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Extraction from Relative Clauses in Icelandic and Swedish: A Parallel Investigation

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Abstract: Extraction from relative clauses is generally taken to be unacceptable in Icelandic, unlike in the Mainland Scandinavian languages. Recent studies on Mainland Scandinavian show that the type of dependency as well as the embedding predicate matters for the acceptability of such extractions, and the study of spontaneously produced examples has improved our ability to create felicitous extraction contexts. The studies of Icelandic extraction predate these findings, and there is to date no study which systematically compares parallel sentences in Icelandic and Mainland Scandinavian. This article presents such a study, using two acceptability judgment experiments, one in Icelandic and one in Swedish, drawing on newly gained insights about fronting conditions in the two languages to create plausible contexts. The Icelandic participants rated extraction from relative clauses as unnatural, with a very large acceptability cost compared to in situ versions and good fillers. Extraction from *að*-clauses received mixed ratings, and local fronting was rated on a par with the in situ versions. In Swedish, extraction from relative clauses was rated as natural a majority of the time. There was no extraction cost in local fronting, extraction from *att*-clauses, or extraction from relative clauses in existential sentences, while extraction with other embedding predicates incurred some cost. No differences relating to the embedding predicate were seen in Icelandic. The study corroborates the view that extraction from relative clauses is unacceptable in Icelandic.

Keywords: A-bar movement; extraction; Icelandic; island phenomena; relative clauses; Scandinavian; Swedish; syntactic dependencies

1. Introduction

Extraction from relative clauses is well attested in the Mainland Scandinavian languages, and studies have shown that such sentences involve grammatical A'-movement from a relative clause (e.g., Christensen and Nyvad 2014; Engdahl 1997; Lindahl 2014, 2017). A well known example from Swedish is given in (1).

(1)   *De   blommorna*₁ känner jag en man [som säljer _₁].   (Swe)
      those flowers   know I   a   man who sells
      'I know a man who sells such flowers.'   (Allwood 1976, p. 11)

These extractions were noted fairly early by Mainland Scandinavian grammarians working within descriptive or normative traditions (Mikkelsen 1894; Wellander 1939). In the '70s and '80s, Mainland Scandinavian extractions attracted attention in international syntax research due to work by Erteschik-Shir (1973); Allwood (1976); Engdahl and Ejerhed (1982), and others. Many theories of syntactic locality are specifically designed to exclude sentences like those in (1) (Chomsky 1964, 1973, 2001; Ross 1967). Important theoretical questions have thus been how to square the Mainland Scandinavian relative clause facts with theories of locality, and why certain languages permit this type of A'-dependencies while others, like English, German, and most other languages where it has been studied, do not.[1]

The Insular Scandinavian languages are of special interest for this typological question, since they share many but not all syntactic features with Mainland Scandinavian. Examples

parallel to (1) are unacceptable in both Icelandic and Faroese (Thráinsson et al. 2004; Zaenen 1985).

(2)　a.　* *Þessi blóm*$_1$　þekki ég mann [sem selur $\_1$]　　　　　　(Ice)
　　　　　these flowers know I　man　　who sells

(Zaenen 1985, p. 133)

　　　b.　* *Slíkar blómur*$_1$ kenni eg ein mann [sum selur $\_1$].　　　　(Fa)
　　　　　such flowers know I　a　man　　who sells

(Platzack 2014, p. 10)

This phenomenon is less well studied in Insular Scandinavian, however.[2] Zaenen's (1985) study, which provides an in-depth account of extraction rules in Icelandic, predates the recent wave of research on Mainland Scandinavian, where the knowledge of extraction from relative clauses has been advanced through large-scale acceptability experiments and the study of spontaneously produced examples in context, as well as through theoretical work and native speaker judgments (Christensen and Nyvad 2014; Engdahl 1997; Kush et al. 2018, 2019; Lindahl 2014, 2017; Nyvad et al. 2017). This research has taught us more about factors which affect the acceptability of extraction, such as the embedding predicate, the information-structural function of the fronted phrase, and the context the extraction sentence occurs in. Additionally, there is to date no acceptability study that compares extraction from relative clauses in Mainland Scandinavian and Insular Scandinavian using parallel example sentences. The type of extraction sentence that has been shown to be most common in Mainland Scandinavian—fronting of a topical pronoun from a relative clause in an existential sentence, see below—has to my knowledge not been discussed in the research on Insular Scandinavian.

The purpose of this article is therefore to study extraction from relative clauses in Icelandic, on the one hand, and in Swedish, on the other, building on insights from recent work. The study consist of an acceptability experiment in each language, where examples are kept as parallel as possible. The main aim is to obtain comparable data from the two languages, which will inform future typological and theoretical work. The article is structured as follows: Section 2 gives a brief overview of previous research with a focus on those factors that have been shown to ameliorate extraction in Mainland Scandinavian. Section 3 introduces the experiment, describing the methodology, the test sentences, and the participants. I then turn to the results in Section 4, where some clear differences between Swedish and Icelandic are shown. While the test sentences with extraction from relative clauses were mostly considered natural sounding by the Swedish participants, the Icelandic participants unanimously reject them, and factors that improve acceptability in Swedish do not seem to play any important role in Icelandic. Section 5 concludes with a discussion of the results and their implications.

2. Recent Research

This section briefly outlines recent research on extraction and fronting in Scandinavian relevant to the experimental design of the current study. Section 2.1 discusses the role of the embedding predicate, and Section 2.2 the fronted phrase and its relation to the context.

2.1. The Embedding Predicate

Early work established that the embedding predicate affects the acceptability of extraction from relative clauses. Erteschik-Shir (1973) observes that it is perceived as more acceptable to extract from a relative clause embedded under a predicate like *være* 'be/exist', *findes* 'exist', or *kende* 'know' in Danish, than from one embedded under a predicate like *pege på* 'point at', as illustrated in (3), where the judgments are Erstechik-Shir's.[3]

(3)　a.　*Det*$_1$ er der　mange [der har　gjort $\_1$].　　　　　　　(Da)
　　　　　that is there many　that have done

　　　　　'There are many people who have done that.'　(Erteschik-Shir 1973, p. 63)

  b.   *Det*₁ kender jeg mange [der har gjort _₁].
        that know I   many   that have done
        'I know many people who have done that.'   (Erteschik-Shir 1973, p. 63)

  c.   * *Det*₁ har jeg peget   paa mange [der har gjort _₁].
        that have I   pointed at   many   that have done
                                                        (Erteschik-Shir 1973, p. 64)

Erteschik-Shir attributes this to the pragmatic status of the relative clause in the utterance. If it is *dominant*, i.e., not presupposed or given, then extraction is more acceptable, on her account.[4] The information impact of the relative clause in context thus determines extraction possibilities.

Erteschik-Shir's observations with respect to the embedding predicates hold up in the other Mainland Scandinavian languages as well. However, later research has explored different ways to interpret them. Kush et al. (2013) suggest that extraction is in fact only possible with embedding verbs which select small clause complements, and that acceptable extraction actually involves a reanalysis of the relative clause as a small clause. Subsequent research, however, has argued against this view (Christensen and Nyvad 2014; Lindahl 2014, 2017; Müller 2015). Müller (2015) finds no significant difference between embedding predicates that select small clauses and those that do not, and Christensen and Nyvad (2014) find that there are differences in acceptability, but related to the frequency of the embedding predicate rather than to its ability to select a small clause complement. Data from spontaneous language use also show that the phenomenon is not restricted to small clause environments. Lindahl (2017) studied extraction in spoken Swedish, and while the study showed that extraction is clearly most common from presentational relatives with *vara* 'be/exist' as the embedding predicate, which could be accounted for on the small clause analysis, there are also examples that do not fit with this explanation. 13% of extraction sentences in my sample of spoken Swedish involved extraction from the complement of a lexical verb. Lexical verbs like *känna* 'know' and *se* 'see' would be expected on Kush et al.'s (2013) approach, seeing as they can select small clauses, whereas others are not amenable to this type of analysis. A few of the cases that would be unaccounted for are given in (4).

  (4) a. *det*₁ vet   jag många [som har fastnat   i _₁]   (Swe)
           that know I   many   that have gotten stuck in
           'I know of many people who have gotten stuck on that.'   (Lindahl 2017, p. 90)

       b. *Det*₁ har jag inte träffat någon   [som gjort _₁]
           that have I   not met   someone that done
           'I've never met anyone who has done that.'   (Lindahl 2017, p. 88)

       c. *det*₁ stör jag mig på folk   [som säger _₁]
           that annoy I   me on people that say
           'People who say that annoy me.'   (Lindahl 2017, p. 89)

The extractions above would not be expected on a small clause account, since neither of the embedding predicates selects a small clause.

Notably, pragmatic proposals like Erteschik-Shir's dominance condition cannot account for the observed range of data either. Even though most spontaneously produced examples do adhere to the condition, there are also examples where the main clause is clearly dominant, like (5) from Swedish.

  (5) *Det*₁ beundrar jag folk   [som klarar   _₁ rent   psykiskt   ], att bara
       that admire   I   people that manage   purely psychologically   to just
       vänta.
       wait
       'I admire people who can deal with that psychologically, to just wait.'

                                                                   (Lindahl 2017, p. 89)

To show whether a clause is dominant, Erteschik-Shir (1973) uses a test called the "lie test". The test diagnoses whether it is possible to contradict a certain utterance or part of an utterance by saying *that is a lie*. The part of the sentence that can be an antecedent to *that* in *that is a lie* can be interpreted as dominant. A test modified for Swedish from Lindahl (2017) shows that the relative clause in examples like (5) cannot be interpreted as dominant.

(6) Speaker A:

Jag beundrar folk   som klarar   det rent   psykiskt.   (Swe)
I   admire   people that manage it   purely psychologically
'I admire people who can deal with that psychologically.'

Speaker B:

 a.   Det stämmer inte, det gör du inte.
        'That's not right, you don't.'
 b.   # Det stämmer inte, folk klarar inte det
        'That's not right, people can't.'

(Lindahl 2017, p. 157)

As we can see, it is only possible to contradict the whole utterance, not the content of the embedded relative clause on its own. This means that the relative clause cannot be interpreted as dominant and that extraction should not be possible. Thus the extraction in (5) is a counterexample to Erteschik-Shir (1973)'s dominance condition. (For further discussion of pragmatic approaches, see Lindahl 2017, Chapter 5).

Corpus studies of written Norwegian and Danish have shown that extraction from relative clauses is clearly most common in existential environments in these languages as well (Kush et al. 2021; Müller and Eggers 2022). The state-of-the-art thus seems to be that extraction is more frequent when the relative clause occurs in certain environments (in existential/presentational sentences and as the complement of certain verbs). Formal acceptability studies also show that acceptability varies depending on the embedding verb (Christensen and Nyvad 2014), as observed more informally by Erteschik-Shir (1973) and others. However, the formal acceptability studies do not confirm the small clause hypothesis, and various counterexamples to both this hypothesis and those put forth relating to the pragmatics of the relative clause occur in spontaneous language. The point of this paper is not to provide a new analysis of this state of affairs. The fact that acceptability is related to the embedding predicate in Mainland Scandinavian is important, however, both in constructing the experimental materials, and in interpreting the data.

2.2. The Fronted Phrase

Much of the international research on extraction has focused on question formation, i.e., fronting of a *wh*-phrase, as in the example from Ross (1967) (7).

(7)   * *Who* does Phineas know a girl [who is working with _₁]?   (Ross 1967, p. 124)

However, it was noted early in the research on the Mainland Scandinavian languages that such *wh*-extraction out of relative clauses is not at all common in these languages, and what typically occurs is fronting of topical DPs (Engdahl 1997; Erteschik-Shir 1973; Lindahl 2010, 2017). These observations fit well with formal acceptability studies by Kush et al. (2018, 2019), where topicalization was shown to lead to better acceptability ratings than *wh*-extraction in Norwegian.

A related point is that extraction from relative clauses is highly context-dependent. This is highlighted by pragmatic approaches such as that proposed by Erteschik-Shir (1973), and has been argued by Engdahl (1997) and Lindahl (2017), among others. The experimental work by Kush et al. (2019) confirms that acceptability ratings are significantly higher if the extraction sentence which is being judged is shown in a context.

The studies of spontaneously produced extraction sentences have furthermore not only revealed that fronting of topical DPs is most common. Studies of these naturally occurring examples have shown that it is particularly common to front pronominals. In Lindahl's 2017 study, 56% of all sentences with extraction from a relative clause in a spoken language data set involved a fronted pronominal. This is perhaps not surprising, given that fronted pronominal objects are common in Mainland Scandinavian quite generally (Engdahl and Lindahl 2014).

Further, in-depth studies of the function of pronoun fronting show that it has various discourse functions in Mainland Scandinavian, for example focus chaining, topic chaining, and contrast (Engdahl and Lindahl 2014; Erteschik-Shir 2007; Lindahl and Engdahl forthcoming). An overview of pronominal fronting related to extraction can be found in Engdahl and Lindahl (2022). For the purposes of this article, we should note that the most commonly used fronted phrase in all of the Mainland Scandinavian languages is the neuter pronoun *det* 'it/that' (Engdahl and Lindahl 2014, 2022). An example is given in (8), where the context sentence is rendered in English.

(8) <u>alcoholism is not a disease</u> however (Swe)

    *det*₁ stör   jag mej på folk   [som säger ₁]
    that annoy I   me on people that say

    'People who say that annoy me.'   (Lindahl 2017, p. 89)

The antecedent of the pronoun is underlined. In this case, it is sentential. The pronoun is in what Erteschik-Shir (2007) calls a focus chain with the antedecent, since the content of the antencedent is all new, and introduced in the preceding utterance. See also the similar function of the local fronting in (9), which is from the *Nordic Dialect Corpus* (Johannessen et al. 2009).[5]

(9) a. *int:* tycker du <u>det är roligt med små barn?</u> (Swe)
      think you it is fun   with small children

      'Do you think small children are fun?'

  b. *s1:* ja   *det*₁ tycker jag faktiskt ₁
      yes it   think I   actually

      'Yes, I actually think *so*.'

In studies of Mainland Scandinavian, Engdahl and Lindahl (2014) and Lindahl and Engdahl (forthcoming) found that focus chaining is the most common discourse function for a fronted pronoun, and that *det* with a sentential or VP antecedent is the most frequently fronted phrase.

Since there are no studies of spontaneously produced extraction from relative clauses in Icelandic, the corresponding data for this language are missing. However, Lindahl (forthcoming b) compared the use of the prefield in declaratives in spoken Icelandic and Swedish, also using the *Nordic Dialect Corpus*. While it turns out that objects are only very rarely fronted in spoken Icelandic, the study demonstrates that when non-subject arguments are fronted, the most common phrase is *það* 'it/that', which corresponds to *det* 'it/that' in Mainland Scandinavian. We see an example from the corpus in (10).

(10) a. *s1:* <u>var þetta söngelsk   ætt?</u> (Ice)
       was this   song-loving family

       'Was this a family that loves singing?

   b. *s2:* nei *það*₁ held ég nú   ekki ₁
       no that think I   now not

       'No, I don't think so, really.'

While pronoun fronting serves many purposes in Mainland Scandinavian, only the most common type, focus chaining, occurred in the Icelandic part of the corpus. In fact, all of the Icelandic examples from the NDC involved pronouns in a focus chaining relationship.
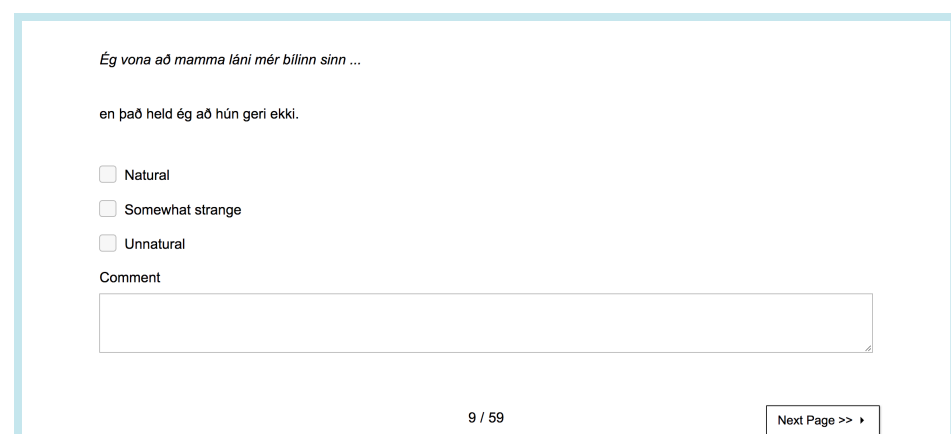
2.3. Summary

To sum up, recent research shows that extraction from relative clauses is most common and most easily accepted in Mainland Scandinavian languages when the relative clause is existential/presentational, and with a few other embedding predicates. With respect to the fronted phrase, it has been shown that fronting of topical DPs is more common than fronting of *wh*-phrases, and that such extractions receive better acceptability ratings. Providing a context also ameliorates extraction. In Mainland Scandinavian, the previous research has shown that the same types of phrases that are commonly fronted in the local clause are extracted from relative clauses. We do not have access to spontaneously produced examples of extraction from Icelandic, but previous research on local fronting shows that object fronting in declaratives is used more rarely in this language. When it is used, however, the fronted phrase is usually the pronoun *það* 'it/that', and establishes a focus chain with the antecedent.

3. The Experiment

I ran two acceptability judgment studies that tested the acceptability of extraction from relative clauses in Icelandic and Swedish. The test sentences for the two languages were created in parallel in order to make the results as comparable as possible, and the two studies were carried out in the same way. The main goal was to find out how acceptable extraction from a relative clause is in Icelandic, compared to how acceptable it is in Swedish.

The test sentences, which are described in more detail in Section 3.1, used a few different embedding predicates, including existential sentences, to see if extraction from the relative clause in such clauses is more acceptable in Icelandic than the types that have been described in the previous literature on this language. Important clues can also come from comparing extraction from a relative clause to other types of extraction. Therefore a design with a number of different types of extraction was chosen: local fronting, extraction from an *að/att* ('that')-clause, extraction from a relative clause, and extraction from a *wh*-clause.

The studies were performed in the form of two questionnaires, one in Icelandic and one in Swedish, using the online survey tool Sunet Survey. For each test item, the context sentence was displayed in italics, and the test sentence in plain style, as shown in Figure 1.

Ég vona að mamma láni mér bílinn sinn ...

en það held ég að hún geri ekki.

☐ Natural

☐ Somewhat strange

☐ Unnatural

Comment

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Figure 1. The interface in Sunet Survey.

The participants were asked to judge whether the test sentence was a natural follow-up in the context, using three answers: *natural*, *somewhat strange*, and *unnatural*. The questionnaire contained 52 test sentences, which are described in more detail in Section 3.1, and took 10–15 min to complete. The design builds on the assumption that participants will not rate ungrammatical or unacceptable test sentences as natural sounding. This simple experimental design, with only three possible answers and 52 test sentences, was chosen rather than e.g., the factorial design developed by Sprouse (2007), which has been used in many recent studies on extraction, due to the somewhat exploratory nature of the experiment. This makes direct comparisons between this study and others on Mainland

Scandinavian harder. However, since the main issue at hand here is whether there are differences between Icelandic and Swedish, the design is useful as it makes it relatively easy to set up two comparable experiments in the two languages. The participants and the distribution of the questionnaires are described in Section 3.2.

3.1. Test Sentences

The test sentences for the two languages were created at the same time, using as similar content as possible while maintaining the same syntactic structure, and making sure that the sentences sounded as natural as possible in both languages, apart from any strangeness or unacceptability associated with the fronting. The Swedish contexts and test sentences were judged to be natural sounding by the author and another native Swedish speaker. Two native Icelandic speakers helped construct the Icelandic sentences. An overview of the types of test sentences is given in (11)–(16), with examples from the Icelandic part of the experiment. Each sentence was presented in a context, shown as line one of the examples below. For each sentence with fronting, there was a corresponding test sentence with the pronoun in situ for comparison, in a similar context (the b-examples).[6]

(11)   *Local fronting (2 sentence pairs)*

    a.   Margir segja að   tungumálið   hér hafi breyst   ...
         many   say   that language.DEF here has changed

         'Many people say that the language here has changed ... '

         en það$_1$ held ég ekki _$_1$.
         but that think I   not

         'but I don't think so.'

    b.   Margir segja að   veturnir   hér séu orðnir   kaldari ...
         many   say   that winters.DEF here are become colder

         'Many people say that the winter here have become colder ...'

         en ég held það ekki.
         but I   think that not

         'but I don't think so.'

(12)   *Extraction from an* að-*clause (4 sentence pairs)*

    a.   Í gær   tók Eiríkur hundinn sinn   með sér á æfinguna ...
         Yesterday took Eiríkur dog.DEF REFL.POSS with REFL at practice

         'Yesterday, Eiríkur brought his dog to practice ...'

         og það$_1$ held ég [að   hann geri _$_1$ líka í dag].
         and that think I   that he   does   also today

         'And I think he'll do that today too.'

    b.   Í gær   tók Sveinn hundinn sinn   með sér í vinnuna ...
         Yesterday took Sveinn dog.DEF REFL.POSS with REFL to work.DEF

         'Yesterday, Sveinn brought his dog to work ...'

         og ég held [að   hann geri það líka í dag].
         and I   think that he   does that also today

         'And I think he'll do that today too.'

(13)   *Extraction from a relative clause (5 sentence pairs)*

    a.   Systir mín segir að   við ættum að skipta yfir í   sumartíma   ...
         sister mine says that we should to shift   over on summer time

         'My sister says that we should adopt daylight saving time ...'

en   það₁ þekki ég engan   annan [sem heldur _₁].
but that know I no one else   that thinks
'but I don't know anyone else who thinks so.'

b. Bróðir   minn segir að   við ættum að hafa evrur í   stað   króna   ...
    brother mine says that we should to have Euros in stead Icelandic króna

    'My brother says that we should have Euros in stead of Icelandic króna ...'

en ég þekki engan   annan [sem heldur *það*].
but I know no one else   that thinks that
'but I don't know anyone else who thinks so.'

(14) *Extraction from a* wh-*clause (4 sentence pairs)*

   a. Helgi og Gísli vilja fara á hátíð   ...
       Helgi og Gísli want go   to festival

       'Helge and Gísli want to go to a festival ...'

   en það₁ er ég ekki viss [hvort   þeir mega _₁].
   but that am I not sure   whether they may

   'but I'm not sure they are allowed.'

   b. Bryndís og Erla vilja halda veislu ...
       Bryndís and Erla want hold   party

       'Bryndís and Erla want to have a party ...'

   en ég er ekki viss [hvort   þær mega *það*].
   but I am not sure   whether they may   that

   'but I am not sure they are allowed.'

(15) *Good filler (10 sentences)*

   Margir halda að   túlípanar séu fallegri en   rósir ...
   many   think that tulips   are prettier than roses

   'Many people think that tulips are prettier than roses ...'

   en rósir eru hins vegar til í fleiri litum.
   but roses are other ways to in more colors.

   'but on the other hand, there are roses in more colors.'

(16) *Bad filler (12 sentences)*

   Finnur sagði að   við ættum að fara að synda fyrir   kvöldmat ...
   Finnur said that we should to go   to swim before   dinner

   'Finnur said that we should go swimming before dinner ...'

   og   það ekki gerðist.
   and that not   happened

The Swedish test sentences are parallel. In total, there were 52 test sentences for each language (local/in situ: 2 sentence pairs, að-clause/in situ: 4 sentence pairs, rel. clause/in situ: 5 sentence pairs, *wh*-clause/in situ: 4 sentence pairs, good fillers: 10 sentences and bad fillers: 12 sentences).The complete list of test sentences can be found in Appendix A.

The test sentences start with a conjunction, either *en* 'but' or *og* 'and' (*men* and *och* in Swedish) to connect them to the context sentence. All of them used *það* 'it/that' (*det* 'it/that' in Swedish) as the fronted phrase, and the context was set up so that the pronominal had either a sentential antecedent or a VP antecedent, which is was in a focus chaining relation

to. This choice was based on the findings in previous research detailed in Section 2.2. The contexts were inspired by contexts from examples of spontaneously produced extraction sentences described by Engdahl (1997) and Lindahl (2017), as well as research on pronoun fronting (Engdahl and Lindahl 2014; Lindahl and Engdahl forthcoming; Lindahl forthcoming b).[7]

The five pairs of examples testing relative clause extraction used three different embedding predicates: *vera/vara* 'be/exist', specifically used in existential sentences in the experiment, and the transitive verbs *þekkja/känna* 'know', and *hitta/träffa* 'meet'. The verbs were chosen because they occur in spontaneously produced examples in Mainland Scandinavian. Since there are only a few test sentences with each verb, the choice to use different verbs was mainly to create variation in the test sentences. However, given what we know from previous research, it would not be surprising to see more positive judgments of the test sentences with *vara* 'be/exist' and somewhat worse, but still acceptable judgments with *känna* 'know' and *träffa* 'meet' in Swedish. Furthermore, if Icelandic were like Mainland Scandinavian, we would expect a similar pattern in this language. The heads of the relative clauses were quantified, using quantifiers like *margir/många* 'many', *enginn/ingen* 'no one'. This also builds on previous research: quantified heads are very common in spontaneously produced extraction sentences in Mainland Scandinavian (Engdahl 1997; Lindahl 2017).

The test sentences with *wh*-clauses include two pairs with embedded polar questions, and two pairs with embedded constituent questions. *Wh*-clauses permit extraction in both Mainland Scandinavian and Icelandic (Engdahl 1980; Zaenen 1985). Like the test sentences with extraction from relative clauses, the *wh*-clause test sentences were inspired by previous research. One difference between the Swedish and the Icelandic test sentences is that two of the pairs use the verb *undra* 'wonder' in Swedish, whereas the Icelandic version uses *ekki vera viss* 'not be sure', as this was the closest way to express the same thing while still using the same type of embedded polar question.

The test sentences with local fronting and *att/að*-clauses are included to provide data for comparison, to see if there is cost of fronting unrelated to crossing island inducing structures.[8]

The filler sentences, lastly, provide two baselines to compare the test sentences to. Both good fillers and bad fillers were also presented with a context sentence, and were designed to be similar to the test sentences in complexity. The good fillers are all grammatical, and could occur in everyday communication. The bad fillers have a grammatical context sentence, but all include some feature which makes them unacceptable. In (16), the unacceptability arises from the negation *ekki* 'not' preceding the finite verb, rendering an illicit V3 word order. The aim was to have a range of different types of errors, some very noticeable, like an unlicensed negative polarity expression, and some less stark, like a sentence involving embedded V2 in a context where this was not pragmatically licensed. It would be necessary to read the test sentences carefully to notice some of the errors. This means that the bad fillers also function as a control for whether the participants were paying attention or not.

The sentences were presented in a randomized order in the questionnaire. However, all participants saw the sentences in the same order. This means that there could potentially be some training effects, such that sentences seen later would receive better judgments (Christensen and Nyvad 2014). However, the exact same order of presentation was used in both Icelandic and Swedish, which should ensure that a comparison between the two languages is possible. See Table A5 for details on the order of presentation.

3.2. Participants

The questionnaire was distributed via Sunet Survey to students at the Department of Swedish at the University of Gothenburg and the Faculty of Icelandic and Comparative Cultural Studies at the University of Iceland. Some studies (Dąbrowska 2017; Schütze 1996) show that training in linguistics affects people's judgments in acceptability judgment tasks, which should be taken into account when interpreting the data. However, this selection of

participants has the advantage that the groups should be roughly comparable, which is crucial since the main point of the investigation is to compare extraction in Icelandic and Swedish.

The Swedish results are based on the answers of 27 native speakers who all reported that they spoke Swedish in their household growing up.[9] Two of the participants were bilingual from birth (Swedish-Spanish and Swedish-Turkish). All of the participants in the Swedish part of the study also reported speaking English, and several also speak one or more other languages, most often Spanish or French. The participants were between 21 and 58 years old (average: 29.5, median: 27). 19 were women, 7 men, and one non-binary.

29 participants answered the Icelandic questionnaire. All were native speakers, reporting that Icelandic was used in their household growing up. One of them was bilingual from birth (Icelandic-English). All of the Icelandic participants reported speaking English, and about half also some degree of Danish. Several also report speaking other languages, such as Spanish, French, or German. The participants were between 19 and 48 years old (average: 25, median: 24). 25 were women, 4 men.

4. Results

This section lays out the results of the study. The possible answers (*natural*, *somewhat strange*, and *unnatural*) are ordinal and the results for each test sentence can be expressed as a triplet, e.g., (5,10,5), where the first number gives the number of participants who chose the alternative *natural*, the second number *somewhat strange*, and the third number *unnatural*. For example, the triplet is (26,2,1) for the Icelandic good filler (17).

(17)   ... en rósir eru hins vegar til í fleiri litum. (26,2,1)
    but roses are other ways to in more colors.

   'but on the other hand, there are roses in more colors.'

When an individual test sentence is discussed below, this triplet will be the measure of the acceptability reported for the sentence.

We can also calculate, for each sentence type, the percentage of the time each answer occurs across the test sentences of this type, e.g., how many times in total sentences with extraction from an *att*/*að*-clause were judged as *natural* etc. This will give a percentage for the sentence type for each answer.

4.1. Swedish

An overview of the calculation of answers per sentence type from the Swedish part of the study is given in Table 1.[10]

Table 1. Answers per sentence type, Swedish.

Sentence Type	Natural	Somewhat Strange	Unnatural
Local fronting	68.5%	29.6%	1.9%
In situ	55.6%	40.7%	3.7%
Extraction (*att*-clause)	77.8%	21.3%	0.9%
In situ	76.9%	21.3%	1.9%
Extraction (rel. clause)	57.0%	34.1%	8.9%
In situ	81.5%	15.6%	3.0%
Extraction (*wh*-clause)	65.7%	31.5%	2.8%
In situ	75.0%	22.2%	2.8%
Good fillers	77.0%	21.1%	1.9%
Bad fillers	8.6%	15.4%	75.9%

Interpreting the data, it should be noted that the participants have been rather strict in their judgments. The good fillers are all grammatical and were judged by the author and another native Swedish speaker as natural in context in preparation of the materials, but have only been judged as *natural* 77.0% of the time by the participants. 21.1% of the time, they were judged as *somewhat strange*, and 1.9% as *unnatural*. There are at least two potential reasons that the good fillers would not get 100% *natural* replies. First, answering what is natural is perhaps not an easy task for the participants, and they may not understand it the same way as the author. Second, the fact that the participants are students in the department of Swedish may matter. It is plausible that they—on a group level—are more attuned to style, clarity, and alternative ways to word a sentence than the author, who was focusing mainly on syntax and information structure.

Bad fillers were judged as *natural* 8.6% of the time, as *somewhat strange* 15.4% of the time, and as *unnatural* 75% of the time. It may seem surprising that bad fillers were considered *natural* to such a large extent. 8.6% equals 28 answers in absolute numbers. Upon further analysis, it turns out that 17 of these ratings were from two test sentences with a main clause question word order embedded under *att* 'that', as in (18).

(18) Min rumskompis vill måla vårt kök ljusgult ...
   my roommate wants paint our kitchen bright yellow

   'My roommate wants to paint our kitchen bright yellow ...'

   men jag tror inte att kommer det att bli fint. (7,0,13)
   but I think not that will it to become nice

This word order is usually not considered acceptable, but since it is fairly common to use main clause word order in some embedded contexts in Swedish ([Teleman et al. 1999](#)), a tendency that seems to be expanding, it may be the case that these are indeed acceptable to some of the participants. However, it should also be noted that flipping the order of *kommer* 'will' and *det* 'it', as in (19) renders the examples completely acceptable.

(19) men jag tror inte att det kommer att bli fint.
   but I think not that it will to become nice
   'but I don't think it will look good.'

It is possible that some participants read the example quickly and did not spot the problem. Another bad filler that received several *natural* judgments is given in (20).

(20) Banken förutspår att räntan stiger med 3 procent ...
   bank.DEF foresees that interest.DEF rises with 3 percent

   'The bank foresees that the interest rates will go up 3 percent ...'

   och det går inte att hitta ekonomerna som vill uttala sig tydligare
   and it goes not to find economists.DEF who want pronounce REFL clearer
   än så. (5,10,12)
   than so

To be more natural sounding, *ekonomerna* 'the economists' in this example should have been indefinite. However, this is a fairly minor change from the test sentence, and a fairly minor deviance in the first place, which might have led some participants to think the sentence is not that bad altogether.

4.1.1. Local Fronting

Turning to local fronting this was judged as *natural* 68.5% of the time, as *somewhat strange* 29.6% of the time, and as *unnatural* 1.9% of the time. This is better than the in situ versions, where the corresponding percentages were *natural*, 55.6%, *somewhat strange*, 40.7%, and *unnatural*, 3.7%. As discussed in detail in Lindahl and Engdahl ([forthcoming](#)), both of the word orders are grammatical in Swedish, and both occur in spontaneously produced

language. The fact that the version with fronting receives better judgments is not entirely unexpected: it is the more common version when the fronted pronoun is *det* with a VP or sentential antecedent, as in this case, and it fits well with the pragmatic strategies normally used in Swedish to start a sentence, since it involves focus chaining (Erteschik-Shir 2007; Lindahl and Engdahl forthcoming).

4.1.2. Extraction from *att*-Clauses

The Swedish participants' judgments for test sentences with extraction from an *att*-clause were very similar to their judgments for the good fillers. They picked the answer *natural* 77% of the time, *somewhat strange* 21.3% of the time, and *unnatural* only 0.9% of the time. The judgments for the in situ versions are almost identical: *natural* 76.9%, *somewhat strange* 21.3%, *unnatural* 1.9%. This means that we see no extraction cost for long extraction in a non-island environment. This could be because our method, with only three alternatives, allows less fine-grained distinctions. Another potential explanation would be that it is due to the type of fronted phrase we used. As we saw in the local fronting condition, the version with fronting actually received more *natural* judgments than the in situ version. It is conceivable that this effect counteracts an effect of similar size for long extraction, such that the acceptability cost of long extraction is hidden.

4.1.3. Extraction from Relative Clauses

Overall, the Swedish participants rated extraction from relative clause as *natural* over half of the time (57.0%). The rest of the time they mostly picked the alternative *somewhat strange* (34.1%). The answer *unnatural* was chosen only 8.9% of the time. These results are worse than the results for good fillers and extraction from an *att*-clause, but much better than for bad fillers. There is clearly a cost of extraction compared to the in situ versions, where the participants picked the answer *natural* 81.5% of the time, *somewhat strange* 15.6% of the time, and *unnatural* 3.0% of the time, which is fairly similar to the ratings for good fillers.

Looking closer at the individual test sentences, we find quite a bit of variation. Table 2 shows the relevant sentences. The context sentence is given in English, and the antecedent of the pronoun is underlined.

On one extreme, S15 on row 3 in the table, with extraction, is judged as natural 26 times out of 27. The judgments overall for this sentence are actually better than for the in situ version, S16, on row 4.[11] On the other extreme, the extraction sentence, S21, on row 9 received the judgment *natural* only ten times, and *unnatural* 6 times, which is much worse than the in situ version, S22, which was rated *natural* 24 times, and unnatural 0 times. The pair of sentences S13 and S14 on rows 1 and 2 are notable because the in situ version received worse ratings than the other in situ versions in that the option *somewhat strange* was chosen 12 times. Since both the context sentence and the test sentence are common and grammatical sentences, this most likely has something to do with the relation between the context sentence and the test sentence.[12] The version with extraction (11,14,2) was judged very similarly to the in situ version (12,12,3).

It comes as no surprise that the sentence S15 with *vara* 'be/exist' as the embedding predicate receives good ratings. It is also interesting to note that for both of the sentences with *vara*, S13 and S15, we essentially see no cost of extraction compared to the in situ version. For the sentences S17, S19, and S21 with the transitive verbs *känna* 'know' and *träffa* 'meet' as the embedding predicates, we see some extraction cost.

The relative clause extraction sentences were overall judged as somewhat less acceptable than the sentences with extraction from embedded questions, which will be discussed in the next section.

Table 2. Extraction from relative clauses: test sentences and judgments, Swedish.

Test Sentence		Natural	Somewhat Strange	Unnatural
S13 Olle claimed <u>that it would rain</u> men *det* var det ingen som trodde. *but that was there no one who thought*	extraction	11	14	2
S14 Anna claimed <u>that it would snow</u> men det var ingen som trodde *det*. *but there was no one who though that*	in situ	12	12	3
S15 You can use the gift card <u>to buy a movie ticket</u> och *det* är det många som gör. *and that are there many who do*	extraction	26	1	0
S16 You can use the wellness allowance <u>to buy a gym card</u> och det är många som gör *det*. *and there are many who do that*	in situ	23	4	0
S17 My sister says <u>that we should switch to constant summer time</u> men *det* känner jag ingen annan som tycker. *but that know I no one else who thinks*	extraction	15	9	3
S18 My brother says <u>that we should have Euros instead of Kronor</u> men jag känner ingen annan som tycker *det*. *but I don't know anyone else who thinks that*	in situ	25	2	0
S19 You can bike all the way <u>to Riksgränsen</u> men *det* har jag inte träffat någon som har gjort. *but that have I not met anyone who has done*	extraction	15	11	1
S20 You can hike all the way <u>to Abisko</u> men jag har inte träffat någon som har gjort *det*. *but I have not met anyone who has done that*	in situ	26	0	1
S21 My daughter wants to have <u>a smart phone</u> och *det* har jag träffat många andra barn som också vill. *and that have I met many other children who also want*	extraction	10	11	6
S22 My son wants to have <u>his own computer</u> och jag har träffat många andra barn som också vill *det*. *and I have met many other children who also want that*	in situ	24	3	0

4.1.4. Extraction from *wh*-Clauses

The Swedish test sentences for extraction from *wh*-clauses were rated as *natural* 65.7% of the time, as *somewhat strange* 31.5% of the time, and as *unnatural* 2.8% of the time. The in situ-versions received better ratings overall, at 75.0% *natural*, 22.2% *somewhat strange*, and 1.9% *unnatural*. There thus seems to be some cost of extraction from this type of clause as well, although smaller than the overall cost of extraction from a relative clause. We can also note that the ratings for the in situ versions are very close to the ones for the good fillers.

4.2. *Icelandic*

An overview of answers per sentence type in Icelandic is given in Table 3.

Table 3. Answers per sentence type, Icelandic.

Sentence Type	Natural	Somewhat Strange	Unnatural
Local fronting	67.2%	27.6%	5.2%
In situ	70.7%	24.1%	5.2%
Extraction (*að*-clause)	37.9%	29.3%	32.8%
In situ	97.4%	1.7%	0.9%
Extraction (rel. clause)	1.4%	6.9%	91.7%
In situ	84.8%	11.0%	4.1%
Extraction (*wh*-clause)	4.3%	32.8%	62.9%
in situ	69.8%	25.9%	4.3%
Good fillers	81.7%	15.2%	3.1%
Bad fillers	4.9%	14.4%	80.8%

Like the Swedish participants, the Icelandic participants have been rather strict in judging the good filler sentences. As mentioned, two native Icelandic speakers helped construct the Icelandic test sentences, which ought to be acceptable apart from any degradation related to the fronting. The participants judged the good fillers as *natural* 81.7% of the times, as *somewhat strange* 15.2% of the time, and as *unnatural* 3.1% of the time. The reasoning about the Swedish good filler sentences in Section 4.1 applies here too, and the fact that the results are quite close to the Swedish results for good fillers may indicate that the groups and test sentences are indeed fairly comparable, as hoped. With respect to the bad fillers the Icelandic participants chose the answer *natural* 4.9% of the time, *somewhat strange* 14.4% of the time, and *unnatural* 80.8% of the time, which is also quite close to the Swedish participants' judgments. A fairly large proportion of the *natural* and *somewhat strange* answers about the Icelandic bad fillers come from the same items, namely items I48 and I49, which are given in (21).

(21) a. Ég var á Akureyri í gær ...
      I   was in Akureyri yesterday

'I was in Akureyri yesterday ...'

og þar er hver einasta verslun sem gerir við hjól. (8,11,10)
and there is every   store   that fixes   bikes

b. Ég var í Reykjavík í gær ...
   I   was in Reykjavík yesterday

'I was in Reykjavík yesterday ...'

og það er hver einasta verslun sem gerir við hjól þar. (1,15,13)
and EXPL is every   store   that fixes   bikes there

The corresponding test sentences in Swedish received much worse judgments (0,4,23 and 0,2,25). The difference is likely related to the fact that Icelandic has an existential construction with universally quantified associates, unlike Swedish, i.e., that sentences like (22) are grammatical in Icelandic, but not in Swedish. See also (Milsark 1974; Thráinsson 2007).

(22) a. Það hafa allir kettirnir alltaf verið í eldhusinu. (Ice)
    EXPL have all cats.DEF always been in kitchen.DEF

    ≈ 'All the cats have always been in the kitchen.' (Thráinsson 2007, p. 319)

b. * Det har alla katterna alltid varit i köket. (Swe)
    EXPL have all cats.DEF always been in kitchen.DEF

4.2.1. Local Fronting

The Icelandic participants judged local fronting as *natural* 67.2% of the time, as *somewhat strange* 27.6% of the time, and as *unnatural* 5.2% of the time. The results for the in situ versions are very similar here. The participants chose the answer *natural* 70.7% of the time, *somewhat strange* 24.1% of the time, and *unnatural* 5.2% of the time. Both the fronting and in situ versions are rated worse than the good fillers, but there does not seem to be anything about the fronting in itself which makes the examples degraded, since the in situ versions received similar judgments.

4.2.2. Extraction from *að*-Clauses

The results for the sentences that tested extraction from *að*-clauses show a different pattern. Here, the versions with extraction were rated as *natural* only 37.9% of the time. 29.3% of the time they were rated as *somewhat strange*, and 32.7% of the time as *unnatural*. The in situ versions, on the other hand, were deemed natural sounding to a large extent. The participants judged the in situ version as *natural* 97.4% of the time, as *somewhat strange* 1.7% of the time, and as *unnatural* 0.9% of the time. There thus seems to be a large cost of extraction from an *að*-clause in Icelandic for this type of pronoun fronting.

4.2.3. Extraction from Relative Clauses

In extraction from relative clauses, we again see a very large cost of extraction. The participants rated the test sentences with extraction from a relative clause as *natural* only 1.4% of the time. The answer *somewhat strange* was chosen 6.9% of the time, and *unnatural* 91.7% of the time. In other words, the participants found extraction from relative clauses to be unnatural sounding across the board. The ratings are lower than for bad fillers. Furthermore, there does not seem to be anything wrong with the contexts or test sentences per se. The in situ versions were judged as *natural* 84.8% of the time, as *somewhat strange* 11.0% of the time, and as *unnatural* 4.1% of the time. These ratings are slightly higher than for the good fillers.

Turning to the individual test sentences, there is not much difference between them. The relevant sentences are shown in Table 4.

Table 4. Extraction from relative clauses: test sentences and judgments, Icelandic.

Test Sentence		Natural	Somewhat Strange	Unnatural
I13 Sindri claimed <u>that it would rain</u> en *því* var enginn sem trúði. *but that was no one who thought*	extraction	0	2	27
I14 Sigrún claimed <u>that it would snow</u> en *það* var enginn sem trúði *því*. *but there was no one who though that*	in situ	27	2	0
I15 You can use the gift card <u>to buy a movie ticket</u> og *það* eru margir sem gera. *and that are many who do*	extraction	2	7	20
I16 You can use the wellness allowance <u>to buy a gym card</u> og *það* eru margir sem gera *það*. *and there are many who do that*	in situ	27	2	0
I17 My sister says <u>that we should switch to constant summer time</u> en *það* þekki ég engan annan sem heldur. *but that know I no one else who thinks*	extraction	0	0	29
I18 My brother says <u>that we should have Euros instead of Króna</u> en ég þekki engan annan sem heldur *það*. *but I don't know anyone else who thinks that*	in situ	17	7	5
I19 You can bike <u>all the way to Akureyrar</u> en *það* hef ég ekki hitt neinn sem hefur gert. *but that have I not met anyone who has done*	extraction	0	0	29
I20 You can hike <u>all the way to Keflavíkur</u> en ég hef ekki hitt neinn sem hefur gert *það*. *but I have not met anyone who has done that*	in situ	28	1	0
I21 My daughter wants <u>to have a smart phone</u> og *það* hef ég hitt mörg önnur börn sem vilja líka. *and that have I met many other children who also want*	extraction	0	1	28
I22 My son wants <u>to have his own computer</u> og ég hef hitt mörg önnur börn sem vilja *það* líka. *and I have met many other children who also want that*	in situ	24	4	1

As the table reveals, ratings are grouped at the *unnatural* end of the scale for sentences with extraction, and in the *natural* end for in situ sentences, with few *somewhat strange* judgments across the board. Two test sentences deserve further comment. First, sentence I15, on row 3, was judged by two participants as *natural*, and seven participants judged it as *somewhat strange*. A clear majority rated it as *unnatural*, but it may be ever so slightly less unacceptable than the other sentences with extraction from a relative clause. The sentence I15 uses *vera* as the embedding predicate. However, the other sentence with *vera* and extraction, I13, is rated very poorly.

Second, sentence I18, stands out in receiving slightly worse judgments than the other in situ sentences. The participants have picked the option *somewhat strange* seven times, and *unnatural* five times. Most of the participants, 17, still rated the sentence as *natural*.

Overall, the sentences with extraction from relative clauses were not perceived as natural sounding by the Icelandic participants. As we will see in the next section, the results are similar for the sentences with extraction from *wh*-clauses.

4.2.4. Extraction from *wh*-Clauses

The Icelandic participants picked the alternative *natural* only 4.3% of the time judging the sentences with extraction from *wh*-clauses. The alternative *somewhat strange* was picked 32.8% of the time, and *unnatural* 62.9% of the time. A difference between these results and those for extraction from relative clauses is that there were more *somewhat strange*-answers, so extraction from *wh*-clauses appears not to be quite as unnatural as extraction from relative clauses to the Icelandic participants. Given the previous research (Zaenen 1985), the fact that these extractions received such low ratings is somewhat surprising. The results are also clearly worse than those for the sentences with extraction from *að*-clauses. It is worth pointing out that the in situ versions of the sentences also get somewhat worse results than good fillers and also than the in situ versions in extraction from relative clauses, which means that the test sentences may not have been entirely natural sounding to begin with. However, this can only account for some of the unnaturalness. I will discuss this further in Section 5.

4.3. Comparison of Icelandic and Swedish

Local fronting is rated quite similarly in Swedish and Icelandic. One difference, however, is that in Swedish, the fronted versions are overall better than the in situ versions, whereas in Icelandic, local fronting and in situ versions are on a par. In extraction from *att/að*-clauses, we see a clear difference between the two languages. In Swedish, the extraction sentences are on a par with the in situ-versions and with good fillers, but in Icelandic, these extractions seem to be somewhat degraded, while the in situ versions receive very favorable ratings. This can be illustrated with the examples in (23).

(23) a. men *det*$_1$ tror jag inte [att hon gör _$_1$]. (16,10,1)   (Swe)
          but that think I   not   that she does
          'but I don't think she will.'

      b. men jag tror   inte [att han gör *det*]. (18,8,1)
          but I   think not   that he   does that
          'but I don't think he will.'

      c. en *það*$_1$ held ég [að   hún geri ekki _$_1$]. (8,14,7)   (Ice)
          but that think I   that she does not
          'but I don't think that she will.'

      d. en ég held [að   hann geri *það* ekki]. (28,1,0)
          but I think   that he   does that not
          'but I don't think that he will.'

Overall, ratings are more degraded for extraction from *að*-clauses in Icelandic than from *att*-clauses in Swedish (Icelandic: 37.9%, 29.3%, 32.8% vs. Swedish: 77.8%, 21.3%, 0.9%).

Having looked more closely at ratings for comparable extraction sentences in Swedish and Icelandic, and using favorable pragmatic conditions, we are now in a position to compare the acceptability of extraction from relative clauses in the two languages, which was the overarching goal of this article. What we see is that controlling for factors relating to the embedding verb and the discourse function of the fronted phrase, there are clear differences between Swedish and Icelandic. In Swedish, extraction from relative clauses comes with some cost; extraction examples were overall rated worse than in situ versions, good fillers, and extraction from *att*-clauses. However, the majority of answers for the extraction sentences was still that it was natural sounding (57.0%, 34.1%, 8.9%). In Icelandic, ratings for the extraction sentences were very poor (1.4%, 6.9%, 91.7%), and the cost

compared to the in situ versions, extraction from *að*-clauses, and good fillers was much larger. Extraction from relative clauses was even rated worse than bad fillers. The test sentences in (24) illustrate the answer patterns in the two languages.

(24)   Sindri claimed that it would rain ...

    a.   men *det*$_1$ var det   ingen ⌈ som trodde $\_1$ ⌉. (11,14,2)   (Swe)
        but   that was there no one   who thought

        'but there was no one who thought so.'

    b.   men det   var ingen   som trodde   *det*. (12,12,3)
        but   there was no one who thought that

        'but there was no one who thought so.'

    c.   en   *því*$_1$ var   enginn ⌈ sem trúði $\_1$ ⌉. (0,2,27)   (Ice)
        but that was no one   who though

        'but there was no one who though so.'

    d.   en   það   var   enginn sem trúði   *því*. (27,2,0)
        but there was no one who thought that

        'but there was no one who thought so.'

An interesting difference between the two languages is that in the Icelandic results, there is almost no variation in the judgments of the extraction sentences depending on the embedding predicate, unlike in Swedish. In Swedish, the extraction sentence and the in situ version got similar ratings in the examples where the embedding predicate was *vara* 'be/exist', i.e., in the existential sentences, but with the other embedding predicates, there was some extraction cost. In Icelandic, the extraction sentences are all rated poorly, and there is a large difference between the extraction version and the in situ version across all of the test sentences, the pattern looking the same regardless of the embedding predicate (See Table 4).

With respect to extraction from *wh*-clauses, these got much worse ratings in Icelandic than in Swedish (4.3%, 32.8%, 62.9% in Icelandic vs. 65.7%, 31.5%, 2.8% in Swedish). An example which illustrates the different answer patterns in the two languages is given in (25).

(25)   There was only one person who could save the team from a loss ...

    a.   och *det*$_1$ visste alla   ⌈ vem$_2$ det$_1$ var $\_2$ ⌉ — Lionel Messi. (21,5,1)   (Swe)
        and that knew everyone   who it   was   Lionel Messi

        'and everyone knew who it was — Lionel Messi.'

    b.   og   *það*$_1$ vissu allir   ⌈ hver$_2$ $\_1$ var $\_2$ ⌉ — Lionel Messi. (4,13,12)   (Ice)
        and that knew everyone   who   was   Lionel Messi

        'and everyone knew who it was — Lionel Messi.'

In Swedish, the trace of an extracted subject next to an overt element in the complementizer domain is spelled out as a resumptive pronoun, as we can see in (25a) (Engdahl 1985; Zaenen et al. 1981). In Icelandic, extraction of a subject could be expected to be acceptable, since Icelandic does not exhibit comp-trace effects (Zaenen 1985). However, as we see here, the ratings for this particular sentence were nevertheless poor.

Given these results, and the results for extraction from *að*-clauses and local fronting, it seems there is a potential difference between Swedish and Icelandic in how long-distance fronting of pronouns is treated. The type of pronoun fronting that was used seems to be acceptable in Icelandic in local fronting, but the fronting is often judged to be degraded out of embedded clauses, even *að*-clauses, which are not islands for movement in Icelandic generally.

5. Discussion

The goal of this article has been to investigate extraction from relative clauses in Icelandic and Swedish in parallel, building on insights from recent work on extraction in Mainland Scandinavian. The aim was to see what differences remain between the two languages when information structure and context are controlled for, and to find out if the same conditions that have proven to be favorable for extraction in Mainland Scandinavian would also improve Icelandic extraction sentences. The experiment revealed large differences between the two languages, corroborating previous work by Zaenen (1985); Thráinsson (2007), and others. Even though pronoun fronting of the kind used in the test sentences is acceptable in Icelandic, at least in local fronting, extraction from relative clauses and *wh*-clauses was judged to be unacceptable. This is different from the results from the Swedish part of the experiment, where the corresponding sentences were deemed *natural* in a majority of cases.

The results raise a question about long-distance fronting of pronouns in Icelandic, and under what discourse condition this type of movement is possible. In the study, only local fronting was judged as natural to a large extent by the Icelandic participants. These results are somewhat surprising given the previous research. Both extraction from *að*-clauses and extraction from *wh*-clauses are generally taken to be acceptable in Icelandic (Thráinsson 2007; Zaenen 1985). In relation to this, it is relevant to bring up contrast. There is a discussion in the previous literature about whether object fronting in Icelandic is only possible when the fronted phrase is contrasting with something (Light 2012; Lindahl forthcoming b). Lindahl (forthcoming b) argues that this is quite common in local pronominal fronting, but not necessary. Since the context sentences in the experiment were not set up to invoke a contrast, this may nevertheless have affected the Icelandic ratings, if contrast is the most common function for the fronted phrase in this language. In any case, it is intriguing that this mainly seems to affect the judgments of long-distance fronting but not local fronting. More research is clearly needed here. Comparing long-distance pronoun fronting with long-distance fronting of contrastive DPs and *wh*-phrases would be a natural next step.

From the perspective of theories of extraction, the results underscore that for all their similarities, the Scandinavian languages seem to be truly different when it comes to extraction from relative clauses. The conditions that are important in Mainland Scandinavian do not seem to play any role in Icelandic. That is, setting up a context which facilitates the type of pronoun fronting most commonly used in these languages, and using predicates that are known to facilitate extraction, does not lead to acceptable extraction from relative clauses in Icelandic.

Furthermore unlike in Swedish, no acceptability pattern related to the embedding predicate is visible. Contrast possibly plays a different role in Icelandic and could explain some of the difference in ratings between the two languages, and a future study could address this using contexts that evoke a contrastive interpretation of the fronted phrase. However, within Icelandic we still see a large difference between extraction from *að*-clauses and extraction from relative clauses. It thus seems likely that there is, in addition, some structural issue with extraction from relative clauses in this language.

The fact that I did not find an acceptability pattern related to the embedding predicate in the Icelandic part of the study warrants further comment. Engdahl and Lindahl (2022) report on a small study of Faroese indicating that the *sum*-clause in an existential sentence may permit extraction in this language.[13] The Faroese study used a different methodology than the current study, but if these results hold up in larger acceptability studies, Icelandic would be an extreme among the Scandinavian languages in not allowing extraction in this environment. Further acceptability studies using a more fine-grained scale in both Icelandic and Faroese would likely be enlightening.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: The data reported in this study are available upon request.

Conflicts of Interest: The author declares no conflict of interest.

Appendix A

Table A1. Swedish test sentences.

	Test Sentence		
S1	Många säger att språket här har ändrat sig ... men det tycker jag inte.	local clause	extraction
S2	Många säger att vintrarna här har blivit kallare ... men jag tycker inte det.	local clause	in situ
S3	Anna säger att hon alltid vinner mot sin syster i schack ... och det gör hon också.	local clause	extraction
S4	Olle säger att han alltid vinner mot sin bror i tennis ... och han gör det också.	local clause	in situ
S5	Jag hoppas att min mamma ska låna ut sin bil ... men det tror jag inte att hon gör.	*att*-clause	extraction
S6	Jag hoppas att min bror ska låna ut sin motorcykel ... men jag tror inte att han gör det.	*att*-clause	in situ
S7	Jag tycker att sommaren är den bästa årstiden ... och det tror jag att de flesta håller med om.	*att*-clause	extraction
S8	Jag tycker att vintern är finast i december ... och jag tror att de flesta håller med om det.	*att*-clause	in situ
S9	Linas kollegor blir irriterade när hon kommer för sent ... men det tror jag inte att hon förstår.	*att*-clause	exrtaction
S10	Aminas klasskamrater blir sura när hon tar det sista kaffet ... men jag tror inte att hon förstår det.	*att*-clause	in situ
S11	Igår tog Erik med sin hund till träningen ... och det tror jag att han gör idag också.	*att*-clause	extraction
S12	Igår tog Sven med sin hund till jobbet ... och jag tror att han gör det idag också.	*att*-clause	in situ
S13	Olle påstod att det skulle regna ... men det var det ingen som trodde.	rel. clause	extraction
S14	Anna påstod att det skulle snöa ... men det var ingen som trodde det.	rel. clause	in situ
S15	Man kan använda presentkortet till att köpa en biobiljett ... och det är det många som gör.	rel. clause	extraction
S16	Man kan använda friskvårdsbidraget till att köpa ett gymkort ... och det är många som gör det.	rel. clause	in situ
S17	Min syster säger att vi borde gå över till ständig sommartid ... men det känner jag ingen annan som tycker.	rel. clause	extraction
S18	Min bror säger att vi borde ha euro istället för kronor ... men jag känner ingen annan som tycker det.	rel. clause	in situ

Table A1. *Cont.*

	Test Sentence		
S19	Man kan cykla hela vägen till Riksgränsen ... men det har jag inte träffat någon som har gjort.	rel. clause	extraction
S20	Man kan vandra hela vägen till Abisko ... men jag har inte träffat någon som har gjort det.	rel. clause	in situ
S21	Min dotter vill ha en smartphone ... och det har jag träffat många andra barn som också vill.	rel. clause	extraction
S22	Min son vill ha en egen dator ... och jag har träffat många andra barn som också vill det.	rel. clause	in situ
S23	Johan och Mikael tänker åka på festival ... men det undrar jag om de får.	*wh*-clause	extraction
S24	Karin och Tove tänker ha fest ... men jag undrar om de får det.	*wh*-clause	in situ
S25	Båtägarna ska städa området noggrant varje vecka ... men det undrar jag om de gör.	*wh*-clause	extraction
S26	Delägarna borde stå för kostnaden ... men jag undrar om de gör det idag.	*wh*-clause	in situ
S27	Någon har nyligen räknat ut hur man kan förutsäga jordbävningar ... och det är jag väldigt nyfiken på vem som har gjort.	*wh*-clause	extraction
S28	Någon har visst räknat ut hur man kan förutsäga översvämningar ... och jag är väldigt nyfiken på vem som har gjort det	*wh*-clause	in situ
S29	Det fanns bara en som kunde rädda laget från förlust ... och det visste alla vem det var - Lionel Messi.	*wh*-clause	extraction
S30	Det fanns bara en som kunde rädda landslaget från förlust ... och alla visste vem det var - Zinedine Zidane.	*wh*-clause	in situ

Table A2. Swedish filler sentences.

	Test Sentence	
S31	Många tycker att tulpaner är vackrare än rosor ... men rosor finns å andra sidan i flera nyanser.	Good filler
S32	Många tycker att rött vin är godare än vitt vin ... men vitt vin passar ändå bäst till fisk.	Good filler
S33	Min moster brukar vilja låna böcker på biblioteket ... så därför går vi dit tillsammans varje söndag.	Good filler
S34	Min faster brukar vilja se allt som ställs ut på konsthallen ... så därför följer jag med henne dit rätt ofta.	Good filler
S35	Det var många som trodde att Brasilien skulle vinna senaste fotbolls-VM ... men de spelade inte tillräckligt bra.	Good filler
S36	Det var många som trodde att Kanada skulle spela bra i senaste hockey-VM ... men de överträffade alla förväntningar.	Good filler
S37	Det är sällan man träffar folk som har varit i Kiruna ... men det händer ändå då och då.	Good filler
S38	Det är inte ofta man träffar folk som har varit vid Riksgränsen ... men jag har stött på några stycken i alla fall.	Good filler
S39	Iris kusin bjöd med mig på vargsafari i förra veckan ... och det var väldigt spännande.	Good filler
S40	Evas kusin bjöd med mig på bio i fredags ... och det var verkligen trevligt.	Good filler
S41	Isak sa att vi borde gå och simma innan middagen ... och så blev inte det.	Bad filler
S42	Samira sa att vi måste göra allt för att vinna orienteringstävlingen ... men inte blev det.	Bad filler
S43	Vi har bjudit in nästan hundra personer till festen ... och jag undrar verkligen vilka kommer.	Bad filler

Table A2. *Cont.*

	Test Sentence	
S44	Vi har bjudit in kanske två hundra personer till utställningen ... så jag tror att så värst många kommer.	Bad filler
S45	Min kollega ska presentera ett nytt gränssnitt imorgon ... och jag tror verkligen att kommer det bli bra.	Bad filler
S46	Min rumskompis vill måla vårt kök ljusgult ... men jag tror inte att kommer det att bli fint.	Bad filler
S47	Jag var hos min bror igår ... han bor nära mig, så jag ofta träffar honom.	Bad filler
S48	Jag var i Göteborg igår ... och där finns det varje affär som lagar cyklar.	Bad filler
S49	Jag var i Stockholm igår ... och det finns varje affär som lagar cyklar där.	Bad filler
S50	Man säger att det är 95 procent säkert ... och tydligare än så går det inte att hitta professorn som vill uttala sig.	Bad filler
S51	Banken förutspår att räntan stiger med 3 procent ... och det går inte att hitta ekonomerna som vill uttala sig tydligare än så.	Bad filler
S52	Vattnet är varmare i den andra poolen ... och Anna vill där oftast bada.	Bad filler

Table A3. Icelandic test sentences.

	Test Sentence		
I1	Margir segja að tungumálið hér hafi breyst ... en það held ég ekki.	local clause	extraction
I2	Margir segja að veturnir hér séu orðnir kaldari ... en ég held það ekki.	local clause	in situ
I3	Anna segir að hún vinni systur sína alltaf í skák ... og það gerir hún líka.	local clause	extraction
I4	Einar segir að hann vinni bróður sinn alltaf í tennis ... og hann gerir það líka.	local clause	in situ
I5	Ég vona að mamma láni mér bílinn sinn ... en það held ég að hún geri ekki.	*að*-clause	extraction
I6	Ég vona að bróðir minn láni mér mótorhjólið sitt ... en ég held að hann geri það ekki.	*að*-clause	in situ
I7	Ég held að sumarið sé besti tími ársins ... og því held ég að flestir séu sammála.	*að*-clause	extraction
I8	Ég held að veturinn sé fallegastur í desember ... og ég held að flestir séu sammála því.	*að*-clause	in situ
I9	Samstarfsmenn Línu verða pirraðir þegar hún kemur of seint ... en því held ég að hún átti sig ekki á.	*að*-clause	extraction
I10	Bekkjarfélagar Önnu verða reiðir þegar hún klárar kaffið ... en ég held að hún átti sig ekki á því.	*að*-clause	in situ
I11	Í gær tók Eiríkur hundinn sinn með sér á æfinguna ... og það held ég að hann geri líka í dag.	*að*-clause	extraction
I12	Í gær tók Sveinn hundinn sinn með sér í vinnuna ... og ég held að hann geri það líka í dag.	*að*-clause	in situ
I13	Sindri hélt því fram að það myndi rigna ... en því var enginn sem trúði.	rel. clause	extraction
I14	Sigrún hélt því fram að það myndi snjóa ... en það var enginn sem trúði því.	rel. clause	in situ
I15	Þú getur notað gjafakortið til að kaupa bíómiða ... og það eru margir sem gera.	rel. clause	extraction
I16	Þú getur notað styrkinn til að kaupa líkamsræktarkort ... og það eru margir sem gera það.	rel. clause	in situ

Table A3. *Cont.*

	Test Sentence		
I17	Systir mín segir að við ættum að skipta yfir í sumartíma ... en það þekki ég engan annan sem heldur.	rel. clause	extraction
I18	Bróðir minn segir að við ættum að hafa evrur í stað króna ... en ég þekki engan annan sem heldur það.	rel. clause	in situ
I19	Það er hægt að hjóla alla leið til Akureyrar ... en það hef ég ekki hitt neinn sem hefur gert.	rel. clause	extraction
I20	Það er hægt að ganga alla leið til Keflavíkur ... en ég hef ekki hitt neinn sem hefur gert það.	rel. clause	in situ
I21	Dóttir mín vill fá snjallsíma ... og það hef ég hitt mörg önnur börn sem vilja líka.	rel. clause	extraction
I22	Sonur minn vill fá tölvu ... og ég hef hitt mörg önnur börn sem vilja það líka.	rel. clause	in situ
I23	Helgi og Gísli vilja fara á hátíð ... en það er ég ekki viss hvort þeir mega.	*wh*-clause	extraction
I24	Bryndís og Erla vilja halda veislu ... en ég er ekki viss hvort þær mega það.	*wh*-clause	in situ
I25	Bátaeigendunum ber að þrífa svæðið vandlega í hverri viku ... en það er ég ekki viss hvort þau gera.	*wh*-clause	extraction
I26	Meðeigendurnir ættu að bera kostnaðinn ... en ég er ekki viss hvort þau gera það.	*wh*-clause	in situ
I27	Einhver hefur nýlega búið til tæki til að spá fyrir um jarðskjálfta ... og það er ég mjög forvitin(n) um hver gerði.	*wh*-clause	extraction
I28	Einhver hefur nýlega búið til tæki til að spá fyrir um flóð ... og ég er mjög forvitin(n) um hver gerði það.	*wh*-clause	in situ
I29	Það var bara einn sem gat bjargað liðinu frá tapi ... og það vissu allir hver var - Lionel Messi.	*wh*-clause	extraction
I30	Það var bara einn sem gat bjargað landsliðinu frá tapi ... og allir vissu hver það var - Zinedine Zidane.	*wh*-clause	in situ

Table A4. Icelandic filler sentences.

	Test Sentence	
I31	Margir halda að túlípanar séu fallegri en rósir ... en rósir eru hins vegar til í fleiri litum.	Good filler
I32	Margir halda að rauðvín sé betra en hvítvín ... en hvítvín hentar samt betur með fiski.	Good filler
I33	Frænka mín vill venjulega fá lánaðar bækur á bókasafninu ... svo við förum þangað saman á hverjum föstudegi.	Good filler
I34	Frænka mín vill venjulega sjá allt sem er til sýnis í listasafninu ... svo ég fer með henni þangað nokkuð oft.	Good filler
I35	Það voru margir sem héldu að Brasilíumenn myndi vinna síðasta heimsmeistaramót ... en þeir spiluðu ekki nógu vel.	Good filler
I36	Það voru margir sem héldu að Kanadamenn myndi spila illa á síðasta heimsmeistaramóti ... en þeir fóru fram úr öllum væntingum.	Good filler
I37	Það er sjaldgæft að hitta fólk sem hefur farið til Svalbarða ... en það gerist samt af og til.	Good filler
I38	Það er ekki oft sem maður hittir fólk sem hefur farið til Álandseyja ... en ég hef alla vega rekist á nokkra.	Good filler
I39	Frænka Guðrúnar bauð mér í hvalaskoðun í síðustu viku ... og það var mjög spennandi.	Good filler
140	Frænka Evu bauð mér í bíó síðasta föstudag ... og það var mjög skemmtilegt.	Good filler
I41	Finnur sagði að við ættum að fara að synda fyrir kvöldmat ... og það ekki gerðist.	Bad filler

Table A4. *Cont.*

	Test Sentence	
I42	Helga sagði að við yrðum að gera allt til að vinna ratleikinn ... en ekki það gerðist.	Bad filler
I43	Við höfum boðið næstum hundrað manns í veisluna ... og ég velti því fyrir mér hverjir sem að koma.	Bad filler
I44	Við höfum boðið um tvö hundruð manns á sýninguna ... en ég held að neinir komu.	Bad filler
I45	Samstarfsmaður minn mun kynna nýtt viðmót á morgun ... og ég held virkilega að verði það gott.	Bad filler
I46	Sambýlismaður minn vill mála eldhúsið okkar ljósgult ... en ég held að verði það ekki fallegt.	Bad filler
I47	Ég var með bróður mínum í gær. Hann býr nálægt mér ... svo ég oft hitti hann.	Bad filler
I48	Ég var á Akureyri í gær ... og þar er hver einasta verslun sem gerir við hjól.	Bad filler
I49	Ég var í Reykjavík í gær ... og það er hver einasta verslun sem gerir við hjól þar.	Bad filler
I50	Það er sagt að það sé 95 prósent öruggt ... og skýrar um málið er ekki til prófessorinn sem tjái sig.	Bad filler
I51	Bankinn spáir því að vextirnir hækki um 3 prósent ... og það er ekki til hagfræðingurinn sem tjái sig skýrar um málið.	Bad filler
I52	Vatnið er heitara í hinni lauginni ... og Anna vill þar venjulega synda.	Bad filler

Table A5. Order of presentation.

Test Sentence
S35/I35
S05/I05
S42/I42
S39/I39
S13/I13
S32/I32
S46/I46
S12/I12
S37/I37
S16/I16
S28/I28
S50/I50
S10/I10
S21/I21
S03/I03
S51/I51
S08/I08
S40/I40
S49/I49
S24/I24
S11/I11
S38/I38
S47/I47
S17/I17
S34/I34
S20/I20
S45/I45
S04/I04
S26/I26
S48/I48
S25/I25
S09/I09
S31/I31
S29/I29
S06/I06
S52/I52
S30/I30
S19/I19
S01/I01

Table A5. *Cont.*

Test Sentence
S33/I33
S43/I43
S36/I36
S15/I15
S41/I41
S18/I18
S27/I27
S02/I02
S44/I44
S14/I14
S07/I07
S22/I22
S23/I23

Notes

1   Although see Vincent (2021) and Vincent et al. (2022) for recent work on English which complicates the picture somewhat.

2   But see Engdahl and Lindahl (2022) and Lindahl (forthcoming a) for recent work on Faroese, where acceptable extraction seems to be limited to existential contexts.

3   I am following Erteschik-Shir in glossing *det* as *that* in English. However, *det* is ambiguous in writing in both Danish and Swedish. When unstressed, these pronouns are interpreted as personal pronouns, while the stressed versions function as distal demonstratives (Faarlund 2019, p. 27). I have systematically used *that* in all the glosses for fronted pronominal objects in this article, since it is not possible to tell whether the pronoun is stressed in constructed examples. However, given discussion in Engdahl and Lindahl (2014) and Engdahl and Lindahl (2022), both stressed and unstressed fronted pronouns often occur in spontaneous language use, so the fronted pronouns could just as well be interpreted as personal pronouns. I have done the same with the glosses for Icelandic *það* 'that/it', see below.

4   For more recent proposals along the same lines, see Van Valin (1994) and Goldberg (2006).

5   *int* stands for *interviewer* and *s1* for *speaker 1*.

6   Indices, gaps, and italics on the fronted phrase have been added here, but were not present in the questionnaires.

7   See also Engdahl and Lindahl (2022).

8   In the experiment, personal pronouns were used for the subjects of the embedded clauses in most cases, as this is common in everyday speech. A reviewer points out that the test sentences might have been more comparable if the subjects of the *att/að*-clauses were quantified, like the heads of the relative clauses in the relative clause test sentences. This insight could be incorporated in future work.

9   The total number of participants who answered the questionnaire were 31, but 4 non-native speakers were excluded from the analysis.

10 Due to the reduced experimental setup, the reporting is limited to descriptive statistics, showing percentages for the sentence types and the raw numbers for individual sentences.

11 A reviewer points out that there may be a training effect here, since S15 was presented late in the experiment.

12 One possibility is that some participants would have preferred *tro på* 'believe in' instead of *tro* 'believe' in the test sentences together with the verb *påstå* 'claim' in the context sentence.

13 For a more detailed account, see Lindahl (forthcoming a). See also McCawley (1981); Vincent (2021), and Vincent et al. (2022) who show that extraction is facilitated in English in existential and predicate nominal environments.

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