:5)

Here, the object is existentially closed over and the subject argument is saturated through FA. The reading we get is that John fed some y where y is dog.

Legate (2014) adopts Restrict for her analysis of the New Impersonal Passive, see Section 3.3. I will do the same for the IMC in Section 4.

3.2 Weak and strong implicit arguments

According to Bhatt and Pancheva (2006:560), “the literature on implicit arguments has defined them as syntactically active elements that nevertheless do not occupy a syntactically projected position.” The passive voice, for example, is assumed to have an implicit argument that we can refer to but does not occupy a syntactic position.
More recently, though, Landau (2010) has analyzed the implicit argument of the passive as not only being syntactically active but also occupying a syntactically projected position. Landau calls the argument introduced in the passive a weak implicit argument (WIA) as opposed to strong implicit arguments (SIA, i.e., PRO/pro). The main difference between WIAs and SIAs is that the latter contain a D-head but WIAs do not. The result of WIAs not being DPs is that they are able to restrict an argument position but do not saturate it (Legate 2014, Ingason et al. 2012, 2013; see discussion on Ladusaw and Chung’s 2004 predicate restriction above).

Furthermore, Landau (2010) argues that only SIAs but not WIAs license secondary predicates and reflexive binding. Also, WIAs allow ‘by’-phrases whereas SIAs do not (Legate 2014; also Ingason et al. 2012, 2013). We will now look at a construction in Icelandic that shares many features with the canonical passive. Moreover, it shares some important features with the IMC (as discussed in Section 4); this construction has been argued both to have a pro subject and a WIA.

3.3 The New Impersonal Passive

By simplifying somewhat, we can say that there are at least three syntactic strategies of encoding semantic $\phi$-features of an implicit argument. The following trees are taken from Legate (2014:85–86):

(87) VoiceP
     Voice $\phi$ v VP
     Voice vP
(88) VoiceP $\phi$P
     Voice vP
(89) VoiceP
     DP $\phi$P v VP
     v VP

The tree in (87) represents the canonical passive (CanP) in Icelandic, which is similar to the passive in English: Structural accusative object case in the active corresponds to structural nominative case in the passive. The implicit argument does not occupy a syntactic position in the tree — if it did, we could expect it do block A-movement of the object and trigger accusative case on the object. Rather, the implicit argument’s $\phi$-features are encoded on Voice.

A recent innovation in Icelandic syntax is the so-called New Impersonal Passive (NIP; also termed the New Passive, the New Construction and the New Impersonal). This construction has passive morphology but still the object is assigned accusative case
(90) and anaphors are bound (93) (compare this to the IMC as described in Section 1 above). 24

(90) %Pað var lesið bókina.
    EXPL was read.PASS book.the.ACC
    ‘The book was read.’

This obviously differs from the CanP. Next, consider the sentences in the following ((91b) taken from Jónsson 2009):

(91) a. Við réðum tvo menn án þess að hafa næga menntun.
    we hired two.ACC men.ACC without it to have enough education.
    ‘We hired two men without having enough education.’

b. Tveir menn voru ráðnir án þess að hafa næga menntun.
    two.NOM men.NOM were hired without it to have enough education
    ‘Two men were hired without having enough education.’  (Jónsson 2009:285)

In the active sentence in (91a), only the subject, the agent ‘we’, can bind PRO in the infinitival clause. Therefore, the sentence cannot mean that the men hired did not have enough education. In the CanP sentence in (91b), on the other hand, the theme ‘two men’ is in the subject position and now ‘two men’ can bind PRO.

In (92), we compare the CanP without A-movement and the NIP, respectively. In (92a) the theme stays low and does not move to subject position. As Jónsson points out, this DP can still control PRO (the sentence is not perfectly good — the reason is not that the DP stays low, but that PRO is controlled by a DP in situ). On this reading, the two men do not have enough education. The other reading, where the hirer does not have enough education, is not possible. This latter reading is possible in the NIP example in (92b) (as pointed out in Legate 2014:154). The first reading, where the hired men do not have enough education, is unavailable (this patterns with the active sentence reading above). 25

(92) a. ?Þá voru ráðnir tveir menn án þess að hafa næga menntun.
    then were hired two.NOM men.NOM without it to have enough education
    ‘Then, two men who didn’t have enough education were hired.’
    * ‘Then, somebody who didn’t have enough education hired two men.’

24 The New Impersonal Passive is mainly found among younger speakers whereas it is strictly ungrammatical for a lot of speakers. Therefore I use the ‘%’ sign to indicate that only some speakers accept the NIP.
25 Maling et al. (2011) give a similar set of examples where they contrast transitive expletive passives (CanP with DP in situ) with the NIP with respect to whether an implicit argument can bind PRO in a present participle clause.
b. %þá var ráðið tvo menn án þess að hafa næga menntun.
   then was hired two.ACC men.ACC without it to have enough education.
   *‘Then, two men who didn’t have enough education were hired.’
   ‘Then, somebody who didn’t have enough education hired two men.’

(Jónsson 2009:285)

These facts suggest that the structures of the CanP and the NIP differ with respect to their implicit argument. The CanP facts point to a structure as in (87), whereas the NIP facts point to a structure either as in (88) or in (89). The question that arises is therefore whether the external argument is a WIA (φP, see (88)) or an SIA (DP, see (89)).

Binding of anaphors is possible in the NIP, which might suggest it has an SIA (cf. Landau 2010).

(93) a. %[…] það er drepið sjálfan sig.
   EXPL is killed self.ACC REF.L.ACC
   ‘People kill themselves.’  (Árnadóttir et al. 2011:48)

b. %það var rekið sjálfan sig.
   EXPL was fired PASS self.ACC REF.L.ACC
   ‘Someone fired himself.’

Importantly, however, secondary predicates are ungrammatical in the NIP. That suggests that the implicit argument is a WIA.

(94) a. %það er alltaf borðað morgunmat (*nakinn).
   EXPL is always eaten breakfast.ACC naked.M.NOM.SG
   ‘Breakfast is always eaten (nude).’  (Jónsson 2009:297)

b. %Var barið hana (*fullur)?
   EXPL was beaten her.ACC drunk.M.NOM.SG
   ‘Was she hit (by somebody who was drunk)?’  (H.Á. Sigurðsson 2011:157)

In addition, ‘by’-phrases seem to be grammatical in the NIP (Jónsson 2009, E.F. Sigurðsson and Stefánsdóttir 2014).26

(95) %það var lesið bókina af Jóni.
   EXPL was read PASS book.the.ACC by John
   ‘The book was read by John.’

This suggests at least that the NIP is not an impersonal construction (with an SIA (pro) subject). This fact might be taken to support the view that the NIP has a structure like the CanP. However, Ingason et al. (2012), (2013) and Legate (2014) argue that the NIP

26This is true of at least some NIP speakers. This remains to be studied in more detail.
has a WIA in SpecVoiceP (see also H.Á. Sigurðsson 2011 and E.F. Sigurðsson 2012). Positing a Weak Implicit Argument in this position means that secondary predicates will not be possible and that the WIA will be able to control PRO, block A-movement and trigger accusative case on the object. Unexpectedly, it looks like it can bind reflexives. The claim that WIA in SpecVoiceP does not block the use of ‘by’-phrases will need an explanation, however. I will now discuss Legate’s (2014) analysis, where WIAs restrict but do not saturate the external argument position.

Legate follows Kratzer (1996) in assuming that external arguments (a WIA in the case of the NIP) are introduced by Voice, through an operation called Event Identification.

(96) **Event Identification**

(adapted from Kratzer 1996:122)

If $\alpha$ is a branching node, $\{\beta, \gamma\}$ is the set of $\alpha$’s daughters, and $\beta$ is of type $\langle e,s_e,t \rangle$ and $\gamma$ is of type $\langle s_e,t \rangle$, then $\alpha$ is of type $\langle e,s_e,t \rangle$.

Here, $\alpha$ could be Voice’, $\beta$ Voice and $\gamma$ be vP. This is shown in the following for *read the book* (adapted from Kratzer 1996).

(97)

Voice’

Event Identification

$\lambda x. \lambda e. \text{AGENT}(e,x) \& \text{reading}(e)$

$\& \text{THEME}(e, \text{the book})$

Voice

vP

$\lambda x. \lambda e. \text{AGENT}(e,x) \& \lambda e. \text{reading}(e) \& \text{THEME}(e, \text{the book})$

If Voice introduces an agent role, it will have to be saturated somehow. Legate argues that $\phi$ (WIA) sitting in SpecVoiceP restricts the external argument position but that it does not saturate the agent role introduced by Voice. She proposes that Voice (of type $\langle e,s,t \rangle$) combines with $\phi$ (of type $\langle e,t \rangle$), through Restrict.

(98) **Restrict**

(adapted from Legate 2014:39)

If $\alpha$ is a branching node, $\{\beta, \gamma\}$ is the set of $\alpha$’s daughters, and $\beta$ is of type $\langle e,s_e,t \rangle$ and $\gamma$ is of type $\langle e,t \rangle$, then $\alpha$ is of type $\langle e,s_e,t \rangle$.

Here, $\alpha$ could be VoiceP, $\beta$ Voice’ and $\gamma$ be $\phi$P. This is shown in (99), where a derivation for the NIP sentence (90) *Pað var lesið bókina* ‘The book was read’ is given (in the derivation below I follow Legate 2014).

---

27The syntax of the NIP is debated. Maling and Sigurjónsdóttir (2002) argue that it is an active construction with a pro subject but it has also been argued, by, e.g., Jónsson (2009) and Eythórsson (2008), that it is simply a passive construction. For accounts closer to the WIA analysis, see H.Á. Sigurðsson (2011) and E.F. Sigurðsson (2012).
In the derivation, we cannot use FA to saturate the agent role. Instead we use Chung and Ladusaw’s (2004) predicate restriction. That of course does not either saturate the external argument position. Saturation is accomplished through existential closure which applies to VoiceP (Legate 2014):

(100)  \[ \text{VoiceP} = \lambda e. \exists x [\text{AGENT}(e,x) \& \phi(x) \& \text{reading}(e) \& \text{THEME}(e,\text{the book})] \]

With a ‘by’-phrase, the derivation is as follows:
In Legate’s derivation, the PP takes the VoiceP as an argument. ‘By’-phrases are optional, when they are used, they further restrict the argument position, i.e., they do not saturate the agent position. As before, saturation is accomplished through existential closure:

\[(102) \quad [\text{VoiceP}] = \lambda e. \exists x [\text{AGENT}(e,x) \& \phi(x) \& \text{reading}(e) \& \text{THEME}(e,\text{the book}) \& \text{AGENT}(e,\text{John}) \& x = \text{John}]\]

The reading this gives us is that there is some x such that x read the book and x is John.

3.4 Summary

In this section I discussed Legate’s analysis of the NIP in Icelandic, with a WIA located in SpecVoiceP. In the next section, I will argue that not only does the IMC have an SIA in SpecVoiceP of the embedded infinitival phrase, but also that a WIA analysis is possible under certain circumstances.
4 ‘By’-phrases and implicit arguments in the IMC

As was discussed in the introduction, ‘by’-phrases are often not allowed in the IMC. That is not surprising, given that objects can get structural accusative case, secondary predicates are possible as well as reflexive binding. Nevertheless, ‘by’-phrases are possible in some cases. In this section, we will try to figure out when and why. We start by looking at cases where ‘by’-phrases are not possible.

4.1 Properties and propositions

4.1.1 Modal verbs in the IMC taking propositions

As discussed in Section 3.2, Landau argues that Weak Implicit Arguments lack a D-head. For him, D is needed for binding of anaphors and secondary predicates of subjects. As I follow, e.g., H.Á. Sigurðsson (1989) and H.Á. Sigurðsson and Egerland (2009), in arguing that the IMC contains an implicit argument, the question what kind of an implicit argument now becomes important.

(103) a. Það má reka sjálfan sig.
   EXPL may fire self.ACC REFL.ACC
   ‘One is allowed to fire oneself.’

b. Það verður/á/þarf að reka sjálfan sig.
   EXPL has.to/is.supposed/needs to fire self.ACC REFL.ACC
   ‘One has to/is supposed to/needs to fire oneself.’

(104) a. Má ekki vera hérna fullur?
   may not be here drunk.M.NOM.SG
   ‘Is it not allowed to be/stay here drunk?’ (H.Á. Sigurðsson 2011:11)

b. Það verður að æfa sig ópreyttur.
   EXPL has.to to practice REFL.ACC untired.M.NOM.SG
   ‘One has to practice while not tired.’

The fact that both binding of anaphors (103) and secondary predicates (104) are possible (at least sometimes, see the following subsection) suggests that the subject is an SIA. In that case, the implicit argument, which has a D-head, saturates the SpecVoiceP position. Let’s compare the derivation for the NIP in (99) above to the derivation of the VoiceP of the IMC, in a sentence like (105), when it takes an SIA subject (we leave possible world semantics aside in the derivation).

(105) Pað þarf að lesa bókina.
   EXPL needs to read book.the.ACC
   ‘The book needs to be read.’
Here, the SIA in SpecVoiceP saturates the argument position. There is no restriction therefore written in the truth-value of VoiceP (like \( \phi(x) \) before); instead, all instances of ‘x’ (one in this case) are replaced by ‘DP’. This means that existential closure is not needed to saturate the external argument position as it has already been saturated through FA. This also means that a ‘by’-phrase should not be possible.

Now that we are thinking in terms of world semantics, the complement of the modal verb will be a proposition, of type \( \langle s_w, t \rangle \). The lexical entries for *verða* ‘have to’ and *þurfa* ‘need’ might be as in (107) (for lexical entries, I give English translations):\(^{28}\)

\[
(107) \quad \begin{align*}
\text{a. } [\text{have to}]^w &= \lambda p_{\langle s_w, t \rangle}. \forall w' \text{ compatible with the rules in } w: p(w') = 1. \\
\text{b. } [\text{need}]^w &= \lambda p_{\langle s_w, t \rangle}. \forall w' \text{ compatible with the needs in } w: p(w') = 1.
\end{align*}
\]

\(^{28}\)In this section, I limit myself to showing lexical entries for *verða* ‘have to’ and *þurfa* ‘need’.

38
For a sentence like (105) *Pað þarf að lesa bókina*, with an SIA in SpecVoiceP (given the derivation in (106)), *þarf* ‘need’ has the lexical entry in (107b). That is, it takes as its input a VoiceP where the external argument position has been saturated.

Things get more complicated when we look at instances of the IMC where ‘by’-phrases are allowed. We look at that in Section 4.1.2.

### 4.1.2 Modal verbs in the IMC taking properties: ‘By’-phrases allowed

The data in Section 4.1.1 was clear, pointing to an SIA in SpecVoiceP. When an argument position has been saturated, it is no longer accessible for further semantic saturation processes. If the IMC always contains an SIA, ‘by’-phrases should not be possible. But they sometimes are, as has been pointed out above:

(108) Pað þarf að rannsaka þetta betur af fræðimönnum.

`expl needs to investigate.inf this.acc better by scholars`

‘This needs to be studied further by scholars.’

The fact that the ‘by’-phrase above is possible, suggests that the agent argument position has not been saturated by the time the ‘by’-phrase adjoins to the structure. This might suggest that we sometimes have SIAs in the IMC and sometimes WIAs. Taking Landau (2010) seriously, this predicts that in examples like (108), secondary predicates and binding of anaphors should be impossible because there an SIA is needed; in (108), we presumably have a WIA.

We will now try to find out whether the prediction is borne out. The sentence in (109) serves as the context for the sentences in (110).

(109) Til þess að einhver árangur náist á þessu svíði, þarf að mínu mati að ...

‘For there to be any success in this field, in my opinion, there needs to ...

(110) a. ... skoða þetta betur af lækni eða öðrum fagmanni.

    `look.at this better by doctor or other professional`

    ‘... look at this further by a doctor or another professional.’

b. ... skoða sjálftan sig (*af lækni eða öðrum fagmanni*).

    `look.at self.acc refl.acc by doctor or other professional`

    Intended: ‘... look at oneself by a doctor or other professional.’

c. ... skoða þetta óhræddur (??af lækni eða öðrum fagmanni).

    `look.at this.acc unafr adhesive.m.sg.nom by doctor or other professional`

    Intended: ‘... look at this while not afraid by doctor or other professional.’

---

29 The IMC is not restricted to verbs taking agentive subjects even though the implicit argument always corresponds to the highest argument (the subject) of the embedded verb. All the ‘by’-phrases discussed here for the IMC are agentive, however. It remains to be studied whether ‘by’-phrases in the IMC are restricted to agents.

30 Thanks to Hlíf Árnadóttir for discussing the examples in (110) with me and giving her judgments.
In (110a), we have the IMC with a ‘by’-phrase. This sentence is fine. In (110b), the implicit argument binds an anaphor (the reflexive pronoun sjálfn sig). The sentence is fine without the ‘by’-phrase, with it the sentence is ungrammatical. The use of the secondary predicate in (110c) is also fine as long as there is no ‘by’-phrase. It should be, noted, though that the use of a secondary predicate and a ‘by’-phrase in (110c) is not as bad as the use of a reflexive pronoun and a ‘by’-phrase in (110b).

What we can conclude from this is that the implicit argument in the IMC when ‘by’-phrases are allowed is different from the implicit argument when secondary predicates and binding of anaphors is possible. As a matter of fact, the pattern above resembles the NIP (with the exception that binding of anaphors is possible in the NIP). If we accept that there is a WIA in SpecVoiceP in the NIP, it becomes all the more likely that there is a WIA in the IMC under certain circumstances.

The NIP and the IMC differ in an important way: Existential closure in the NIP above is built into the derivation. For the IMC in (108) and (110a), existential closure is needed (as the agent argument position has not been saturated when the ‘by’-phrase adjoins). We cannot, though, say that existential closure is built into the derivation of the infinitival phrase (VoiceP), as the implicit argument is only licensed under (certain) modal verbs. One way, proposed here, is to write existential closure into the lexical entries of the modal verbs. What that would essentially do is to take a proposition (of type ⟨e,s,w,t⟩, where s is a world argument) and existentially close (and therefore saturate) the agent argument.

\[
\text{(111) a. } \text{[have to]}^w = \lambda P(⟨e,s,w,t⟩). \forall w' \text{ compatible with the rules in } w: \exists x[P(x)(w') = 1].
\]
\[
\text{b. } \text{[need]}^w = \lambda P(⟨e,s,w,t⟩). \forall w' \text{ compatible with the needs in } w: \exists x[P(x)(w') = 1].
\]

This means that we will need two lexical entries for each IMC verb: one where it takes a proposition as an argument, as in (107), and another where it takes a property, as in (111).

Somebody might object and say that even though we might want to argue for a pro/SIA subject in the IMC when secondary predicates and binding of anaphors is possible, there is no way to distinguish between “nothing” and a WIA, even though with alleged WIA, the IMC, e.g., takes accusative case objects. Fair enough — in Section 4.1.3, however, we will look at such a case, where we have a semantically null element in SpecVoiceP under IMC verbs: the morpheme -st.

4.1.3 Modal -st passive

4.1.3.1 A clitic generated in SpecVoiceP The -st morpheme is found in a variety of constructions. Two of them are anticausatives and generic middles.
(112) a. Maðurinn opnadi gluggann.  
    man.the.NOM opened window.the.ACC  
    ‘The man opened the window.’

b. Glugginn opnadi-st.  
    window.the.NOM opened-ST.  
    ‘The window opened.’

(113) a. Við seljum rafmagnsbíla.  
    we sell electric.cars.ACC  
    ‘We sell electric cars.’

b. Rafmagnsbílar selja-st (vel) hér.  
    electric.cars.NOM sell-ST well here  
    ‘Electric cars sell well here.’

(Wood 2014:62)

In neither of these is there an implicit argument, unlike the passive. This is shown for anticausatives and passives in the following.

(114) a. Dyrnar voru opnadar (viljandi) / (af manninum).  
    doors.the.NOM were opened intentionally by man.the  
    ‘The door was opened (intentionally) / (by the man).

    doors.the.NOM opened-ST intentionally by man.the  
    ‘The door opened.’

(Ottósson 1986:67)

Wood convincingly argues that -st is a clitic in examples like (112b) and (113b). Without going further into his arguments, two points he makes should be mentioned regarding positioning -st syntactically and valency reduction.

First, -st usually sits outside tense and agreement morphology as well as participial morphology (see Wood 2014:74–79):

(115) a. Hurðin opnaði-st.  
    door.the.NOM open-3SG.PST-ST  
    ‘The door opened.’

b. Dyrnar opnuðu-st.  
    doors.the.NOM open-3PL.PST-ST

c. Ólafur hefur lengi dáði-st að Pétri.  
    Ólafur.NOM has long admire-PTCP-ST at Peter  
    ‘Ólafur has long admired Ólafur.’

This suggests that -st is a clitic rather than a suffix.

Second, -st verbs often alternate with non-st verbs (this is true for, e.g., ‘open’). The verb that has -st, in at least anticausatives and middles, has one argument fewer than the non-st verb. This, Wood says, suggests that -st is generated in an argument position. In fact, he argues it is generated in SpecVoiceP.
Under Wood’s analysis, -st is a type-neutral identity function, a function which takes the denotation of its sister and returns the same denotation:

$$[-st] = \lambda x. x$$  \hspace{2cm} (Wood 2014:27)

This means that if Voice’ in (117) is of type $\langle s_e, t \rangle$, then -st will simply pass that denotation up the tree:

$$[-st] = \lambda p_{\langle s_e, t \rangle}. p_{\langle s_e, t \rangle}$$

Syntactically, -st occupies an argument position but it does not have any semantic effect (as Wood points out, writing -st out as an identity function is basically equivalent of deleting it before LF). By being a clitic, -st has a different syntactic effect from an implicit argument: Even though it has overt material and is posited in SpecVoiceP (external argument position), -st does not trigger the object getting accusative case — the clitic does not prevent A-movement of the theme to subject position (SpecTP). The covert (implicit) arguments discussed above (WIAs and SIAs) trigger on the other hand accusative case on the object and prevent the theme from A-moving to subject position.

In addition to arguing that -st has no semantic effect, Wood furthermore argues that Voice is $\emptyset$, introducing no $\theta$-role. The result is that the semantics of Voice’ is the same as that of vP and we do not need Event Identification. Let us compare $\emptyset$ Voice and Voice where an external argument is introduced. The former could be an anticausative opna-st ‘open-ST’ and the latter could be causative opna ‘open’:

$$\lambda e. opening(e) \& THEME(e, the door)$$

$\lambda x.\lambda e. AGENT(e,x) \&opening(e) \& THEME(e, the door)$
4.1.3.2 Verbs requiring an agent incompatible with -st  As Wood discusses, not all verbs are compatible with the use of -st. He uses myrða ‘murder’ as an example.

(121) a. Konan myrti manninn.
    woman.the.NOM murdered man.the.ACC
    ‘The woman murdered the man.’

    man.the.NOM murdered-ST

(Wood 2014:147)

In the derivation of myrða ‘murder’, Voice can never be empty (unlike Voice of anti-causative ‘open’), whether in the grammatical sentence (121a) or the ungrammatical sentence (121b). The denotation Wood gives is shown in the following:

(122) \[\text{Voice} = \lambda x. \lambda e. \text{AGENT}(x,e)\]

That is, Voice introduces an argument that needs to be saturated and since -st is only an identity function at semantics, it cannot do the job. As Wood (2014:147) notes, “SpecVoiceP of ‘murder’ must be an entity, and one capable of bearing the agent relation. If -st were merged in such a SpecVoiceP, the derivation would crash at semantics due to the unsaturated entity argument.”

There is, however, a way to saturate the external argument position: IMC verbs can existentially close over the argument.

4.1.3.3 Modal -st passives  Ottósson (1986:111–112) discusses “middles with passive meaning” (Icel. miðmynd í þolmyndarmerkingu). Some of the examples he discusses involve modals.

(123) a. Fundurinn á/verður/þarf að auglýsa-st vel.
    meeting.the.NOM is.supposed/has.to/needs to advertise-ST well
    ‘The meeting is supposed to/has to/needs to be well advertised.’

b. Fundurinn átti að haldast daginn eftir.
    meeting.the.NOM was.supposed to hold-ST day.the after
    ‘The meeting was to be held the next day.’

(Ötýsson 1986:111)

Interestingly, these are all IMC verbs. As far as I know, examples like the above are only found with IMC verbs. I will follow Wood in calling these modal -st passives.

Relating something to passives suggests that the construction has an implicit argument. As Wood (2014:259) points out, this implicit argument can indeed be recovered with ‘by’-phrases.
The Bible ought to be read and studied by all men everywhere.

(Wood 2014:259)

This means that the modal -st passive, on the one hand, is different from anticausatives and generic middles, on the other hand, in an important way: There is an implicit argument in the former but not in the latter. Wood (2014) points out that even though ‘murder’ does not work in the anticausative structure, it is fine in the modal -st passive:

(125) a. Misak var kallaður sem atvinnuhæmat og átti að myrðast.
   Misak was called as mercenary and ought to murder-ST
   ‘Misak was known as a mercenary and was supposed to be murdered.’

b. Þér algjör þá að þessi maður hafi átt að myrðast í hefndarskyndi?
   you consider then that this man has ought to murder-ST in revenge
   ‘Then you think that this man was supposed to be murdered in revenge?’

(Wood 2014:261)

This further supports the conclusion that modal -st passives have an implicit argument.

A similar kind of support for an implicit argument comes from looking at (i) transitive verbs and their anticausative -st variant; (ii) transitive verbs and their anticausative variant with a different anticausative morpheme.

First, as seen in some of the examples above, transitive opna ‘open’ has an anticausative variant with the -st clitic: opna-st. As shown in (114b), this verb does not have an implicit argument, it is truly anticausative. However, when embedded under an IMC verb, Dyrnar opnúðust ‘The door opened’ becomes ambiguous:

(126) Dyrnar mega ekki opnast undir nokkrum kröggumstæðum.
   doors.the.NOM may not open-ST under any circumstances
   ‘The door may not open (by itself) under any circumstances.’

   ‘The door may not be opened under any circumstances.’

Under the first reading of this sentence, opna-st is anticausative — with Ø Voice. The second reading reflects a modal -st passive, with an agent introduced in Voice, similar to myrða-st.

Second, using -st is not the only way to form an anticausative verb. For some verbs, the morpheme -na marks anticausativity.

(127) a. Ég bræði klakann.
   I.NOM melt.TR ice.the.ACC
   ‘I melt the ice.’

‘The ice (in the frozen ground) melts.’ (adapted from H.Á. Sigurðsson 1989)

For the verb ‘melt’, the only way to mark an anticausative is with the intransitive root allomorph bráð- and to add the anticausative suffix -na; it is not possible to add the -st clitic on top of -na (*bráð-na-st) nor use either the transitive root allomorph bræð- or the intransitive bráð- and cliticize -st onto that (*bræði-st, *bráða-st), as shown in (127b).

When ‘melt’ is embedded under an IMC verb, on the other hand, not only the verb form bráð-na is possible, see (128), but also bræða-st, see (129). The former gives an anticausative reading, the latter a causative reading (modal -st passive). For the transitive root allomorph with the -st clitic, Wood (2014) gives the example in (129a). In that context, as he points out, the intransitive allomorph is not possible, cf. (129b):

(128) Klakinn á að bráð-na í sólinni. ice.the.NOM is.supposed to melt.INTR-NA in sun.the

‘The ice is supposed to melt in the sun.’

(129) a. Lifrin af þessum skipum mun eiga að bræða-st í landi. liver.the.NOM from these ships will ought to melt-ST in land

‘The liver from these ships supposedly ought to be melted on land.’

b. #Lifrin af þessum skipum mun eiga að bráð-NA í landi. liver.the.NOM from these ships will ought to melt-NA in land

‘The liver from these ships supposedly ought to melt on land.’

(Wood 2014:266)

The obvious question that arises is: Why are examples like (125) grammatical? Why does the derivation not crash? By bringing in modal verbs, existential closure over the implicit agent is achieved, Wood (2014) argues. I agree, and, in fact, as it looks like only IMC verbs are possible in this construction, there is reason to believe we can capture existential closure in the same way as with the IMC above, that is, by writing it into the modal verbs.

For a sentence like Maðurinn verður að myrðast ‘The man has to to murder-ST’, we need the lexical entry in (111a) rather than the one in (107a) because we have an external argument position to saturate. This way saturation is accomplished (see Wood 2014:265 for a similar solution).
4.2 ‘By’-phrases, scope and properties

So far, we have explained why ‘by’-phrases are sometimes possible and sometimes not. We have not covered all cases of ‘by’-phrases in the IMC, though. The examples in (130) are repeated from (11) above.

(130) a. Það þarf að rannsaka þetta betur af fræðimönnum.
   EXPL needs to investigate.INF this.ACC better by scholars
   ‘This needs to be studied further by scholars.’

   b. *Í dag þarf að skila skattframtali af útlendingum.
   today needs to hand.in.INF tax.return by foreigners
   ‘Foreigners have to hand in their tax returns today.’

That only (130a) is acceptable but not (130b) is surprising. We saw before that when the IMC contains an SIA, ‘by’-phrases are ungrammatical. Saying that (130b) simply has an SIA can hardly be the case — what is there to rule out that we have a WIA there? There is another type of difference between the sentences in (130) that we need to consider: In (130a), the most natural reading is that ‘this’ needs to be studied further, by some scholar or other. That is, the modal scopes over the existential quantifier (narrow scope existential). Given our lexical entries for modal verbs that take properties, where existential closure is built into the lexical entries, this is the scope we expect — the only plausible reading is with the existential scoping low. In (130b), the most natural reading is that for foreigners it holds that they need to hand in their tax returns. That is, the existential quantifier scopes over the modal. This gives us the implausible reading that it is generically true of foreigners that they have to hand in their tax returns today.

Let us look at another example:

(131) Það verður að skrifa skýrsluna af hlutlausum aðila.
   EXPL has.to to write report.the.ACC by unbiased party
   ‘The report has to be written by an unbiased party.’

A reading where there exists an unbiased party such that s/he has to write the report would not be plausible. That is, the existential quantifier does not have wide scope. The example is only acceptable under a reading where it has narrow scope: The report has to be written by some unbiased party or other.

Consider yet another example:\footnote{Example (132) taken from \url{http://www.dv.is/frettir/2012/2/23/i-dag-samkvaemt-dagskra-ad-brenna-fodur-minn-af-feministum-og-fylgifskum/}.}
Í dag á samkvæmt dagskrá að brenna föður minn 
 today is supposed according to schedule to burn-INF father.ACC my.ACC
(by feminists and followers)
‘Today, according to schedule, supposedly my father is going to be burned
(by feminists and followers)’  (E.F. Sigurðsson 2012:91)

In this example, the only possible reading is where the modal scopes over the existential quantifier. That is to say, the meaning cannot be that for feminists and followers it generically holds that they are supposed to or ought to burn the speaker’s father.

In all the examples above where ‘by’-phrases are grammatical, the DP complement of af ‘by’ is an indefinite, which we take to be a property (of type \(\langle e,s_w,t\rangle\)). As a matter of fact, it looks like the ‘by’-phrase in the IMC is restricted to properties. Consider the following examples, where we replace the indefinites in the a-examples above with an individual (entity, of type e) and in the b-examples, we replace them with a universal quantifier (which gives us type \(\langle\langle e,s_w,t\rangle,\langle s_w,t\rangle\rangle\)).

(132) a. ??Pað þarf að rannsaka þetta betur af Jóni.
   EXPL needs to investigate.INF this.ACC better by John
   Intended: ‘This needs to be studied further by John.’

b. ??Pað þarf að rannsaka þetta betur af öllum fræðimönnum.
   EXPL needs to investigate.INF this.ACC better by all scholars
   Intended: ‘This needs to be studied further by all scholars.’

(134) a. ??Pað verður að skrifa skýrsluna af Jóni.
   EXPL has.to to write report.the.ACC by John
   Intended: ‘The report has to be written by John.’

b. ??Pað verður að skrifa skýrsluna af öllum hlutlausum aðilum
   EXPL has.to to write report.the.ACC by all unbiased parties
   sem þekkja málið.
   who know case.the
   Intended: ‘The report has to be written by all unbiased parties who know the case.’

(135) a. *Í dag á samkvæmt dagskrá
   today is supposed according to schedule
   að brenna föður minn af Jóni.
   to burn-INF father.ACC my.ACC by John
   Intended: ‘Today, according to schedule, supposedly my father is going to be burned by John.’

It should be noted that there is no indefinite article (determiner) in Icelandic, parallel to ‘a’ or ‘an’ in English.

47
b. *Í dag á samkvæmt dagskrá að breður föður minn áf öllum feminismum.

Intended: ‘Today, according to schedule, supposedly my father is going to be burned by all feminists.’

My judgments in these examples support an analysis on which there arises a type-conflict in the semantic derivation when the complement of ‘by’ is either of type e or $\langle(e,s,w,t),\langle s_w,t \rangle \rangle$.

Rather than having the byP taking VoiceP as an argument, as in Legate’s (2014) derivation in (101) for the NIP, a different mode of composition might be preferred in the case of the IMC. The reason is that if the byP takes VoiceP as an argument, we do not exclude unwanted types.

When ‘by’-phrases are possible in the IMC, VoiceP is a property and so is the byP. To combine these together, we can use Predicate Modification (PM).

(136) **Predicate Modification** (adapted from Heim and Kratzer 1998:65)

If $\alpha$ is a branching node, $\{\beta,\gamma\}$ is the set of $\alpha$’s daughters, and $\beta$ and $\gamma$ are both of type $\langle e,s,e,t \rangle$, then $\alpha$ is of type $\langle e,s,e,t \rangle$.

A derivation for the embedded VoiceP (‘investigate this by scholars’) in Það þarf að rannsaka þetta af fræðimönnum ‘This needs to be investigated by scholars’, cf. (130), is shown in (137):

(137) VoiceP

Predicate Modification

$\lambda x.\lambda e. \ \text{AGENT}(e,x) \ \& \ \phi(x) \ \& \ \text{reading}(e) \ \& \ \text{THEME}(e,\text{the book}) \ \& \ \text{scholar}(e,x)$

byP

$\lambda x.\lambda e. \ \text{AGENT}(e,x) \ \& \ \phi(x) \ \& \ \text{investigating}(e) \ \& \ \text{THEME}(e,\text{the book})$

$\lambda x.\lambda e. \ \text{scholar}(e,x)$

by DP

scholars

$\lambda x.\lambda e. \ \text{scholar}(e,x)$

Here, the preposition ‘by’ is semantically vacuous. Now both VoiceP and byP are properties; they combine through PM. This leaves the agent argument unsaturated. Switching
over to world semantics, the modal *purfa* ‘need’ will now take VoiceP as an argument. Since VoiceP is a property, we will need the lexical entry in (111b), repeated as (138).

\[(138) \quad [\text{need}]^w = \lambda P_{(e,s,w,t)}. \forall w' \text{ compatible with the needs in } w: \exists x[P(x)(w') = 1].\]

When the lexical entry is applied to VoiceP, we get the following (where event variables are included):

\[(139) \quad [\text{need}]^w(\text{VoiceP}) = \forall w' \text{ compatible with the needs in } w: \exists x[\text{AGENT}(e,x) \& \phi(x) \& \text{reading}(e) \& \text{THEME}(e,\text{the book}) \& \text{scholar}(e,x)].\]

Here we existentially close the external argument position, after a ‘by’-phrase has adjoined to the structure. Therefore the derivation does not crash.

Even though this analysis works for the IMC, it is worrisome that there does not arise a type-clash in the modal -st passive with a universal quantifier in the ‘by’-phrase (the judgment in (140) is from Wood 2014):

\[(140) \quad \text{Biblían á að lesa-st og rannsaka-st af öllum mónnum alls staðar.}\]

\[\text{Bible.the.NOM ought to read-ST and investigate-ST by all men everywhere.}\]

\[\text{‘The Bible ought to be read and studied by all men everywhere.’}\]

(Wood 2014:259)

It should be noted, though, that using an entity in the ‘by’-phrase makes it worse (the judgment in (141) is taken from Wood 2014):

\[(141) \quad ??\text{Biblían á að lesa-st og rannsaka-st af Jóni.}\]

\[\text{Bible.the.NOM ought to read-ST and investigate-ST by John}\]

\[\text{‘The Bible ought to be read and studied by John.’}\]

(Wood 2014:259)

As is obvious, this needs to be studied further. I leave it for future research, however.
5 Conclusion

In this paper, I looked at the structure of the IMC, which lets us look into the intersection of implicit arguments and modality. The verbs in the construction discussed here are all root verbs, when used in the IMC, and they are raising verbs.

I argued that ‘by’-phrases are grammatical in the IMC under certain circumstances. I argued that the IMC takes two different types of implicit arguments, WIAs and SIAs (cf. Landau 2010, Legate 2014). When ‘by’-phrases are allowed, the IMC necessarily contains a WIA. The IMC when taking an SIA has different properties than when it takes a WIA. With an SIA in SpecVoiceP, binding of reflexives and secondary predicates are allowed whereas ‘by’-phrases are ungrammatical. With a WIA in SpecVoiceP, ‘by’-phrases are grammatical whereas binding of reflexives and secondary predicates are not. That we really need something like a WIA is supported by the modal -st passive. In both cases, the WIA or the clitic -st occupy SpecVoiceP. However, -st does not have any semantic effect and it does not trigger accusative case on the argument that originates in the object position, unlike the WIA. Also, -st does not block A-movement whereas the WIA does.

Positing WIA in the IMC is not an “isolated” case for Icelandic. Here, I adopted Legate’s (2014) analysis for the New Impersonal Passive in Icelandic, as well as her analysis of ‘by’-phrases in that construction: the WIA in SpecVoiceP does not saturate the position, it merely restricts it. A ‘by’-phrase can further restrict it. To saturate the external argument position, I proposed that when an IMC verb combines with VoiceP with an unsaturated external argument position, the modal existentially closes over the external argument.

I also discussed unacceptable ‘by’-phrases in the IMC, even when they contain a WIA. In such cases, the reason for the unacceptability is either that the existential quantifier takes scope over the modal or that the agentive ‘by’-phrase is of the wrong type. By building existential closure into the lexical entries of the modal verbs, the modal verbs take scope over the existential quantifier. We also came to the conclusion that only ‘by’-phrases that are properties (of type \(e,s_t\)) are possible.

My hope is that this paper helps us better understand different types of implicit arguments and their interaction with ‘by’-phrases and modality. Now that it has been argued that WIAs are needed for two constructions in Icelandic, we might expect to find them in more constructions in future research.
References


