Inverse attraction in Icelandic relative clauses

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We introduce “inverse attraction” (IA) (Bianchi 1999: 93) in non-standard Icelandic, a nearly unstudied phenomenon that provides special insight into relative clause formation, specifically regarding the copy deletion that occurs in the “matching analysis” derivation of relatives. Descriptively, IA seems to involve deletion of the higher, rather than the lower copy of the relative head. In order to study this phenomenon in more detail, we conducted a judgment study with 130 Icelandic-speaking participants. The results of our study indicate that the acceptability of IA depends on the matrix and embedded cases involved, on the position of the gap inside the relative clause, and on the position of the whole relativized DP.

Keywords: inverse attraction, matching analysis, relative clauses, judgment data, case, Icelandic

1. Introduction

Thráinsson et al. (2015) found that sentences like (1) were accepted by a surprisingly large number of Icelandic speakers.\(^1\) In (1), the subject listaverkunum ‘the art works’ bears the dative case assigned inside the relative clause by the passive verb stolið ‘stolen’, instead of the nominative case seen in (2). The latter is considered to be the standard language.

\[
(1) \%\text{Listaverkunum sem var stolið eru ómetanleg.}
\text{artwork-the.dat.pl.n that was stolen are.3pl priceless.nom.pl.n}
\]

‘The art works that were stolen are priceless.’

\(^1\) We would like to thank the editors and reviewers of this volume for helpful feedback on this paper. Thanks also to those who participated in our study, and to the participants at Málvísindakaffi at the University of Iceland and the 89th Annual Meeting of the Linguistic Society of America, where this work was presented.
(2) Listaverkin sem var stolið eru óskemmd.

‘The art works that were stolen are undamaged.’

Despite the presence of dative case in (1), all other elements in the matrix sentence act as though a nominative DP is present: the verb eru ‘are’ agrees in person and number with the subject (which is normally not possible with dative subjects) and the predicate adjective ómetanleg ‘priceless’/óskemmd ‘undamaged’, which normally agrees in case, number and gender with its subject, takes the nominative form. Following Bianchi (2000a,b) and others, we will refer to this phenomenon as ‘Inverse Attraction’ (IA).

The existence of IA raises numerous theoretical and empirical questions. The goal of the present study is to provide the beginning of an answer to a subset of these questions. The questions we will address are as follows:

(3) a. Does the case assigned to the gap in the relative clause affect the acceptability of inverse attraction?
   b. Does the case assigned in the matrix clause affect the acceptability of inverse attraction?
   c. Does the position of the gap in the relative clause affect the acceptability of inverse attraction?
   d. Does the position of the whole DP in the matrix clause affect the acceptability of inverse attraction?

While we cannot address every dimension of these questions in this chapter, we will provide evidence that the answer to each is ‘yes’. We will present the results of a judgment study with 130 Icelandic-speaking participants. Regarding (3a–b), we will show that IA is most acceptable when the embedded subject gap is Dat, and the matrix case is Nom (as in example (1)). In fact, in this context, the standard variant (without IA) is actually generally judged to be much worse than the non-standard variant (with IA). Regarding (3c), we will show that IA is much better with subject gaps than with object gaps. Regarding (3d), we will provide preliminary evidence that when the whole DP is in the matrix object position, IA is not possible (or highly degraded) for most (but apparently not all) speakers. We will also observe that IA seems to be impossible when the whole DP is the object of a preposition.
2. Overview and background

2.1 Case attraction and Inverse Attraction

Inverse Attraction is so called because it is the “inverse” of a more widely known kind of case attraction, where a case assigned in the matrix clause shows up on a relative pronoun, which would normally be expected to bear the case assigned inside the relative clause. This is exemplified in the following examples from Ancient Greek (AnGr) and Middle High German (MHG), taken from Georgi and Salzmann (2014) (who in turn cite Bianchi 2000a: 58 and Pittner 1995: 198).

(4) memneste toon horkoon hoon omomokate 
   remember.imp the.gen oaths.gen which.gen swear.2.pfv
   ‘Remember the oaths that you swore.’

(5) Daz er […] alles des verplac des im
   that he all that.gen abandoned which.gen he.dat
   ze schaden mohte komen.
   to damage might come
   ‘That he abandoned all the might cause damage to him.’

In (4) the matrix verb memneste ‘remember’ assigns Gen and the embedded verb omomokate ‘swear’ assigns Acc. But the relative pronoun surfaces as genitive hoon rather than the expected accusative form huus. In (5) the matrix verb verplac ‘abandon’ assigns Gen and the embedded verb schaden ‘damage’ assigns no special case to its subject which would thus surface as Nom. But the relative pronoun surfaces as the genitive des rather than the expected Nom daz.

Ordinary case attraction would be difficult to spot in Icelandic, since Icelandic ordinarily does not form relative clauses with a case-marked relative pronoun; rather, relative clauses are formed with the invariant particle/complementizer sem, which corresponds in other uses to the English word as.²

2. Despite this, we have glossed sem as ‘that’ in this paper in accordance with the Icelandic tradition. We will not discuss sentences like (i). Rögnvaldsson (1995, 2005:610) says that they are indeed possible even though they are rare and sound odd in modern Icelandic.

(i) Þetta er maðurinn hverjum fón sagði að hann myndi bjóða.
   this is man-the.nom who.dat John said that he would invite
   ‘This is the man who John said he would invite.’

In this example, the wh-word hverjum ‘who’ originates as the object of bjóða ‘invite’ and it therefore gets dative case. (ii) is ungrammatical, on the other hand, where the wh-word gets the matrix case (Nom). (iii) is ungrammatical as well, where the DP ‘the man’ of the matrix clause is in the dative case, just like the wh-word.
However, Bianchi (1999: 92–94) also discusses examples in Latin and Old High German which exhibit a “remarkable relative structure”, Inverse Attraction. The examples Bianchi (1999) provides are given in (6).

(6) a. Urbem quam statuo vestra est. Latin (N → A)
city.acc which.acc I-found yours is
‘The city that I found is yours.’

b. Pulli qui nascentur, eos in terra deprimito. Latin (A → N)
sprouts.nom which.nom germinate them.acc in earth
you-must-layer
‘You must layer in the earth the sprouts that germinate.’

c. Hunc chlamydatum quem vides, ei Mars iratust. Latin (D → A)
this soldier.acc whom.acc you-see him.dat Mars
angry-is
‘The soldier who you see, Mars is angry at him.’

d. Den schilt den er vür bôt der wart schiere zeslagen. OHG (N → A)
the shield.acc which.acc he in.front.of held that.nom was
quickly shattered
‘The shield that he held was quickly shattered.’

Bianchi (1999) argues that these examples of IA are not ordinary relative clauses, but correlative clauses. Following most analyses of correlatives, this means that the relative is not a DP but a CP adjoined to a matrix CP. Within the matrix CP, there is a pronoun (usually overt, but sometimes null by hypothesis) that corresponds to the fronted argument in the adjoined CP (Srivastav 1991, Bianchi 1999, Den Dikken 2005). This is illustrated schematically in (7).

(7) \[ [CP_1 \{ \{CP_2 \text{those}_i \text{who I have seen} \} \{CP_1 \text{they}_j \text{are not here} \} ] ] \]

Indeed, the examples of IA in (6b–d) look like clear correlative clauses. Moreover, since Latin was a pro-drop language, it is not far-fetched to take (6a) to involve a
correlative resumed by a null subject pronoun. Georgi and Salzmann (2014) have recently examined the literature on case attraction and IA and concluded that all examples of IA involve a dislocated DP/CP, and not a DP in an argument position.

There are reasons to think, however, that many instances of Icelandic IA do not, in fact, involve a dislocated DP. First, Icelandic is not generally a pro-drop language (though see Rögnvaldsson 1993 for a pro-drop analysis of Conjunction Reduction), so the analysis that Bianchi (1999) extended, quite plausibly, to Latin examples like (6a) would not extend as plausibly to Icelandic. Second, we find attested examples where IA is interspersed with clausal material. It can, for example, occur in embedded contexts.

(8) a. þar sem þeim sem líkar ekki staðurinn hætta að koma þangað
    there as those.dat that like not place-the stop to come there
    ‘as those who don’t like the place stop going there’
    (http://www.ferdamalastofa.is/static/research/files/vidhorf_ferdamanna_a_midhalendi_islands.pdf)

    b. Ég held frekar að þeim sem leiðist líf sitt vilji ekki fá því umturnað.
        I believe rather that those.dat that bore life their want not get it rearranged
        ‘I instead believe that those who are bored with their life don’t want to get it rearranged.’
        (http://72.52.132.88/punknurse/2003_12_07_dagbokold.htm)

    c. Voðalega er fyndið að þeim sem að líkar ekki nafnið segi ekki neitt.
        horribly is funny that those.dat that like not name-the say not anything
        ‘It is horribly funny that those who don’t like the name don’t say anything.’
        (https://bland.is/messageboard/messageboard.aspx?advtype=52&advid=800884)

We will leave for future research a more thorough investigation of the plausibility or implausibility of a dislocate or correlative analysis of Icelandic IA, noting only that such an analysis will at best face some challenges.

2.2 Attested examples

IA is regularly found in written and spoken Icelandic. Two examples from the web are presented in (9) and (10). In (9), we find the dative case assigned to the subject gap inside the relative clause by the verb líka ‘like’ on the head of that relative. In (10), we find the accusative case assigned to the subject gap inside the relative clause by the verb langa ‘want’ on the head of that relative.

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Those who don’t like blue cheese can go with a milder combination, e.g., use brie or gold cheese.

The weekend will more or less be spent on working and some nonsense. Me, who just wanted to be home making Advent wreaths and knitting.

Not only is IA accepted by speakers and found in informal writing, but it even appears in careful writing and speech. For example, (11) was originally published online in a prominent newspaper with Dat (assigned by the passive verb bjargað ‘rescued’), but was later corrected to Nom.

Impressionistically, the examples one most frequently encounters involve a subject gap where an inherent case would be assigned and that inherent case replaces the matrix nominative case. The results of our acceptability survey will show that this is no accident, as it is precisely these contexts where IA is most acceptable. Our study, however, focuses on dative subjects, and leaves accusative subjects for future research.

2.3 Variation

Thráinsson et al. (2015) report on the judgments on five sentences included in the nation-wide ‘Variation in Icelandic Syntax’ project. The first two formed the minimal pair seen in (1) and (2). We repeat them below along with their quantitative results.
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(12) **Listaverkin** sem var stolið eru óskemmd.

artwork-the.NOM.PL.N that was stolen are.3PL undamaged.NOM.PL.N

‘The art works that were stolen are undamaged.’

% Yes % ? % No = N
30.0 13.9 56.1 100 711

(13) **Listaverkunum** sem var stolið eru ómetanleg.

artwork-the.DAT.PL.N that was stolen are.3PL priceless.NOM.PL.N

‘The art works that were stolen are priceless.’

% Yes % ? % No = N
57.4 15.0 27.6 100 711

The results here are surprising in two ways. First, only 30.0 percent of participants found the standard variant in (12) fully acceptable. Second, 57.4 percent of participants found the nonstandard variant in (13) fully acceptable.

Two further examples replicate the result found in (13).

(14) **Blaði** sem dreift er ókeypis hefur sterka stöðu.

paper.DAT that distributed is free has strong position

‘A paper that is distributed for free has a strong position.’

% Yes % ? % No = N
63.6 17.2 19.2 100 712

(15) **Þeim** sem liggur mikið á hjarta fá tækifæri hér.

those.DAT that lie much on heart get opportunity here

‘Those who have a lot on their mind get an opportunity here.’

% Yes % ? % No = N
74.1 15.3 10.6 100 710

In both of these examples, the predicate embedded in the relative clause assigns dative case, and the expected case in the matrix clause would be Nom. Again, despite being nonstandard, 63.6 percent of participants accepted (14) and 74.1 percent of participants accepted (15).

Clearly, in the subject position, many speakers accept an embedded Dat overriding a matrix Nom. Substantially fewer speakers accepted a similar example in the object position.

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3. Note, however, that this example was presented to participants through an audio recording together with a written questionnaire, unlike the other examples, which were presented in the form of a written questionnaire only. Nevertheless, the results of our survey, presented below, will essentially replicate this result, suggesting that it was not the medium that made the difference.
In (16) the matrix verb *uppskera* ‘harvest’ would assign Acc, while the embedded verb *sá* ‘sow’ assigns Dat. In this case only 40.1 percent of speakers accepted the embedded Dat overriding the matrix Acc. This is still a high enough number that we want to take it seriously, but it is significantly lower than the other three, and we should also take that seriously. In fact, our results below indicate a much lower acceptability in the object position. We will not be able to resolve this discrepancy between the two studies, but it is possible that there is some other explanation for the high acceptability of (16).

The above four examples are in stark contrast to the final one, where it was tested whether Acc assigned to an object gap could override matrix Nom in the subject position.

In (17) the embedded verb *fá* ‘get’ assigns Acc, and the expected matrix case would be Nom. Far fewer speakers – only 9.2 percent – accepted embedded Acc overriding the matrix Nom. Note that this sentence differs from the others in two ways. First, the case is different; it is structural Acc while the others are Dat. Second, the embedded gap is an object position, while in the others, the embedded gap was a subject position. Our survey results presented below will show that indeed, when the embedded gap is in the object position, IA is far less likely to be judged acceptable. By and large, however, this holds for both accusative and dative object gaps.

Thráinsson et al. (2015) found no clear, interpretable correlations with social or geographic factors. There were some statistically significant correlations, but they generally do not cohere in an understandable way. For example there was no significant distinction between male and female participants in (13), (14) and (15). Males were significantly more likely to accept the standard variant in (12), but they were also significantly more likely to accept the nonstandard (and generally least accepted) variants in (16) and (17). Speakers aged 65–70 were significantly more likely to accept the standard variant in (12), but other than that, the effect of age was found to be minimal and generally not statistically significant. Similarly, the participants with the least education were significantly correlated with the acceptance
of both the standard variant in (12) and the nonstandard variant (13); other than that, there were no significant correlations with education. While there were some apparent geographical differences, they were not statistically significant, and there were no clear or coherent trends.

Given that inverse attraction was so widely accepted, but not clearly correlated with social factors, we decided to focus on the effect of syntactic factors, and systematically test the influence of distinct cases in matrix and embedded contexts, on the one hand, and the position of the gap (subject versus object), on the other. That is, our purpose is to tease apart the two factors that set (17) apart from the other examples, in particular (13), (14), and (15). We also included a sentence similar to (16) in order to determine the general acceptability of IA when the whole DP is in the object position.

3. Sketching an analysis

There are essentially three relevant analyses of relative clauses that we might consider when studying IA: the null operator analysis (or the head external analysis), the head raising analysis, and the matching analysis. First, according to the null operator analysis (e.g., Montague 1974, Chomsky 1973, 1977, Partee 1975), the gap in the relative clause is filled by a null operator. This operator A'-moves (like a wh-phrase) to the left periphery (e.g., SpecCP). That CP is then adjoined to an NP that is coindexed with the null operator. By assumption, the null operator bears the case assigned inside the relative clause. This analysis is illustrated in (18).

(18) \[ \text{dp} \ \text{D-nom} \ [\text{np} \ [\text{np n} i -\text{nom} \ [\text{cp} \ \text{op} i -\text{dat} \ [\text{tp} \ \text{op} i -\text{dat} \ T \ . . . ] ] ]] \]

Under this analysis, IA would involve replacing the matrix case (nom in (18)) with the case of the null operator (dat in (18)).

Second, according to the head raising analysis (e.g., Schachter 1973, Vergnaud 1974, Kayne 1994, Áfarli 1994, Bhatt 2002), the matrix D takes a CP complement directly. An NP or DP inside the relative clause moves to SpecCP and enters into some kind of relationship with the D head. To account for the fact that we generally

4. Kayne (1994) gives an interesting argument in favor of his analysis that D takes a CP (relative clause) complement directly rather than an NP. He observes that the sentence in (i) is ungrammatical whereas, somewhat surprisingly, the sentence in (ii) is fully grammatical (1994:86).

(i) *I found the (two) pictures of John's/his.
(ii) I found the (two) pictures of John's/his that you lent me.

The difference between the two sentences is the restrictive relative clause that has been added in (ii). Kayne therefore proposes that the complement of D is not NP (two) pictures of John's/his but rather CP (two) pictures of John's/his that you lent me, with the NP in SpecCP.
do not see IA, case assignment is argued not to occur inside the relative clause. The relationship between the external D head and the NP in SpecCP suffices to assign the matrix case to both. This analysis is illustrated in (19).

\[(\text{DP D-nom} \ [\text{CP} \ [\text{NP} \_i -\text{nom} \ [\text{TP} \_i -\text{nom} \_i \ ... \_i]]])]\]

Under this analysis, IA would involve assigning a case to NP, and having the relationship with the external D be such that D picks up the case assigned to NP instead of the case assigned in the matrix clause. Note that according to Bianchi (2000b), the embedded position does have a D head, but that D head is empty, and must incorporate into the higher, external D head in order to be licensed. The difficulty of adopting a pure head raising approach to the analysis of our IA data lies in the fact that the matrix clause shows evidence that the external case is present, even if it is not pronounced. As we saw earlier, for example, predicate adjectives will still bear Nom, even when IA has replaced Nom with Dat.

Third, according to the matching analysis (e.g., Sauerland 1998, see also Hulsey and Sauerland 2006 who argue that restrictive relative clauses are ambiguous between the matching structure and the head raising structure), what raises to SpecCP is not a null operator, but a full NP or DP, much like in the head raising analysis. However, like the null operator analysis, this CP is adjoined to another, matching NP. The NP in SpecCP deletes under identity with this higher NP. Presumably, the NP in SpecCP bears the case assigned internal to the relative clause, while the NP it is adjoined to bears the case assigned in the matrix clause. This analysis is illustrated in (20).

\[(\text{DP D-nom} \ [\text{NP} \ [\text{NP} \_i -\text{nom} \ [\text{CP} \_i -\text{nom} \_i -\text{dat} \ [\text{TP} \_i -\text{dat} \_i \ ... \_i]]]])\]

Possibly the simplest way to describe IA, at our current level of understanding, is to say that it involves a matching analysis where the matrix copy of the NP is deleted instead of the embedded copy. We illustrate this schematically in (21):

\[(\text{a. the art works._i nom} \ \text{the art works._i dat} \ sem \ _i Vdat) \quad \text{Ordinary Matching} \]
\[(\text{b. the art works._i nom} \ \text{the art works._i dat} \ sem \ _i Vdat) \quad \text{Inverse Attraction} \]

In this schema, we indicate that some dative-subject-taking verb assigns Dat to its subject, which then moves to the left of the complementizer sem. Then either this embedded copy deletes or else the matrix copy deletes. This analysis accounts directly for the fact that the matrix clause still behaves as if the matrix case has been assigned. The question then becomes what factors condition the unusual deletion found in IA.

In what follows, we will describe our study under the assumption that this is the correct characterization of IA. However, although we will discuss the analytical
options a bit more after presenting the results of our survey, we will not present a fully-fledged argument in favor of the “inverse matching” analysis or against the head raising or null operator analyses. No matter what analysis of relative clauses one adopts, the results presented below raise intriguing challenges.

4. Survey design

Our study was a 2 x 4 paradigm contrasting attraction with non-attraction, and the embedded case frame of the gap.

Table 1. Survey paradigm 1.

<table>
<thead>
<tr>
<th>Type</th>
<th>Emb. DAT Subj</th>
<th>Emb. NOM Subj</th>
<th>Emb. DAT Obj</th>
<th>Emb. ACC Obj</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attraction</td>
<td>NOM DAT</td>
<td>DAT NOM</td>
<td>NOM DAT</td>
<td>DAT ACC</td>
</tr>
<tr>
<td></td>
<td>sem __ V</td>
<td>sem __ V</td>
<td>sem DP V __</td>
<td>sem DP V __</td>
</tr>
<tr>
<td>Non-attract.</td>
<td>NOM DAT</td>
<td>DAT NOM</td>
<td>NOM DAT</td>
<td>DAT ACC</td>
</tr>
<tr>
<td></td>
<td>sem __ V</td>
<td>sem __ V</td>
<td>sem DP V __</td>
<td>sem DP V __</td>
</tr>
</tbody>
</table>

In Table 1, an embedded subject gap is shown to the left of V (which stands for ‘verb’), and an object gap is shown to the right of V. We assume for expository reasons that the case-marked DP moves to the left of the complementizer sem. We present attraction as deletion of the (matrix case-marked) higher copy of the DP, and non-atraction as the deletion of the lower, embedded copy. However, we will still talk about the lower case “replacing” the higher case, for ease of exposition. The design was set up to compare an inherent case (Dat) replacing a non-inherent case (Nom), along with non-inherent cases (Nom or Acc) replacing a matrix inherent case (Dat).

The participants saw three sentences in each condition. The sentences were counter-balanced across three lists, which were administered as three separate surveys. So no participant saw two different versions of the same sentence. We present the full set of sentences judged by the participants in Appendix B. Participants were recruited on the web, e.g., via Facebook and email, and the survey was administered online as well. Participants were asked to judge the sentences using a 5-point Likert scale, where 1 was a very unnatural sentence but 5 was a very natural sentence. At the beginning of the survey, they were given 10 test sentences to get used to this type of judgments. Participants could also comment on each of the sentences following their judgment. A translation into English of the instructions given to the participants for the task is provided in Appendix C.
All of the test sentences have a relative clause headed by the plural determiner þeir/þá/þeim ‘they/those’. We wanted to have as minimal difference between the examples as possible so we could be certain that we were comparing relevant differences only. As the careful reader might have noticed, the sentences tested in the ‘Variation in Icelandic Syntax’ project (Thráinsson et al. 2015) included relative heads that were inanimate, as well as animate nouns and pronouns. Even though we have no reason in particular to believe there is a difference between these, we wanted to exclude that possibility, so we kept the relative head constant. The surveys also included 37 filler sentences, so we do not think that having the same relative head on all sentences led to a generally redundant survey, where all the sentences were perceived to be of the same form.

The only cells which were not fully counter-balanced were the ones involving embedded accusative objects. The reason was that we found, early in our research on this topic, that there is a third option, which is not visible in the other cases: default nominative case. That is, with an embedded accusative object gap, we find three possible variants.

\[(22) \]
\( \begin{align*}
\text{a. } & \text{DAT ACC } [ \text{sem DP NOM } V_{\text{ACC}} \text{ -- } ] V_{\text{DAT-SUBJ}} \\
\text{b. } & \text{DAT ACC } [ \text{sem DP NOM } V_{\text{ACC}} \text{ -- } ] V_{\text{DAT-SUBJ}} \\
\text{c. } & \text{DAT NOM } [ \text{sem DP NOM } V_{\text{ACC}} \text{ -- } ] V_{\text{DAT-SUBJ}}
\end{align*} \)

In addition to the matrix case being deleted in favor of the embedded case (attraction), or the embedded case being deleted in favor of the matrix case (non-attraction), we find default Nom in place of the matrix case. In (22) above, we present this as retention of the lower copy, although it is far from obvious what the analysis of these cases should be. Notice that in the other conditions, this does not arise, because default Nom is in principle indistinguishable from any other Nom.

Therefore, on one of the lists, we replaced accusative attraction with default Nom as shown in Table 2.

<table>
<thead>
<tr>
<th>Type</th>
<th>Emb. DAT Subj</th>
<th>Emb. NOM Subj</th>
<th>Emb. DAT Obj</th>
<th>Emb. ACC Obj</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attraction</td>
<td>NOM DAT</td>
<td>DAT NOM</td>
<td>NOM DAT</td>
<td>DAT NOM</td>
</tr>
<tr>
<td></td>
<td>sem __ V</td>
<td>sem __ V</td>
<td>sem DP V __</td>
<td>sem DP V __</td>
</tr>
<tr>
<td>Non-attract.</td>
<td>NOM DAT</td>
<td>DAT NOM</td>
<td>NOM DAT</td>
<td>DAT ACC</td>
</tr>
<tr>
<td></td>
<td>sem __ V</td>
<td>sem __ V</td>
<td>sem DP V __</td>
<td>sem DP V __</td>
</tr>
</tbody>
</table>

This resulted in a somewhat unbalanced list in the embedded accusative object condition. However, as we will see, the results of that condition were generally quite clear, so we have no reason to believe that this imbalance affected the results.
5. Results

5.1 Primary results

We ran two versions of an ANOVA, one which included the accusative attraction condition and one which included the default Nom condition. There was a main effect for case frame in both the accusative attraction condition $F(3, 989) = 44.03$, $MSE = 57.17$, $p < .0001$ and the default Nom condition $F(3, 945) = 20.92$, $MSE = 27.73$, $p < .0001$. In neither ANOVA was there a significant main effect for attraction versus non-attraction. There was, however, a significant interaction in both the accusative attraction condition $F(3, 989) = 89.39$, $MSE = 116.1$, $p < .0001$ and the default Nom condition $F(3, 945) = 63.84$, $MSE = 84.61$, $p < .0001$. A graph for the case frame main effect is presented in Figure 1 below.

![Figure 1. Main Effect of Case Frame.](image)

The bars in Figure 1 show the average rating (along with 95% confidence intervals) of each sentence type. The top bar shows the average rating of sentences which had a gap in an object position where accusative case would be expected (irrespective of what the overtly realized case was). The next bar shows the average rating of sentences which had an object gap where dative case would be expected. The next two bars show the same thing for subject gaps, where nominative and dative case would be expected (respectively).

We see in Figure 1 that in general, the embedded object gaps were worse than the embedded subject gaps, irrespective of attraction versus non-attraction.

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5. 95% confidence intervals represent a range within which 95% of the answers is contained. Within a 95% confidence interval, there is a probability of .95 that that range will contain the mean. In the tables below, we will report the 95% confidence interval of the differences between the relevant means across participants.
Figure 2 shows that the same can be seen in the default Nom condition, where the visible case is Nom instead of either Acc or Dat. Once again, object gaps were generally judged lower than subject gaps.  

However, what is of primary interest is not the main effect of case frame, or even the lack of a main effect for attraction, but the interaction between the two. The interaction can be seen when we divide each case frame into attraction versus non-attraction, as in the graph in Figure 3. For each case frame, the lower bar indicates attraction, and the higher bar indicates non-attraction. In Figure 3, we see that attraction is generally worse in the embedded object cases, but not in the embedded subject cases. With embedded Dat, attraction is actually better than non-attraction, and with embedded Nom, attraction and non-attraction seem to be equal. (We will see below that each of these pairwise comparisons were significant, except in the embedded nominative subject case frame, where there was no significant difference.)

The default Nom version in Figure 4 simply shows that the default Nom receives a higher average rating than accusative attraction. That is, the second bar from the top is larger in Figure 4 than in Figure 3. That average remains lower than the non-attraction variant, but we will see below that the difference between the top two bars in 4 is not significant. However, it is not surprising that this improvement does not change the general significance of the interaction.

To explore the interaction we performed a multiple comparisons test, comparing each mean to each other mean, with Tukey’s correction for multiple comparisons.

6. As we will see, a large part of the reason for this result is likely to be the generally low scores given to IA with an object gap; see the discussion below.
The most striking result was that in sentences with a dative subject gap, inverse attraction was not only significantly better than non-attraction, it was significantly better than all other conditions in the study. 

(\(\alpha = .05\)).

The standard example, with non-attraction, was in fact very frequently rejected, and in the comments section, participants often corrected the example to the non-standard, inverse attraction version. As mentioned earlier, this result replicates the findings of Thráinsson et al. (2015): when Dat is assigned inside the relative
clause, to a subject gap, and the expected matrix case is Nom, in the subject position, non-attraction is widely rejected, and attraction seems to be the preferred variant.

In fact, the only sentence type that was significantly worse than non-attraction with a dative subject gap was attraction with an accusative object gap.

(24)  
\[
\begin{array}{l}
\text{Mean SD N} \\
\text{a. DAT ACC sem DP v __} & 1.63 & 0.89 & 87 \\
\text{b. NOM DAT sem __ v} & 2.18 & 1.06 & 130 \\
\end{array}
\]

Mean Diff. % CI of diff. Significant?  
\[ -0.55 \quad 1.029 \text{ to } -0.07057 \quad \text{Yes} \]

What this shows is that when the relative involves a dative subject gap, attraction is the preferred option, and non-attraction is actually quite bad for most speakers. Note also that here we again corroborate the results from Thráinsson et al. (2015), where sentences like (24a), with an accusative object gap, generally disallow IA.

Turning to nominative subject gaps, note first that attraction (as well as non-attraction) in this case frame was among the highest rated patterns tested. The only sentence type that was significantly higher was attraction with a dative subject gap.

(25)  
\[
\begin{array}{l}
\text{Mean SD N} \\
\text{a. NOM DAT sem __ v} & 4.02 & 1.09 & 130 \\
\text{b. DAT NOM sem __ v} & 3.08 & 1.26 & 130 \\
\end{array}
\]

Mean Diff. 95% CI of diff. Significant?  
\[ 0.94 \quad 0.5107 \text{ to } 1.369 \quad \text{Yes} \]

As mentioned earlier, the nominative subject gap case frame was the only case frame where attraction and non-attraction were not statistically different.

(26)  
\[
\begin{array}{l}
\text{Mean SD N} \\
\text{a. DAT NOM sem __ v} & 3.08 & 1.26 & 130 \\
\text{b. DAT NOM sem __ v} & 3.07 & 1.28 & 130 \\
\end{array}
\]

Mean Diff. 95% CI of diff. Significant?  
\[ 0.01 \quad -0.4193 \text{ to } 0.4393 \quad \text{No} \]

The acceptability of (26a) might seem surprising, since it seems to involve a structural case (Nom) replacing an inherent case (Dat), and yet it is statistically no different from the standard variant, with no attraction. As we will discuss below, however, it is not obvious that sentence types like (26b) actually involve attraction, rather than a default Nom.

Next, we might wonder if there is a subject-object asymmetry. It turns out that dative object gaps were treated quite differently from dative subject gaps. Consider attraction versus non-attraction with a dative object gap.
Here, we see that the judgments for attraction were significantly lower than the judgments for non-attraction. This is exactly the opposite of the situation with subject gaps. In fact, a dative object gap with attraction was not significantly different from an accusative object gap with attraction.

This result is quite striking, because with the accusative gap, the attraction replaces an inherent case (Dat) with a structural case (Acc); with the dative gap, the attraction replaces a structural, elsewhere case (Nom) with an inherent case (Dat). Based on how case marking usually works, with inherent cases taking precedence over non-inherent cases, we might have expected the attraction with the dative object gap to be significantly more acceptable than attraction with an accusative object gap, but this was not the case.

Now that we have seen the object attraction results, we can return to the question of the default Nom. That is, it is possible that (26a) does not, strictly speaking, involve IA, but rather default Nom. Recall that in one of the surveys, we replaced inverse attraction from an accusative gap with default Nom. These were not part of the same ANOVA, but when we compare the two samples, we find that the default Nom option was significantly better than the accusative attraction option $t(128) = 3.7588, p = .0003$.

In this table, we write “$V_{acc}$” to emphasize that the same, accusative-assigning verbs were used in both cases. In addition, the matrix case would be Dat. So there is no expected source of nominative case, other than to say that Nom is the default or elsewhere case (Yip et al. 1987, Marantz 2000, Schütze 1997, Sigurðsson 2012). Since subject gaps are generally better than object gaps (as we saw from the main effect above), it could be that (26a) is simply an example of the default Nom option we see in (30b).
Note that the difference between default Nom and no attraction (i.e. realization of the matrix case) was not significant.

(30) Mean SD N
a. \( \text{DAT} \text{ACC} \text{nom} \text{DP} \text{V}_{\text{ACC}} \) 2.57 1.22 130
b. \( \text{DAT} \text{NOM} \text{DP} \text{V}_{\text{ACC}} \) 2.26 0.93 43
Mean Diff. 95% CI of diff. Significant?
−0.31 −0.9252 to 0.3052 No

The lack of a difference is telling; despite the somewhat low mean in both cases, the default Nom was judged just as acceptable as the standard variant, where the matrix case is preserved. We emphasize again that although we write it out as though the default Nom is a realization of the lower copy, it is not obvious what the correct analysis of the default Nom option is.

5.2 Further results

There are three other sentences, outside of the 2 x 4 design, that we tested in our survey. First we wanted to see if there is a difference between the matrix subject position versus the matrix object position.

(31) a. \( [\text{þeir} \quad \text{þeim} \quad \text{sem} \quad \text{finnst skemmtilegt að elda}] \text{borða} \)
\( \text{those} \text{nom} \text{that find fun to cook eat} \)
\( \text{fjölbreyttan mat.} \)
\( \text{varied food} \)
\( \text{'Those who enjoy cooking eat a variety of food.'} \)

b. \( [\text{Ég} \quad \text{sá} \quad [\text{þá} \quad \text{þeim} \quad \text{sem} \quad \text{finnst bíómyndin góð}] ] \text{I.nom saw} \)
\( \text{those.dat} \text{that find movie-the good} \)
\( \text{'I saw the people who like the movie.'} \)

As can be seen in the following table, the results were very clear.

(32) Mean SD N
a. \( [\text{nom} \quad \text{DAT} \quad \text{sem} \quad \text{V}] \text{eat...} \) 4.02 1.09 130
b. \( \text{I saw} [\text{ACC} \quad \text{DAT} \quad \text{sem} \quad \text{V}] \) 1.08 0.3 130

This difference, unsurprisingly, was significant \( t (258) = 29.6508 \quad p < .0001 \). Inverse attraction with a dative subject gap was not acceptable in the object position. This could, in principle, be due to the structural position, or to the accusative case expected there. In future research, it would be interesting to see what the results look like with a nominative object.
Our second test also looked at the object position, but with a nominative subject gap.

(33) a. [þeim þeir sem fara oft til sólarlanda] bregður those.dat those.nom that go often to sunny-places react

ěkki við að sjá skordýr.
not with to see bugs

‘Those who often go to sunny places aren’t startled by bugs.’

b. Ég hitti [þá þeir sem fara í sund] á I.nom met those.acc those.nom that go to pool on

hverjum degi.
every day

‘I met the people who go to the pool every day.’

Once again, the results were clear.

(34) | Mean  | SD  | N  |
---|---|---|---|
| a. [dat nom sem __ V] are . . . | 3.08 | 1.26 | 130 |
| b. I met [ace nom sem __ V] | 1.01 | 0.09 | 130 |

This difference was significant t(258) = 18.6839, p < .0001. Inverse attraction with a nominative subject gap was not acceptable in the object position. Once again, this could be due to the structural position, or to the accusative case expected there.

Finally, we included one sentence to test whether inverse attraction is possible when the relative clause has been extraposed.

(35) a. [þeir þeim sem líkar þessi tónlist] eru skemmtilegir. those.dat those.nom that like this music are fun.

b. þeir þeim eru skemmtilegir [sem líkar þessi tónlist] those.dat are fun that like this music

‘The people are fun who like this music.’

In this sentence, the dative case assigned inside the relative clause by the verb líka ‘like’ replaces the expected nominative case in the matrix clause, and the relative clause is extraposed to the end of the sentence.

(36) | Mean  | SD  | N  |
---|---|---|---|
| a. [nom dat sem __ V] are . . . | 4.02 | 1.09 | 130 |
| b. nom dat are . . . [sem __ V] | 1.35 | 0.92 | 130 |

This difference was significant t(258) = 21.3429, p < .0001. This result suggests that inverse attraction is generally not possible with extraposition. The question is ultimately an important one, because the syntax of extraposition has been argued
to play an important role in the analysis of relative clauses. Hulsey and Sauerland (2006), for example, argue that both raising and matching structures exist, and have different syntactic properties. One of those differences is that extraposition is only possible with the matching structure, not the raising structure. While we will not discuss this in any detail here, it is an important enough data point to warrant our inclusion of the survey results in this chapter.

6. Interpreting the results

The results of our study indicate that the acceptability of IA depends on the matrix and embedded cases involved, on the position of the gap, and on the position of the whole relativized DP.

As for the position of the relativized DP, we saw preliminary evidence that the matrix subject position allows IA much more easily than the object position. As we mentioned above, though, another possible explanation for this fact could be that our object position also happened to be an accusative case position. In future research, it would be interesting to see whether the same constraint holds for Dat-Nom constructions, where the object position is expected to be Nom.

As for the position of the gap inside the relative clause, we saw clear evidence that IA is much better when the gap is a subject gap rather than an object gap. This was seen in two ways. First, and most strikingly, we have the contrast when the cases involved were kept constant.\footnote{In this section, we will add judgment annotations that reflect the results presented in the previous sections.}

\begin{enumerate}
    \item \[\text{[t\text{eir teim sem } finnst skemmtilegt } a\text{ð elda ]}
    \text{bor\text{"o}ð fj"olleyttan mat.}
    \text{‘Those who enjoy cooking eat a variety of food.’}
    \]
    \item \[\text{[t\text{eir teim sem } þú bjargaðir } a\text{ð laugardaginn ]}
    \text{eru þakklátir.}
    \text{‘The ones who you rescued on Saturday are thankful.’}
    \]
\end{enumerate}
Second, we have a contrast with the structural cases, Nom and Acc. When the gap corresponds to an accusative object, IA was quite bad. Somewhat better was the default Nom option.8

(38) a. *(?)[þeim þá sem þú hittir __ ] leiðist ekki mikið.
   those.dat those.acc that you met bore not much

b. *[þeim þá sem þú hittir __ ] leiðist ekki mikið.
   those.dat those.acc that you met bore not much

c. *(?)[þeim þeir sem þú hittir __ ] leiðist ekki mikið.
   those.dat those.nom that you met bore not much

'The ones who you met aren't very bored.'

As mentioned above, these examples differ from examples like (37b) in that (37b) involved an inherent case (Dat) replacing a structural or default case (Nom), whereas (38b) involves a structural case (Acc) replacing an inherent case (Dat). Nevertheless, Thráinsson et al.'s (2015) data, presented in (17) above and repeated here as (39), suggest that structural accusative objects resist IA regardless of the matrix case.

(39) *[aðrir aðra sem menn fá __ ] eru reknir.
   others.nom others.acc that people get are fired

'Others that people get are fired.'

Moreover, although the cases are different, we saw that an embedded nominative subject can replace a matrix dative subject.

(40) *(?)[þeim þeir sem __ hafa nóg fyrir staðn ] leiðist sjaldan.
   those.dat those.nom that __ have enough for prow bore seldom

'Those who have plenty of work are seldom bored.'

This, of course, could be the result of either IA, or whatever process leads to default Nom in examples like (40c). Either way, though, the nominative subject gap is better than the accusative object gap.

In general, we observed that the significant main effect of case frame came from the object gaps being judged generally lower than the subject gaps, irrespective of IA. Nevertheless, as mentioned earlier, what we were primarily interested in was not the main effects; it is the interaction that is informative for the purposes of understanding the constraints on IA. The interaction showed that it was only with object gaps that IA was judged reliably worse than non-attraction. With subject gaps, IA

8. See below for why we annotate (38b) as ‘*’ and (37b) as ‘?’*, despite the fact that there was no statistically significant difference between the two sentence types.
was better than non-attraction when the embedded case was Dat, and no different from non-attraction when the embedded case was Nom. This again shows, robustly, that sentences with object gaps resist IA more than sentences with subject gaps do.

Third, the choice of cases in the matrix and embedded clauses makes a difference for the acceptability of IA. We found that the single most accepted configuration involved an embedded dative subject gap replacing a matrix Nom. This was significantly better than all other conditions, including the one where an embedded nominative subject gap replaced a matrix Dat, despite the latter being judged quite high. In the object position, there was no significant difference that depended on cases (though see below). For both accusative and dative object gaps, non-attraction was better than IA, and there was no significant difference between the IA sentences.

Note that the effect of case is in general much weaker than the effect of gap position. The main difference comes from subject gaps, where IA is basically acceptable in both case frames. So while there was an effect, it was along the lines of 'good' versus 'fairly good', rather than 'good' versus 'bad' or 'marginal'. In the object position, there was no significant difference (though see discussion immediately below). This raises the question of exactly how we want to model these effects. It seems fairly clear that we want a syntactic analysis of IA to be able to distinguish between subject and object gaps. But should the syntactic analysis distinguish between the case frames while keeping the gap position constant? Or should it treat both case frames the same, and model the difference in judgment as relating to the judgment task, or other extra-linguistic factors, such as the salience of dative-ascribing verbs (for example)?

Given the discussion so far, one could be forgiven for supposing that the case frame should be ignored in the analysis of IA (and that might ultimately turn out to be the correct strategy). But when figuring out how to develop a syntactic analysis of this construction, it is not straightforward to decide which sentences the abstract syntax should generate and which ones it should not. A syntactic analysis is not a model of sentence judgments per se – it is a model of linguistic competence, which is often reflected in sentence judgments; but the latter is still a performance task, which can be subject to various interfering factors, and not a direct window into the output of a speaker's grammar. Under the assumption that a syntactic model is a model of an individual speaker's linguistic competence (I-language), we have to be careful when we average across the intuitions of many different speakers and use that average to inform our syntactic model. In cases where there is substantial micro-variation across speakers, we need to make sure that we do not average away important differences among I-languages and build a model that is then incapable of capturing this micro-variation.
For example, we noted above that there was no statistically significant difference between accusative and dative case when the gap was in the subject position. That is, averaging across speakers, there was no reliable difference between sentences like (43a) and sentences like (43b).

(41) a. *[þeim þú hittir __] leiðist ekki mikið. 
   those.dat those.acc that you met bore not much
   ‘The ones who you met aren’t very bored.’

b. *[þeim þú bjargaðir __ á laugardaginn] 
   those.dat those.nom that you rescued on Saturday
   eru þakklátir.
   are thankful
   ‘The ones who you rescued on Saturday are thankful.’

However, it is worth keeping in mind that a certain amount of information is lost in a quantitative analysis of this sort. For example, there were 12 speakers who judged sentences with IA from a dative object gap as a 3.5 or higher. This is a small number of the overall sample of 130 speakers, but these speakers, with only one exception, judged IA from an accusative gap to be worse. Three of them in fact came from the default nominative group; but for all three, the default Nom in the accusative gap condition was still worse than IA from a dative object gap. Picking out just the remaining 9 speakers, the difference between IA with accusative and dative object gaps was, in fact, significant $t (16) = 3.1545, p = 0.0061$. So we do not necessarily want to conclude that there is really no difference between these two sentence types for all speakers. The reason that there was no difference in the overall study is that such a large number of speakers do not allow IA from a dative object gap or an accusative object gap. For the speakers who do allow IA from a dative object gap, IA from an accusative object gap is still significantly worse. If we develop an analysis that cannot capture a difference between these two sentence types, then we will be systematically unable to account for the judgments of the small, but reliable subset of speakers who find a difference between the two.

7. Conclusion and future directions

In this study, we have provided the beginnings of an answer to some important questions regarding how IA works in Icelandic. It seems clear that the gap position matters, so that IA is better with subject gaps than object gaps, and that case frame

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9. The exceptional speaker judged them to be the same.
matters, such that replacing a matrix Nom with an embedded Dat is the most acceptable configuration. We also have a fairly good indication that IA is better when the whole relativized DP is in the matrix subject position, rather than the object position. In this section, we briefly outline the theoretical implications of our results, as well as some of the outstanding empirical questions that still need to be answered.

First, it seems clear that whatever analysis of relative clauses we want to adopt, it must be capable of distinguishing between subject gaps and object gaps. In addition to these two positions, we might further explore other gap positions, such as direct versus indirect objects and objects of prepositions. Initial native speaker judgments indicate that the latter are quite bad.

(42) a. Ég hló að þeim.
   I.nom laughed at them.dat
   'I laughed at them.'

b. Þeir / *þeim [sem Ég hló að __ ] eru hér.
   those.nom/*dat that I laughed at dat are here
   'The ones who I laughed at are here.'

(43) a. Ég talaði um þá.
   I.nom talked about them.acc
   'I talked about them.'

b. Þeir/**þá [sem Ég talaði um __ ] eru hér.
   they.nom/**acc that I talked about acc are here
   'The ones I talked about are here.'

It is not wholly surprising that subject and object relatives need to be treated differently, since some languages only allow subject relatives, or allow subject and object relatives, but not objects of prepositions (Keenan and Comrie 1977). But it is not clear to us at the present time what analysis of relative clauses makes these distinctions in a way that can help us to understand how IA works.

Second, it seems clear that morphological case is playing a role in the acceptability of the construction. But exactly how is less clear. For example, we want to understand how the default Nom option arises, and whether that is to blame for apparent Nom attraction (replacing Dat). Default Nom is not a general option for dative subjects in Icelandic, so the relative clause structure seems to be playing an important role. In order to understand the exact nature of the effect of morphological case, more case combinations should be tested. For example, there are plenty of attested examples where an inherent accusative subject replaces a matrix Nom, but can it replace a matrix Dat? And how do (the somewhat rarer) genitive arguments fit into the picture? We saw that accusative objects generally do not allow case attraction; is this because of the position of the gap, or because of the manner in which case is assigned? This latter question may be difficult to answer,
but there are at least some accusative subject constructions, such as the one in (44), where the accusative is very unlikely to be anything other than ordinary, structural accusative (Sigurðsson 1989).

(44) Ölaf var hvergi að finna __.
    Ölafur.ACC was nowhere to find
    ‘Ólafur was nowhere to be found.’

The interaction of such examples with IA would be interesting to examine in future research.

Finally, as we have mentioned already, IA seems to get much worse when the whole relative DP is in an object position. So far, we have not been able to tell whether this is because accusative case resists IA, or because the object position resists IA. It should be possible to figure this out in future research. On the one hand, we can try contexts where the whole relative DP is in the subject position, but accusative case is expected there. This could tell us if accusative case itself is the problem, or if it is the structural position that matters. On the other hand, we can try nominative object constructions, where accusative is not expected in the object position, and see if IA is possible there.

In this paper, we have built on the observation in Thráinsson et al. (2015) that IA is far more widely accepted than was expected, and taken a first step toward understanding the syntactic factors that play a role in IA. This fascinating construction has the potential to greatly improve our general understanding of relative clauses, an area of syntax that has been subject to considerable controversy. Once the rest of the basic properties of IA are worked out, it will serve as a fertile testing ground for the details of, and distinctions between, the null operator, raising, and matching analyses of relative clauses.

References


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Appendix A. Attested Examples

Inverse Attraction

a. **Peim sem likar ekki gráðostur geta farið í milder samsetningu, t.d. notað brie eða Gulloss.**

Those who don't like blue cheese can go in milder combination e.g. use brie or gold cheese.

‘Those who don't like blue cheese can go with a milder combination, e.g., use brie or gold cheese.’

b. **Óskarð er eftir því að þá sem langar að taka þátt í veislunni tilkynni það í tölvupósti.**

Wished is after that that those ACC that long to participate in party-the announce that in email

‘We ask those who want to participate in the party to let us know in an email.’

c. **Peim sem langar að hjóla saman frá Sauðárkrók og í Varmahlíð mæta við N1 fyrir kl. 12.15 […]**

Those who want to ride together by bike from S. and to V. show-up by N1 before clock 12.15

‘Those who want to ride together by bike from S. to V. should show up at N1 before 12.15pm.’

d. **Stráknum sem var bjargað af kettinum hafði þetta að segja …**

The boy who was saved by the cat-the had this to say

‘The boy who was saved by the cat said this …’

e. **Bandarískri konu sem var gert að greiða tvær milljónir dala (um 254 milljónir kr.) í sekt fyrir að deila 24 lögum á netinu hefur fengið sektina laekkud í 54.000 dali**

American woman DAT that was made to pay two millions dollars around 254 millions ISK in fine for sharing 24 songs on net-the has gotten fine-the lowered to 54,000 dollars […]

‘An American woman who was fined two million dollars (around 254 million ISK) for sharing 24 songs on the Net got the fine down to 54,000 dollars.’

Relative clauses without a matrix clause

a. **Peim sem finnst í góður**

Those DAT that find ice good

‘those who like ice cream’

b. **Helgin fer sem sagt meira og minna í einhverja vinnu og vitleysu.**

Weekend-the goes as said more and less in some work and nonsense

‘The weekend will more or less be spent on working and some nonsense. Me, who just wanted to be home making Advent wreaths and knitting.’

c. **Hundi sem var bjargað**

Dog DAT that was saved

‘a dog that was saved’
Appendix B. Survey Items

Survey A

a. Peim sem fara oft til útlanda bregður ekki við að sjá skordýr.
   those.dat that go often abroad react not by to see insects
   ‘Those who often go abroad are not startled by seeing insects.’

b. Pá sem gleipamennirnir eltu brá þegar annar hópur birtist.
   those.acc that criminals-the.nom followed reacted when another group appeared
   ‘Those who the criminals followed were startled when another group emerged.’

c. Peir sem leiðist oft hafa sjaldan mikið að gera.
   those.nom that bore often have seldom much to do
   ‘Those who are often bored seldom have much to do.’

d. Peim sem þú móðgaðir blöskraði framkoman.
   those.dat that you insulted shocked behavior-the.nom
   ‘Those who you insulted were shocked by the behavior.’

e. Peir sem kennarinn trúði höfðu mikið að segja.
   those.nom that teacher-the.nom believed had much to say
   ‘Those who the teacher believed had much to say.’

f. Peim sem finnst skemmtilegt að elda borða fjölbreyttan mat.
   those.dat that find fun to cook eat varied food
   ‘Those who find it fun to cook, eat food of many sorts.’

g. Pá sem konan valdí finnst dýrasta viníð best.
   those.acc that woman-the.nom chose found most-expensive wine-the.nom best
   ‘Those who the woman chose found the most expensive wine to be the best.’

h. Peir sem eru hávaxnir líkar ekki lágar dyr.
   those.nom that are tall like not low doors
   ‘Those who are tall don’t like low doors.’

i. Peim sem þú bjargaðir á laugardaginn eru þakklátir.
   those.dat that you saved on Saturday are thankful
   ‘Those who you saved on Saturday are thankful.’

j. Peir sem likar vel að vinna eru hamingjusamir.
   those.nom that like well to work are happy
   ‘Those who like to work are happy.’

k. Pá sem þjónninn aðstoðaði þykir maturinn góður.
   those.acc that waiter-the assisted find food-the.nom good
   ‘Those who the waiter assisted think the food is good.’

l. Peim sem drekka spínatsafa þykir hann ekki endilega góður.
   those.dat that drink spinach-juice find it not necessarily good
   ‘Those who drink spinach juice don’t necessarily think it’s good.’

m. Peim sem þú hittir leiðist ekki mikíð.
   those.dat that you met bore not much
   ‘Those who you met are not very bored.’

n. Peir sem þjóninn hjálpaði borda ekki kjót.
   those.nom that waiter-the helped eat not meat
   ‘Those who the waiter helped don’t eat meat.’
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o. Ég sá þeim sem finnst bíómyndin góð.
   I saw those.dat that find film-the good
   ‘I saw those who think the film is good.’

p. Þeim sem bregður mjög auðveldlega fara ekki á hryllingsmyndir.
   those.dat that startle very easily go not to horror-movies
   ‘Those who are easily startled don’t go to horror movies.’

q. Þeir sem hafa nóg fyrir staðni leiddist sjaldan.
   those.nom that have enough for prow bore seldom
   ‘Those who have plenty of work are seldom bored.’

r. Þeim eru skemmtilegir sem líkar þessi tónlist.
   those.dat are fun that like this music
   ‘Those are fun who like this music.’

s. Þeir sem yfirfærhrn hrósa miðið fara seinna úr vinnunni.
   those.dat that supervisors praise much go later from work
   ‘Those who supervisors praise take off later from work.’

t. Þeir sem blöskrar verðið á áfengi telja það vera of hátt.
   those.nom that shock price-the on alcohol consider it be too high
   ‘Those who are shocked by the price on alcohol think it’s too high.’

u. Þeir sem maðurinn treystir ekki drekka áfengi.
   those.nom that man-the trusts not drink alcohol
   ‘Those who the man doesn’t trust drink alcohol.’

v. Ég hitti þeir sem fara í sund á hverjum degi.
   I met those.nom that go to pool on each day
   ‘I met those who go swimming every day.’

w. Þeir sem kennarar sjá svindla líkar oftast ekki fagið.
   those.dat that teachers see cheat like most-often not subject-the
   ‘Those who teachers see cheating usually don’t like the subject.’

x. Þeir sem telja ástandið slæmt blöskrar afstaða yfirvalda.
   those.nom that consider condition-the bad shock position government.gen
   ‘Those who think the current state is bad are shocked by the government’s position.’

y. Þeim sem þykir kaffi gott drekka það daglega.
   those.dat that find coffee good drink it daily
   ‘Those who think coffee is good drink it daily.’

aa. Þeim sem fangaverðirnir ýtti áfram töldu það ekki sanngjarnt.
    those.dat that prison.guards-the pushed forward considered it not fair
    ‘Those who the prison guards pushed didn’t think it was fair.’

Survey B

a. Þeim sem hafa nóg fyrir stafni leiðist sjaldan.
   those.dat that have enough for prow bore seldom
   ‘Those who have plenty of work are seldom bored.’
b. Þá sem kennarar sjá svindla líkar oftast ekki fagið.
   Those who teachers see cheat like most-often not subject-the
   ‘Those who teachers see cheating usually don’t like the subject.’

c. Þeir sem bregður mjög auðveldlega fara ekki á hryllingsmyndir.
   Those that startle very easily go not to horror-movies
   ‘Those who are easily startled don’t go to horror movies.’

d. Þeim sem ráðið velur finnst heiðurinn mikill.
   Those that council-the chooses finds honor-the much
   ‘Those who the council chooses think it’s a great honor.’

e. Þeir sem fangaverðirnir ýttu áfram töldu það ekki sannogiart.
   Those that prison.guards-the pushed forward considered it not fair
   ‘Those who the prison guards pushed didn’t think it was fair.’

f. Þeim sem likar vel að vinna eru hamingjusamir.
   Those that like well to work are happy
   ‘Those who like to work are happy.’

g. Þá sem fólk móðgar blöskrar yfirleitt slík framkoma.
   Those that people insult shock usually such behavior
   ‘Those who people insult are usually shocked by such a behavior.’

h. Þeir sem fara oft til sólarlanda bregður ekki við að sjá skordýr.
   Those that go often to sunny-places react not with to see bugs
   ‘Those who often go to sunny places aren’t startled by bugs.’

i. Þeim sem þjónninn hjálpaði borða ekki kjöt.
   Those that waiter-the helped eat not meat
   ‘Those who the waiter helped don’t eat meat.’

j. Þeir sem þykir kaffi gott drekka það daglega.
   Those that find coffee good drink it daily
   ‘Those who think coffee is good drink it daily’

k. Þá sem þú hittir leiðist ekki mikið.
   Those who you met bore not much
   ‘Those who you met are not very bored.’

l. Þeim sem eru hávaxnir líkar ekki lágar dyr.
   Those that are tall like not low doors
   ‘Those who are tall don’t like low doors.’

m. Þeim sem gleipamennirinnir eltu brá þegar annar hópur birtist.
   Those that criminals-the.nom followed reacted when another group appeared
   ‘Those who the criminals followed were startled when another group emerged.’

n. Þeir sem yfirmenn hrósa mikið fara seinna ír vinnuni.
   Those that supervisors praise much go later from work
   ‘Those who supervisors praise take off later from work.’

o. Ég sá þeim sem finnst bíómyndin góð.
   I saw those that find film-the good
   ‘I saw those who think the film is good.’

p. Þeim sem leiðist oft hafa sjáldan mikið að gera.
   Those that bore often have seldom much to do
   ‘Those who are often bored seldom have much to do.’

q. Þeir sem drekka spinatsafa þykir hann ekki endilega góður.
   Those that drink spinach-juice find it not necessarily good
   ‘Those who drink spinach juice don’t necessarily think it’s good.’
r. *Deim eru skemmtilegir sem líkar þessi tónlist.*
   those.dat are fun that like this music
   ‘Those are fun who like this music.’

s. *Deim sem kennarinn trúði höfðu mikði að segja.*
   those.dat that teacher-the.nom believed had much to say
   ‘Those who the teacher believed had much to say.’

t. *Deir sem finnst skemmtilegt að elda börða fjölbreyttan mat.*
   those.nom that find fun to cook eat varied food
   ‘Those who find it fun to cook, eat food of many sorts.’

u. *Deim sem telja ástæðið slæmt blöskrar afstaða yfirvalda.*
   those.dat that consider condition bad shock position government.gen
   ‘Those who think the current state is bad are shocked by the government’s position.’

v. Óg hitti *deir sem fara i sund á hverjum degi.*
   ‘I met those who go to pool on each day’

w. *Deir sem þú bjargaðir á laugardaginn eru þakklátir.*
   those.nom that you saved on Saturday are thankful
   ‘Those who you saved on Saturday are thankful.’

x. *Deir sem þjónninn aðstoðaði þykir maturinn góður.*
   those.nom that waiter-the assisted find food-the.nom good
   ‘Those who the waiter assisted think the food is good.’

y. *Deir sem elda ekki oft finnst betra að kaupa tilbúinn mat.*
   those.nom that cook not often find better to buy prepared food
   ‘Those who don’t cook often think it’s better to buy ready-made food.’

z. *Deim sem blöskrar verðið á áfengi telja það vera of hátt.*
   those.dat that shock price-the on alcohol consider it be too high
   ‘Those who are shocked by the price on alcohol think it’s too high.’

aa. *Deim sem maðurinn treystir drekka ekki áfengi.*
   those.dat that man-the trusts drink not alcohol
   ‘Those who the man trusts don’t drink alcohol.’

Survey C

a. *Deim sem fara oft til útlanda bregður ekki við að sjá skordýr.*
   those.dat that go often abroad react not by to see insects
   ‘Those who often go abroad are not startled by seeing insects.’

b. *Deir sem glepamennirir eltu brá þegar annar hópur birtist.*
   those.nom that criminals-the.nom followed reacted when another group appeared
   ‘Those who the criminals followed were startled when another group emerged.’

c. *Deir sem leiðist oft hafa sjaldan mikið að gera.*
   those.nom that bore often have seldom much to do
   ‘Those who are often bored seldom have much to do.’

d. *Deim sem þú móðgaðir blöskraði framkoman.*
   those.dat that you insulted shocked behavior-the.nom
   ‘Those who you insulted were shocked by the behavior.’

e. *Deir sem kennarinn trúði höfðu mikði að segja.*
   those.nom that teacher-the.nom believed had much to say
   ‘Those who the teacher believed had much to say.’
f. *Þeim* sem finnst skemmtilegt að elda borda fjölbreyttan mat.
   those.dat that find fun to cook eat diverse food
   ‘Those who find it fun to cook, eat food of many sorts.’

g. *Þeir* sem konan valdi finnst dýrasta vínið best.
   those.nom that woman.nom chose found most-expensive wine-the.nom best
   ‘Those who the woman chose found the most expensive wine to be the best.’

h. *Þeir* sem eru hávaxnir líkar ekki lágar dyr.
   those.nom that are tall like not low doors
   ‘Those who are tall don’t like low doors.’

i. *Þeim* sem þú bjargaðir á laugardaginn eru þakklátir.
   those.dat that you saved on Saturday are thankful
   ‘Those who you saved on Saturday are thankful.’

j. *Þeir* sem likar vel að vinna eru hamingjusamir.
   those.nom that like well to work are happy
   ‘Those who like to work are happy.’

k. *Þeir* sem þjónninn aðstoðaði þykir maturinn góður.
   those.nom that waiter-the assisted find food-the.nom good
   ‘Those who the waiter assisted think the food is good.’

l. *Þeim* sem drekka spinatsafa þykir hann ekki endilega góður.
   those.dat that drink spinach.juice find it.m not necessarily good
   ‘Those who drink spinach juice don’t necessarily think it’s good.’

m. *Þeim* sem þú hittir leiðist ekki mikið.
   those.dat that you met bore not much
   ‘Those who you met are not very bored.’

n. *Þeir* sem þjónninn hjálpaði borda ekki kjöt.
   those.nom that waiter-the helped eat not meat
   ‘Those who the waiter helped don’t eat meat.’

o. *Ég sá* þeim sem finnst bíómyndin góð.
   I saw those.dat that find film-the good
   ‘I saw those who think the film is good.’

p. *Þeim* sem bregður mjög auðveldlega fara ekki á hryllingsmyndir.
   those.dat that startle very easily go not to horror.movies
   ‘Those who are easily startled don’t go to horror movies.’

q. *Þeir* sem hafa nóg fyrir stafni leiðist sjaldan.
   those.nom that have enough for prow bore seldom
   ‘Those who have plenty of work are seldom bored.’

r. *Þeir* eru skemmtilegir sem likar þessi tónlist.
   those.nom that are fun that like this music
   ‘Those who are fun who like this music.’

s. *Þeim* sem yfirmenn hrósa mikið fara seinna úr vinnunni.
   those.dat that supervisors praise much go later from work
   ‘Those who supervisors praise take off later from work.’

t. *Þeir* sem blöskrar verðið á áfengi telja það vera of hátt.
   those.nom that shock price-the on alcohol consider it be too high
   ‘Those who are shocked by the price on alcohol think it’s too high.’

u. *Þeim* sem elda ekki oft finnst betra að kaupa tilbúinn mat.
   those.dat that cook not often find better to buy prepared food
   ‘Those who don’t cook often think it’s better to buy ready-made food.’
Appendix C. Instructions

A translation of the instructions given to the participants is as follows:

People who speak Icelandic do not necessarily agree about how certain sentences sound. Some find that sentences as “það er búin mjólkin” [lit. ‘there is finished the milk’] sound peculiar while others might find it perfectly normal. With this survey we want to find out what Icelandic speaking people think about different structures, but it’s important to have the following points in mind:

– We are interested in what you yourselves think, not what you have been told or taught is right.
– We are interested in spoken and colloquial Icelandic, not spelling or instructions about written language.
– This is not a test and there are no right or wrong answers in the survey, we are simply trying to collect data from as many native speakers of Icelandic as we can.

In the survey participants are asked to judge 70 sentences on a scale of 1–5, where 1 is a very unnatural sentence but 5 is a very natural sentence. When judging the sentences it is good to depend on your own intuition and wonder if you could say the sentence as it is. We are not seeking judgments on how pretty the sentence is or how accurate the content might be.

At the end of the survey there are a few background questions, but the survey is still completely anonymous.

The original is as follows:

Fólk sem talar íslensku er ekki endilega sammála um það hvernig ákveðnar setningar hljóma. Sumum finnst setning eins og „það er búin mjólkin” hljóma undarlega á meðan öðrum þykir hún kannski alveg eðileg. Með þessari könnun viljum við athuga hvað íslenskumælandi fólkf finnst um ýmsar formgerðir, en mikilvægt er að hafa eftirfarandi atríði í huga:
- Við höfum áhuga á því sem ykkur sjálftum finnst, ekki því sem ykkur hefur verið sagt eða verið kennt að sé rétt.
- Við höfum áhuga á talaðri og hversdagslegri íslensku, ekki stafsetningu eða leiðbeiningum um ritað máli.
- Þetta er ekki próf og ekkert rétt eða rangt í könnuninni, við erum aðeins að reyna að safna gögnum frá sem flestum sem hafla íslensku að möðurmáli.

Könnunin er þannig uppsett að þátttakendur dæma 70 setningar á skalanum 1–5, þar sem 1 er mjög óeðlileg setning en 5 er mjög eðlileg setning. Þegar verið er að dæma setningarnar er gott að miða við eigin máltillfinningu og það hvort maður gæti sjálfur sagt setninguna eins og hún er. Hins vegar er ekki verið að leitast eftir dómum um hversu falleg setningin er eða réttmætt efnislega.

Í lok könnunarinnar eru nokkrar bakgrundsspurningar en könnunin er þó að öllu leyti nafnlaus. Svo aðferðarfæðin virki sem skyldi er þó mikilvægt að allir svari aðeins annarri útgáfu af könnuninni.

Við erum gríðarlega þakklát fyrir þátttökuna, góða skemmtun!