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Case assignment and the linear order of coordinated verbs*

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Abstract

In this paper, we draw on corpus data to show that in Icelandic, verbs that assign distinct cases can be coordinated and share a single object: the verb on the right determines the case that the object bears. However, it turns out that fine-grained details of how case is realized on the object morphologically have an effect on which verb is more likely to come first: the one that assigns accusative or the one that assigns dative. If the object is syncretic for accusative and dative, then there is no preference, and both word orders are equally frequent. If the object is not syncretic, then there is a preference to put the dative-assigning verb last. But this preference is not equal for all objects: when the accusative is realized by a zero affix, the preference is weaker than when the accusative is realized by a non-zero affix. We present an analysis of these facts that is grounded in formal spellout mechanisms and the following two guiding principles: choose the order that expresses the most case features, and choose the order that uses the fewest mechanisms. Non-syncretic objects vary in the strength of the preference in a way that can be connected to these two principles, as long as we make certain specific assumptions about how spellout works, most importantly that zero affixes result from the absence of Vocabulary Insertion, rather than the insertion of a phonologically empty symbol, and Impoverishment exists as a spellout mechanism, one that is distinct from Vocabulary Insertion.

1 Introduction

Bresnan and Thráinsson (1990) argued that apparent cases of verb coordination, such as the example in (1), involve true coordination of heads, and cannot be reduced to phrasal coordination with a silent object in the first conjunct.

(1) Jón keypti og borðaði matinn.
John.NOM bought and ate food.the.ACC
'John bought and ate the food.' (Bresnan and Thráinsson 1990:360)

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Bresnan and Thráinsson (1990) further claimed that such verb coordination is only possible if both verbs assign the same cases, and provided the examples in (2) in support of this.

(2) a. Jón lýsti matnum og Jón borðaði matinn.
John.NOM described food.the.DAT and John.NOM ate food.the.ACC
'John described the food and ate the food.'

b. * Jón lýsti og borðaði {matinn / matnum}.
John.NOM described and ate {food.the.ACC / food.the.DAT}
INTENDED: 'John described and ate the food.' (Bresnan and Thráinsson 1990:361)

In (2a), we see that *lýsa* 'describe' assigns dative case to its object, while *borða* 'eat' assigns accusative case to its object. In (2b), we see that these verbs cannot be coordinated with each other, regardless of what case shows up on the object.

Bresnan and Thráinsson (1990) do not say more about the case-matching requirement for verb coordination as it pertains to objects, but we can immediately note two things. First, in the example that they judge as ungrammatical in (2b), the verb that assigns accusative comes second. We will refer to this as the v_{DAT} & v_{ACC} order, and contrast it with the opposite order, which we will refer to as the v_{ACC} & v_{DAT} order. We will see below that the choice of word order is a potentially important factor in speakers' intuitions about these constructions. Second, Bresnan and Thráinsson (1990) do not say anything about whether an object that happens to be syncretic in a structure like (2b) would make the example possible. The reason to ask this question is that syncretic objects seem to 'bypass' case-matching requirements in a number of languages and constructions, and has been reported for Icelandic for a number of constructions, including ATB-movement and coordinate object drop (Rögnvaldsson 1990, 1993; Ximenes 2007; Sigurðsson and Maling 2010). Indeed, Zaenen and Karttunen (1984) present the examples in (3), which also involve verb coordination in the v_{DAT} & v_{ACC} order. They claim that (3a) (their example (4)) is ungrammatical whether the object is accusative or dative, but that the same coordination of verbs is grammatical (for only some speakers) when the object is syncretic for accusative and dative, as shown in (3b) (their example (12)).[1]

(3) a. * Hann stal og borðaði {kökunni / kökuna }.
he stole$_{+DAT}$ and ate$_{+ACC}$ {cake.the.DAT / cake.the.ACC }
INTENDED: 'He stole and ate the cake.'

b. Hann stal og borðaði köku.
he stole$_{+DAT}$ and ate$_{+ACC}$ cake.ACC/DAT
'He stole and ate cake.'

Likewise, E.F. Sigurðsson and Wood (2021:38) claim that some speakers find (4b) to be fine while

[1] We will annotate the glosses of verbs with subscripts '+DAT' and '+ACC' to indicate what case they normally assign.

(4a) is degraded, apparently because the bare NP object in (4b) is syncretic for dative and accusative, while the definite-suffixed object in (4a) is not.

(4) a. ?? Strákurinn stal og eyðilagði bílinn.
boy.the.NOM stole$_{+DAT}$ and destroyed$_{+ACC}$ car.the.ACC
'The boy stole and destroyed the car.'

b. Strákurinn stal og eyðilagði bíl.
boy.the.NOM stole$_{+DAT}$ and destroyed$_{+ACC}$ car.ACC/DAT
'The boy stole and destroyed a car.'

In this paper, we argue on the basis of the results of a corpus study that contrary to the general claim in Bresnan and Thráinsson (1990), accusative-assigning verbs can be coordinated with dative-assigning verbs. The case that shows up is the one that is assigned by the righthand verb (see also, e.g., a short discussion in Rúnarsson and E.F. Sigurðsson 2020 in the context of Right Node Raising). We provide an attested example from our corpus in (7). As shown in (5) and (6), *hvetja* 'encourage' assigns accusative case, while *hjálpa* 'help' assigns dative. When these verbs are coordinated in the v_{ACC} & v_{DAT} order, as shown in (7), the object shows up in the dative case.

(5) að hvetja fólk
to encourage$_{+ACC}$ people.ACC
'to encourage people'

(6) að hjálpa fólki
to help$_{+DAT}$ people.DAT
'to help people'

(7) að hvetja og hjálpa { fólki / *fólk }
to encourage$_{+ACC}$ and help$_{+DAT}$ { people.DAT / *people.ACC }
'to encourage and help people'

While this example is in the opposite order from the example presented earlier, we do find attested examples of verb coordination with the v_{DAT} & v_{ACC} order, even without ACC/DAT syncretism. We again provide an attested example from our corpus in (10). As shown in (8) and (9), *bæta* 'improve' assigns accusative case, while *breyta* 'change' assigns dative. When these verbs are coordinated in the v_{DAT} & v_{ACC} order, as shown in (10), the object shows up in the accusative case.

(8) að bæta reglur
to improve$_{+ACC}$ rules.ACC
'to improve rules'

(9) að breyta reglum
to change$_{+DAT}$ rules.DAT
'to change rules'

(10) að breyta og bæta { reglur / *reglum }
to change$_{+DAT}$ and improve$_{+ACC}$ { rules.DAT / *rules.ACC }
'to change and improve rules'

These examples show that accusative-assigning and dative-assigning verbs can be coordinated, and that the verb that is linearly the closest, which in all cases in the present paper is the verb on the right, is the verb that determines the overt case on the object.

However, beyond documenting the existence of such constructions, we also find at least three additional, more nuanced patterns in the data. First, when the object is not syncretic for accusative and dative, then the order v_{ACC} & v_{DAT} is more frequent than v_{DAT} & v_{ACC} (Ingimundarson et al. 2022). We show this with the overall frequency data from our corpus study in the table in (11) below.

(11)

	v_{ACC} & v_{DAT}		v_{DAT} & v_{ACC}		Total
Syncretic Object	102	**52%**	93	**48%**	195
Non-Syncretic Object	256	**64%**	145	**36%**	401
Total	358	**60%**	238	**40%**	596

This result reinforces the judgments of some speakers, who find the v_{ACC} & v_{DAT} order to be more acceptable than the v_{DAT} & v_{ACC} order. It also dovetails with the observation above that the example that Bresnan and Thráinsson (1990) judged as unacceptable was indeed in the v_{DAT} & v_{ACC} order that some speakers find degraded (especially when the object is not syncretic).

Second, the table in (11) also shows that when the object is syncretic for accusative and dative, the frequency effect disappears: the order v_{ACC} & v_{DAT} is just as frequent as the order v_{DAT} & v_{ACC}. This suggests that like other case-matching phenomena, morphological syncretism can improve an example that would otherwise be degraded or unacceptable (see references above on Icelandic, and see also Groos and Van Riemsdijk 1981; Zaenen and Karttunen 1984; Franks 1995; Citko 2005; Asarina 2011, 2013; Hein and Murphy 2020 for other languages). It also suggests that the frequency difference discussed in the previous paragraph is not due to some independent feature of dative-assigning verbs that makes them more likely to come last. Rather, there is something about how verb coordination interacts with the assignment and/or realization of case that is responsible for the frequency patterns.

Third, we will show that the way that syncretism does or does not arise makes a difference as to how strong the bias is toward the v_{ACC} & v_{DAT} order. We will flesh out what this means in what follows, but in short, there are different ways that the morphology can identify a case-difference. Accusative and dative can be distinct, for example, because they are expressed with different affixes. But they can also be distinct because one is expressed with an affix and the other gets no affix at all. This distinction turns out to make a difference in how strong the bias is for v_{ACC} & v_{DAT} over the v_{DAT} & v_{ACC} order, and we propose an analysis of this distinction that is grounded in formal spellout mechanisms. We treat the word order effect as a kind of competition: when all else is equal, the order that yields the best results for realizing case features wins.[2] The "best" is determined by two guiding principles:

[2]Of course, all else is not always equal. However, our results suggest that in general, with enough data, the other factors that influence word order in this domain ultimately balance out. See Horn (2019) for a detailed and insightful discussion of the factors that influence word order in conjunctions.

- **Maximum Expression**: Express the most possible features.
- **Least Effort**: Do the least work.

Non-syncretic objects vary in the strength of the "dative preference" in a way that can be connected to these two principles. Syncretic objects generally tie on both of these (unless, as we will see, the syncretism is due to phonology) so the dative preference disappears.

More broadly, our study suggests that word order choice can be affected by relatively surface-level factors, including fine-grained details of how features are (or are not) expressed morphologically. Despite this, the effects are not entirely surface-level, since we will see that phonological syncretism is distinct from feature-based syncretism. We will also see that morphological zeros have a special status in the system in that they involve the non-expression of features, rather than the expression of features by a zero.

The remainder of the paper is organized as follows. In section 2, we provide a general overview of the preference for the v_{ACC} & v_{DAT} order over the v_{DAT} & v_{ACC} order, which we refer to as the v_{DAT}-final preference. In section 3, we provide a preliminary overview of our assumptions about inflection features and spellout mechanisms. In section 4, we discuss the structures that have the strongest v_{DAT}-final preference, and show how these cases are analyzed with the mechanisms of section 3 and the two principles discussed above. In section 5, we do the same with the structures that have a weaker v_{DAT}-final preference, and show how our analysis makes sense of how these are different from the structures discussed in section 4. In section 6, we show how our analysis derives the structures with syncretism, where there is no word order preference. In section 7, we discuss a case where case-syncretism is derived in the phonology, and show how this case does not have the neutralizing effect on word order frequency that other cases of syncretism have. We show how our analysis makes sense of this fact. Section 8 concludes, and is followed by an appendix that discusses some more nuanced cases that raise some interesting questions, but do not bear on the conclusions from earlier sections.

2 The v_{DAT}-Final Preference

We first came across what we refer to as the 'v_{DAT}-final preference' in the form of speaker judgments. When a v_{ACC} such as *kúga* 'extort' is coordinated with a v_{DAT} such as *hóta* 'threaten', some speakers find it acceptable to coordinate the verbs in either order when the object is syncretic for accusative and dative, as shown in (12a) and (13a), but prefer the v_{ACC} & v_{DAT} order when the object is not syncretic for accusative and dative, as shown by the contrast between (12b) and (13b).

(12) Karlmaður á sjötugsaldri var dæmdur fyrir að kúga$_{+ACC}$ og hóta$_{+DAT}$...
man in 60s was convicted for to extort and threaten
'A man in his 60s was convicted for extorting and threatening...'

a. **konu** á sama aldri
woman.ACC/DAT the same age
'a woman the same age.'

b. **tveimur konum**.
two women.DAT
'two women.'

(13) Karlmaður á sjötugsaldri var dæmdur fyrir að hóta$_{+DAT}$ og kúga$_{+ACC}$...
man in 60s was convicted for to threaten and extort
'A man in his 60s was convicted for threatening and extorting...'

a. **konu** á sama aldri
woman.ACC/DAT the same age
'a woman the same age.'

b. ?? **tvær konur**.
two women.ACC
'two women.'

Following this observation, we conducted a corpus study of verb coordination.[3] We searched Parliament speeches in the Icelandic Gigaword Corpus (malheildir.arnastofnun.is/?mode=rmh2019; Barkarson et al. 2022) for strings of coordinated verbs, and manually coded the results for the verbs involved, the cases they assign, the case borne by the object, the inflection class, gender and number of the object, whether the object's case morphology was syncretic for the two cases of the verbs, and the order that the verbs appeared in.[4] We discovered that things are in fact even more nuanced than we indicated earlier. Consider the table in (14).

(14) (Non)Syncretic Objects

		v_{ACC} & v_{DAT}		v_{DAT} & v_{ACC}		Total
A	Masculine Singular Syncretic	4	**44%**	5	**56%**	9
	Feminine Singular Syncretic	64	**50%**	64	**50%**	128
B	Neuter Plural Non-Syncretic	57	**55%**	46	**45%**	103
	Neuter Singular Syncretic	34	**59%**	24	**41%**	58
	Neuter Singular Non-Syncretic	44	**59%**	31	**41%**	75
	Masculine Singular Non-Syncretic	30	**59%**	21	**41%**	51
	Feminine Singular Non-Syncretic	22	**59%**	15	**41%**	37
C	Masculine Plural Non-Syncretic	44	**71%**	18	**29%**	62
	Feminine Plural Non-Syncretic	59	**81%**	14	**19%**	73

In the table in (14), we divide the results into three classes of effects. In Class A, there is no strong

[3]We thank Finnur Ágúst Ingimundarson, who carried out the initial corpus study. His work forms the basis of a squib on coordination of verbs which assign different cases each (Ingimundarson et al. 2022). In the current paper we take a more detailed look at the results of the study, and made some of the manual adjustments discussed in footnote 4.

[4]We also manually removed cases that introduced confounds, such as cases where three verbs were coordinated, where the object was coordinated (unless both conjuncts happened to be the same inflection class), or where there was something else unusual about the example.

preference. In Class B, there is a weak preference for the v_{ACC} & v_{DAT} order. In Class C, there is a strong preference for the v_{ACC} & v_{DAT} order.[5]

For each of the classes above, we will compare the way that accusative is realized with the way that dative is realized. Setting aside Class A for the moment, we find the generalizations in (15) and (16).[6]

(15) **Class B**
Dative is expressed with **an overt morpheme**
Accusative is expressed with **no case morpheme**

(16) **Class C**
Dative is expressed with **an overt morpheme**
Accusative is expressed with **an overt morpheme**

We illustrate these generalizations with a paradigm for the masculine noun *hundur* 'dog' in (17). There, we see that in the singular, which is Class B, there is a morphological distinction between accusative and dative because there is no overt case morpheme in the accusative, while there is an overt case morpheme in the dative. In the plural, which is Class C, there *is* an overt case morpheme in the accusative, which is distinct from the overt case morpheme in the dative.

(17)

	hundur 'dog'	
	MASC SG	MASC PL
NOM	hund + -r → *hundur*	hund + -a-r → *hundar*
ACC	hund + **-Ø** → *hund*	hund + **-a** → *hunda*
DAT	hund + -i → *hundi*	hund + -um → *hundum*

With this much in place, consider again the two morphosyntactic factors that we suggest affect the choice of word order:

- **Maximum Expression**: Express the most possible features.
- **Least Effort**: Do the least work.

When we look at the details of case realization, we will find that in Class A, ACC and DAT tie on both of these factors, so there is no preference for word order in that case. In Class B, DAT wins 'maximum expression', but ACC and DAT tie on 'least effort'. This corresponds to a weak preference for dative case, and therefore the v_{ACC} & v_{DAT} order that leads to dative case. In Class C,

[5]Note that in the plural, with ordinary nouns (and in our sample), accusative and dative are never syncretic with any gender. This is why there are no 'plural syncretic' categories in the table in (14). More broadly, 1st and 2nd person plural pronouns are syncretic for accusative and dative, and there are some non-inflecting nouns (certain proper names and loan words) that might be syncretic for all cases in the plural. None of those, however, are in our dataset, so we do not have any examples of accusative/dative syncretism in the plural.

[6]We will argue below that this even applies to the neuter singular syncretic class, contrary to first impressions, because that syncretism is derived in the phonology.

DAT wins 'maximum expression' *and* 'least effort'. This corresponds to a strong preference for the dative case, and thus the v_{ACC} & v_{DAT} order.

3 Preliminaries: Inflection Features and Spellout Mechanisms

Before presenting the data and analysis in more detail, we must first provide some preliminary information about the inflection features and spellout mechanisms that we assume for the purposes of this study. Turning first to noun inflection features, we follow most of the literature on case morphology and assume that case features are neither primitive nor privative, but are instead decomposed and binary. We adopt the specific analysis of Müller (2005) for Icelandic, which has the decomposition shown in (18)–(20).

(18) Case Features

nominative	[−n,−v,−obl]
accusative	[−n,+v,−obl]
dative	[−n,+v,+obl]
genitive	[+n,+v,−obl]

(19) Gender Features

masculine	[−fem,+masc]
feminine	[+fem,−masc]
neuter	[−fem,−masc]

(20) Inflection Class Features

class a	[+a-type,−i-type,−c-type]
class i	[−a-type,+i-type,−c-type]
class u	[−a-type,−i-type,−c-type]
class c	[−a-type,−i-type,+c-type]
weak/strong	[±weak]

Müller (2005) proposes 12 inflection classes across three genders: 3 weak classes (one for each gender), 4 masculine strong classes, 4 feminine strong classes, 1 neuter strong class. The table in (21), from Müller (2005), is somewhat simplified (there are more sub-classes, etc.), but will suffice for our purposes, and could be adapted to account for the minor variations of these classes.[7,8]

[7] For a more detailed study of Icelandic inflection classes, see Thomson (1987), Svavarsdóttir (1993), Kvaran (2005), Sigurðsson (2005) and Rögnvaldsson (2013:158–169).

[8] A representative of each inflection class in the table is given in (i):

(i) 1 Ma: *hund-ur* 'dog', 2 Na: *borð* 'table', 3 Fa: *kinn* 'cheek', Fa′: *drottning* 'queen', 4 Mi: *stað-ur* 'place', 5 Fi: *mynd* 'picture', 6 Mu: *fjörð-ur* 'fjord', 7 Mc: *fót-ur* 'foot', 8 Fc1: *geit* 'goat', 9 Fc2: *vík* 'bay', 10 Mw: *penn-i* 'pen', 11 Nw: *aug-a* 'eye', 12 Fw: *húf-a* 'cap'

(21) Icelandic Inflection Classes (Müller 2005:235)

	1 Ma	2 Na	3 Fa(′)	4 Mi	5 Fi	6 Mu	7 Mc	8 Fc1	9 Fc2	10 Mw	11 Nw	12 Fw
nom sg	ur	Ø	Ø	ur	Ø	ur	ur	Ø	Ø	i	a	a
acc sg	Ø	Ø	Ø (u)	Ø	Ø	Ø	Ø	Ø	Ø	a	a	u
dat sg	i	i	Ø (u)	Ø	Ø	i	i	Ø	Ø	a	a	u
gen sg	s	s	ar	ar	ar	ar	ar	ar	ur	a	a	u
nom pl	ar	Ø	ar	ir	ir	ir	ur	ur	ur	ar	u	ur
acc pl	a	Ø	ar	i	ir	i	ur	ur	ur	a	u	ur
dat pl	um	um	um	um	um	um	um	um	um	um	um	um
gen pl	a	a	a	a	a	a	a	a	a	a	(n)a	(n)a

There are several advantages to adopting Müller's system unchanged. First, it is fairly thorough and explicit, and is the most detailed existing account of Icelandic noun inflection in a post-syntactic theory of morphology like Distributed Morphology. Second, it takes the actual markers of exponence quite seriously. For example, much of the analysis is aimed at understanding why *-r* appears where it does, instead of assuming that some exponents just happen to end in /r/. Most importantly of all, there are a lot of choices one can make in the analysis of an inflectional system, and in this paper we are correlating rather fine-grained properties of that analysis with word-order choice in coordination. Since Müller's system was developed entirely independently of the present considerations, the fact that the results line up in the way that they do is quite striking.

Having established the inflectional features that we assume, we now turn to our assumptions about spellout. We adopt a general Distributed Morphology model of spellout, where the syntax assembles roots and abstract features that do not have any phonological features. When a syntactic structure is transferred to PF, the hierarchically arranged feature bundles are subject to various local adjustments. For present purposes, the most important will be language-specific Impoverishment rules which delete certain morphosyntactic features before Vocabulary Insertion determines the phonological realization of syntactic features. It is important that this is understood as deletion, and not as a process where features are 'consumed' by Vocabulary Insertion of zeros, as in Trommer (1999, 2003).[9]

[9]See Trommer (2012) for a detailed overview of approaches to zero-exponence, which we cannot do justice to here. For the time being, we will only note three assumptions that are necessary for our account. First, as mentioned in the text, Impoverishment cannot be understood as insertion of zeros. Second, zeros could be inserted in certain cases, such as if they are specified for a particular environment, and in those cases the zero would consume the feature as Trommer

For Vocabulary Insertion, we follow the standard assumptions of the Subset Principle, the Elsewhere Condition, etc. However, there are two assumptions that we adopt about Vocabulary Insertion that are worth highlighting. First, Vocabulary Insertion replaces the morphosyntactic features that they realize with phonological features. This is essentially the approach to Vocabulary Insertion in Trommer (1999, 2003) and Bobaljik (2000), and distinct from Embick (2015) (where Embick (2015) proposes that Vocabulary Insertion only replaces a placeholder symbol for phonological content, not the formal features themselves). Second, and most importantly, we also assume that when there is no matching Vocabulary Item, Vocabulary Insertion does not take place—so nothing is inserted.[10] The special status of deleting features (Impoverishment) and not inserting anything (Zeros as Non-Insertion) will play an important role in the analysis that follows.

4 Strong v_{DAT}-Final Preference: M/F Plurals

We begin with Class C, which includes masculine and feminine plurals, and shows the strongest preference for the v_{ACC} & v_{DAT} order. We repeat the relevant frequency data in (22).

(22)

	v_{ACC} & v_{DAT}		v_{DAT} & v_{ACC}		Total
Masculine Plural Non-Syncretic	44	**71%**	18	**29%**	62
Feminine Plural Non-Syncretic	59	**81%**	14	**19%**	72

In (23), we present sample paradigms for masculine and feminine plural nouns for reference.

(23)

	FEM PL *kinn* 'cheek'	MASC PL *hundur* 'dog'
NOM	kinn + -a-r → *kinnar*	hund + -a-r → *hundar*
ACC	kinn + -a-r → *kinnar*	hund + -a → *hunda*
DAT	kinn + -um → *kinnum*	hund + -um → *hundum*

In (24)–(26), we present Müller's Vocabulary Items that we use for masculine and feminine plurals.

(24) **Non-Oblique Suffix**
/r/ ↔ {[−obl]}

(25) **Dative Plural**
/um/ ↔ {[+pl],[−n,+v,+obl]}

(26) **Nominative/Accusative Plural**
a. /i/ ↔ {[+pl],[−a-type,−c-type]}
b. /u/ ↔ {[+pl],[−a-type]}
c. /a/ ↔ {[+pl],[−n]}

proposes. Third, elsewhere zeros are not actually inserted, but are instead the absence of insertion.

[10] We also assume that Fission may take place as part of Vocabulary Insertion, realizing a subset of features but leaving the remaining features behind.

For feminine plurals, nothing more needs to be said, and Vocabulary Insertion proceeds. In (27), we show the relevant abstract features in the second row, using *kinn* 'cheek' as our example. The first column then indicates which Vocabulary Items are inserted. The second and third columns show the feature bundles for accusative and dative respectively, being replaced whenever a Vocabulary Item is inserted to replace a formal feature.

(27)

kinn 'cheek'	ACC	DAT
[+pl],[+fem],[+a-type]	[−n, +v, −obl]	[−n,+v,+obl]
Vocabulary Insertion (25)		*-um*
Vocabulary Insertion (24)	[−n, +v], *-r*	
Vocabulary Insertion (26c)	[+v], *-a-r*	
→ Phonology	*kinn-a-r*	*kinn-um*

For accusative, when the Vocabulary Item in (24) is inserted, the original accusative feature bundle [−n, +v, −obl] becomes [−n, +v], as the [−obl] feature is replaced by the phonological exponent /r/. When (26c) is inserted, [−n, +v] becomes [+v], as the [−n] feature is replaced by the phonological exponent /a/. No more rules apply; the [+v] is left unrealized—it is not expressed by any phonological exponent, not even a Ø. The phonology combines the stem *kinn* with the exponents /a/ and /r/, to form the accusative plural *kinnar*.[11] The ACC column thus shows what would happen if the accusative feature bundle were being realized, which as we stated above, is what would happen if we had the v_{DAT} & v_{ACC} order. In contrast, the feature bundle for dative is only subject to one instance of Vocabulary Insertion. When the Vocabulary Item in (25) is inserted, the original dative feature bundle [−n, +v, +obl] is replaced by the phonological exponent /um/ in its entirety. Nothing else happens. The phonology combines the stem *kinn* with the exponent /um/, to form the dative plural *kinnum*.[12]

We can now discuss why dative case, and thus the v_{ACC} & v_{DAT} order that leads to dative case, is so strongly preferred with feminine plurals. Dative beats accusative on 'least effort', because only one instance of Vocabulary Insertion takes place. But dative also beats accusative on 'maximum expression', because all three case features are expressed morphologically; at the end of the derivation, no case features are left unexpressed. With the accusative, at least one case feature, namely the [+v] feature, is always left unexpressed. And in fact, the example above illustrated the best case scenario. As one can see by looking at the Vocabulary Items in (26a) and (26b), some noun classes do not realize any case features other than the [−obl] feature (which is realized as /r/

[11] This is the same form that would have resulted from the nominative; the only difference would be that it would be the [−v] feature that would be unexpressed.

[12] Müller (2005) points out that it is crucial that the Vocabulary Items be ordered, for example by specificity (or perhaps in some cases extrinsically). If (26c) applied to the dative feature bundle, then an /a/ would be inserted and the remaining features would be [+v, +obl]. The /um/ exponent would never be inserted. However, since /um/ realizes more features, it gets priority by the Subset Principle.

for all classes). These 'competition results' are summarized in (28).

(28) **Feminine Plural**

		ACC	DAT	Winner
Least Effort	Vocab. Insertion	x2	x1	DAT (less effort)
Max. Expression	Case Features	$\leq$2	3	DAT (more features expressed)

As we can see here, the accusative requires two instances of Vocabulary Insertion and realizes a maximum of two case features. The dative requires only one instance of Vocabulary Insertion and realizes all three case features.

We turn now to the masculine plural, which is similar, but with a twist, because there is an Impoverishment rule that applies to the accusative. This rule, along with a plain English paraphrase of it, is shown in (29).[13]

(29) **Impoverishment Rule E**
[−obl] → Ø / {[+pl],[+masc,−c-type],[−n,+v]} __
≈ *'Delete [−obl] for plural masculine accusatives (unless they are class-c)'*

Impoverishment rules delete features prior to Vocabulary Insertion, so we list them first in the tables that follow. In (30), we show how the same Vocabulary Items discussed above, plus the masculine-specific Impoverishment rule, derives the accusative and dative plural forms of *hundur* 'dog'.[14]

(30)

hundur 'dog'	ACC	DAT
[+pl],[+masc],[+a-type]	[−n, +v, −obl]	[−n,+v,+obl]
Impoverishment (29)	[−n, +v]	
Vocabulary Insertion (25)		*-um*
Vocabulary Insertion (26c)	[+v], *-a*	
→ Phonology	*hund-a*	*hund-um*

For accusative, the Impoverishment rule applies and deletes the [−obl] feature, so [−n, +v, −obl] becomes [−n, +v], but no phonological exponent, not even a Ø, is inserted.[15] Just as with the feminine, the [−n] feature is realized as /a/, and the phonology combines the stem *hund* with the exponent /a/ to form the accusative plural form *hunda*. The dative is handled exactly as it was with the feminine plural. Impoverishment Rule E does not apply, because there is no [−obl] feature,

[13] We call this 'Impoverishment Rule E' because Müller (2005) lists five Impoverishment rules, (a)–(e), and this is his (e). We do the same with the other Impoverishment rules discussed below. As mentioned above, we are adopting Müller's system and spellout rules without modification.

[14] Note that with different inflection class features, we get different vowels, regardless of gender, but this does not bear on the present point.

[15] At this point, we could model Impoverishment as insertion of zeros, as proposed by Trommer (1999, 2003), and get the same result. We will see later, however, that this analysis will not make the correct distinctions in other cases.

and the same Vocabulary Item for dative, expressing all the case features, is inserted because that Vocabulary Item does not distinguish between different genders (or noun classes, for that matter).[16]

Dative case, and thus the v_{ACC} & v_{DAT} order that leads to dative case, is also strongly preferred with masculine plurals, just like it was with feminine plurals (and for similar reasons). Dative beats accusative on 'least effort', because only one instance of Vocabulary Insertion takes place with the dative. With the accusative, there is one instance of Impoverishment and one instance of Vocabulary Insertion. Dative also beats accusative on 'maximum expression', because just as before, all three case features are expressed morphologically and no case features are left unexpressed. With the accusative, at most one feature is actually expressed, namely the [−n] feature. But just as with the feminine plurals, some noun classes do not realize any case features, and even the [−obl] feature is not expressed. These 'competition results' are summarized in (31).

(31) **Masculine Plural**

		ACC	DAT	Winner
Least Effort	Vocab. Insertion	x1	x1	DAT (less effort)
	Impoverishment	x1		
Max. Expression	Case Features	≤1	3	DAT (more features expressed)

As we can see here, accusative requires two operations while dative requires only one. Moreover, accusative realizes at most one case feature, while dative realizes all three.

What we have seen in this section is that for masculine and feminine plurals, the dative wins on both criteria: it expresses more features and does less work, and this corresponds to a strong preference to choose the v_{ACC} & v_{DAT} order. One might wonder at this point whether Maximum Expression or Least Effort alone is enough to derive these results. We will see next that neither is enough. If Maximum Expression were enough on its own, we would expect neuter plurals to show exactly the same effects, because dative realizes more features than accusative in neuter plurals, just as with masculine and feminine. What we will see next, however, is a different generalization that operates over the Class B cases, with the weak preference for v_{ACC} & v_{DAT} order. Dative still wins on Maximum Expression, but it ties on Least Effort, a result that spans various idiosyncratically distinct specific cases. This also shows that Least Effort is not enough on its own. Least Effort alone would predict the Class B cases to be the same as the syncretic Class A, since Class B cases tie on Least Effort. We now discuss this in more detail as we turn to the weak v_{DAT}-final preference.

[16]Notice that the syncretism between nominative and accusative in the feminine plural is due to the fact that the feature distinguishing nominative and accusative, the [±v] feature, is not realized. The same holds for accusative masculine plurals, but on the surface, there is a distinction between nominative and accusative because the [−obl] feature is realized in the nominative as /r/, but deleted by Impoverishment in the accusative, and thus not realized at all. This 'indirect source' for non-syncretism will play an important role in the discussion below.

5 Weak v_{DAT}-Final Preference

In Class B, we see a preference for the v_{ACC} & v_{DAT} order, but it is not quite as strong (Class B of the table in (14) is repeated as (32)).

(32) (Non)Syncretic Objects

	v_{ACC} & v_{DAT}		v_{DAT} & v_{ACC}		Total
Neuter Plural Non-Syncretic	57	**55%**	46	**45%**	103
Neuter Singular Syncretic	34	**59%**	24	**41%**	58
Neuter Singular Non-Syncretic	44	**59%**	31	**41%**	75
Masculine Singular Non-Syncretic	30	**59%**	21	**41%**	51
Feminine Singular Non-Syncretic	22	**59%**	15	**41%**	37

This class includes the neuter plurals, and all of the singular non-syncretic examples. It also includes *syncretic* neuter singulars. We set this aside for now, and return to it below, where we will see that this syncretism is derived in the phonology, which explains why it patterns the way it does. We will begin by looking in detail at masculine singulars, and then turn to neuter singulars and plurals.

In (33)–(34), we show the two Vocabulary Items that are used for the masculine singular nouns in question. Note that (33) is repeated from (24) above. In (35), we present Impoverishment Rule A, which will also be used for masculine singulars.[17]

(33) **Non-Oblique Suffix**
/r/ ↔ {[−obl]}

(34) **Masculine/Neuter Sg Dative Suffix**
/i/ ↔ {[−pl],[−weak,−fem,−i-type],[+obl]}

(35) **Impoverishment Rule A**
[−obl] → Ø / {[−pl],[−n,+v]} __

≈ *'Delete [−obl] for singular (masculine) accusatives'*

(36) shows a sample paradigm for a (non-syncretic) masculine singular noun.

(36)

	MASC SG *hundur* 'dog'
NOM	hund + -r → *hundur*
ACC	hund + -Ø → *hund*
DAT	hund + -i → *hundi*

Applying the Vocabulary Items and Impoverishment Rules to the accusative and dative feature bundles, we get the derivations in (37).

[17] This rule's formulation does not specify masculine, but in practice generally only applies to masculine, because it is bled by other rules which apply to feminine and neuter nouns.

(37)

hundur 'dog'	ACC	DAT
[−pl],[−weak,+masc,−fem]	[−n, +v, −obl]	[−n,+v,+obl]
Impoverishment (35)	[−n, +v]	
Vocabulary Insertion (34)		[−n, +v], *-i*
→ Phonology	*hund*	*hund-i*

There are a couple of things to note at this stage. First, notice that even though we introduced the Vocabulary Item in (33) as part of this paradigm, it is not used in (37). In fact, it is used only in the nominative, to derive the form *hundur*.[18] Second, notice that actually no features are realized for the accusative at all—Vocabulary Insertion does not apply. This is in contrast with the dative, where the [+obl] feature is spelled out as *-i* (IPA = [ɪ]). Instead, there is an Impoverishment rule that applies in the accusative, deleting the [−obl] feature. That is why the Vocabulary Item in (33) is only inserted in the nominative, and not the accusative.

The results of the competition between the two forms are shown in (38).

(38) **Masculine Singular**

		ACC	DAT	Winner
Least Effort	Vocab. Insertion		x1	A tie!
	Impoverishment	x1		
Max. Expression	Case Features	0	1	DAT (more features expressed)

In terms of Least Effort, dative and accusative tie—they each require one mechanism, and thus the same amount of work. But in terms of Maximum Expression, dative wins, because in the dative one feature is expressed and in the accusative none are expressed. This corresponds to the weak preference for dative. The results for all other Class B forms will be like this (although some special remarks will be required for feminine singulars; see below).

It is worth pausing at this point to discuss some subtle alternatives which would actually make a difference. First, we mentioned above that one alternative to Impoverishment was to assume that instead of special deletion rules, zeros are inserted. However, if this were the case then accusative and dative should tie on Maximum Expression, because inserting a zero would still be expressing a feature, from a formal standpoint. It would only be the phonology that distinguished between phonological zeros and non-zeros. Second, one could try to get around this by saying that Maximum Expression is evaluated at phonology—that it is there where the zero/non-zero distinction makes a difference. But we will see below, in the case of syncretic neuter singulars, that this is not the case; phonologically-determined zeros do not count as non-expression, and therefore the idea that Maximum Expression is evaluated on the basis of phonological form is dubious. Third, we might

[18]The vowel preceding the /r/ is usually thought to be epenthetic (Anderson 1969; Orešnik 1972; Rögnvaldsson 1981; Kiparsky 1984; Karvonen and Sherman 1998; Gibson and Ringen 2000; Jurgec 2011; Thráinsson 2017) (though see Orešnik 1978 and Ingason 2016 for a different view).

have thought that Maximum Expression would be about how many features are left behind—how many are not expressed. But this example shows that this is not right either. Accusative and dative leave the same number of features behind. The difference is that the dative expresses a feature with an explicit Vocabulary Item.

Before moving on to neuters, we would like to make one more broad point, which actually goes beyond the specific formal details. Notice that descriptively, the accusative masculine singular (in this case *hund*) is an unambiguously accusative form. At the surface, there is a sense in which there is no "lack of expression". Anyone learning Icelandic would learn that *hund* is the accusative form of 'dog', which occurs wherever accusatives occur. But even from a relatively theory-neutral descriptive standpoint, the way accusative is "expressed" in this case is through the absence of an affix: the accusative is formed by using just the stem, with no other morphology. Notice that this is different from the plural cases we saw earlier. There, we had different VIs for ACC and DAT, and that corresponds to the fact that there are distinct, overt affixes for accusative and dative in the plural. We illustrate this difference with the paradigm in (39).

(39)

	hundur 'dog'	
	MASC SG	MASC PL
NOM	hund + -r → *hundur*	hund + -a-r → *hundar*
ACC	hund + **-Ø** → *hund*	hund + **-a** → *hunda*
DAT	hund + -i → *hundi*	hund + -um → *hundum*

One broad claim that we are pursuing in this paper is that this actually matters, whether one adopts the formal details of our analysis or not.

We are now in a position to see why neuter is in Class B, regardless of whether it is singular or plural. Consider the paradigm in (40), and how it compares to (39):

(40)

	borð 'table'	
	NEUT SG	NEUT PL
NOM	borð + -Ø → *borð*	borð + -Ø → *borð*
ACC	borð + **-Ø** → *borð*	borð + **-Ø** → *borð*
DAT	borð + -i → *borði*	borð + -um → *borðum*

The first thing to notice is that like the masculine singular, the neuter singular accusative is not expressed by any overt affix, while the neuter singular dative is expressed by the same *-i* that we saw above. The second thing to notice is that unlike the masculine singular, the same thing holds in the plural: there is no overt affix in the accusative plural, while there is one in the dative plural. (This is in fact the same dative affix we see for dative plurals in all genders, regardless of noun class.) It turns out that the reason this holds is that there is a massive metasyncretism between nominative and accusative in the neuter throughout the language: neuters ***never*** express the NOM/ACC distinction

morphologically, not for any noun or modifier, not in the singular and not in the plural.[19]

This brings us to the only new thing we need to derive the forms of neuters, namely Impoverishment Rule C, shown in (41).

(41) **Impoverishment Rule C**
[±v,−n,−obl] → Ø / {[−masc,−fem]} __
≈ *'Delete all case features for nominative and accusative in the neuter'*

While the previous Impoverishment rules deleted only the [−obl] feature, this rule deletes all the case features for neuters in the nominative and the accusative. From here, the neuter singular plays out essentially exactly like the masculine singular, except that the case features are completely gone. The processes that derive neuter forms are shown in (42). The "[]" in the Impoverishment row in (42) indicates that all the case features are deleted at this stage. This is to distinguish it from the dative column, which is blank because nothing happens (so all the features are retained).

(42)

borð 'table'	ACC	DAT
[−pl],[−masc,−fem]	[−n, +v, −obl]	[−n,+v,+obl]
Impoverishment (41)	[]	
Vocabulary Insertion (34)		[−n, +v], *-i*
→ Phonology	*borð*	*borð-i*

In the accusative column, since no case features are left after Impoverishment Rule C applies, no Vocabulary Items can be inserted, and the stem is sent to phonology on its own. In the dative, there is no Impoverishment rule, so the same *-i* is inserted to realize the [+obl] feature that we saw in masculine singulars. The morphology sends the stem plus the *-i* to phonology, where they are combined into a single phonological word.

The results of the competition are shown in (43).

(43) **Neuter Singular**

		ACC	DAT	Winner
Least Effort	Vocab. Insertion		x1	A tie!
	Impoverishment	x1		
Max. Expression	Case Features	0	1	DAT (more features expressed)

Everything here pans out exactly like the masculine singular. The accusative's one rule of Impoverishment is balanced out by the dative's one instance of Vocabulary Insertion, so it is a tie as far as Least Effort is concerned. And once again, dative beats accusative for Maximum Expression, so

[19]It should be noted that this systematic syncretism goes back to Proto-Indo-European. We thank Finnur Ágúst Ingimundarson for discussing this with us.

the result is a weak preference for dative over accusative, and therefore the word order that results in the dative (namely v_{ACC} & v_{DAT}).

The neuter plural plays out the same way as well. The only difference is that more features are expressed in the dative, because the dative plural Vocabulary Item, which is the same one that we saw earlier, is a portmanteau form that expresses all case features in the plural.

(44)

borð 'table'	ACC	DAT
[+pl],[−masc,−fem]	[−n, +v, −obl]	[−n,+v,+obl]
Impoverishment (41)	[]	
Vocabulary Insertion (25)		*-um*
→ Phonology	*borð*	*borð-um*

The results of the competition are shown in (45).

(45) **Neuter Plural**

		ACC	DAT	Winner
Least Effort	Vocab. Insertion		x1	A tie!
	Impoverishment	x1		
Max. Expression	Case Features	0	3	DAT (more features expressed)

This result looks exactly like the masculine and neuter singulars, except that in the dative, three features are expressed. Here again, if we are choosing between accusative and dative, we are choosing between not doing VI in the accusative and doing VI in the dative.

We will once again pause to reflect on some subtle aspects of this result. First, notice that there is no advantage to expressing three case features in the neuter plural versus one case feature in the neuter singular. All that matters is that the dative beats the accusative in both singular and plural. Second, notice that even though the plural dative is the same in all genders—it is even expressed with the same Vocabulary Item in all cases—and it always expresses more features than the accusative, in the neuter it ties on Least Effort. This makes the preference for dative weaker in the neuter than in the masculine or feminine. This is the result we alluded to above that shows that neither Least Effort nor Maximum Expression is enough on its own. If we only considered Least Effort, then the Class B cases would show no preference for v_{ACC} & v_{DAT} order; they would be just like the Class A syncretic cases. So the amount of expression matters. But if we *only* considered Maximum Expression, we would not expect a difference between Neuter Plurals, on the one hand, and Masculine/Feminine Plurals on the other hand. All three win on Maximum Expression in the same way. What makes Masculine/Feminine Plurals favor dative so strongly is that they also win on Least Effort.

Before turning to syncretic feminine singulars, we would like to say just a few things about non-syncretic feminine singulars. In fact, it turns out that according to the system that we are adopt-

ing from Müller (2005), there should not even be any non-syncretic feminine singulars. We will see below that this is because there is an Impoverishment rule that deletes the [±obl] feature in feminine singular for all cases other than the genitive. This derives a language-wide meta-syncretism to the effect that accusative and dative are always syncretic in feminine singular nouns.

However, while bare feminine singular nouns themselves never make an accusative/dative distinction, the suffixed definite article does. Modifiers like adjectives, etc., do as well, but we will focus on the definite suffix here because most of our non-syncretic examples are due to the definite suffix, and the morphology of other modifiers is nearly identical, so it is most likely possible to extend the same analysis to them. Müller (2005) did not have a proposal for non-syncretic feminine singular nouns, because Müller (2005) was focused entirely on the inflectional system of the bare nouns themselves, not the modifiers and definite suffixes that may occur with those nouns.

The table in (46) shows what the forms for the definite suffix are in the feminine singular.

(46)

	tungan 'the tongue' FEM SG				
	STEM	+ CASE	+ DEF	+ case	→ *final form*
NOM	tung	+ -a	+ -n	+ Ø	→ *tungan*
ACC	tung	+ **-u**	+ -n	+ -a	→ *tunguna*
DAT	tung	+ **-u**	+ -n	+ -ni	→ *tungunni*

Since Müller (2005) does not make a concrete proposal for the morphology of adjectival modifiers and definite suffixes, we will draw from Sauerland (1996). As Müller (2005) notes, while Sauerland's overall approach is couched within Distributed Morphology, it is somewhat different in important respects, and reconciling that with the Müller 2005 system is not a trivial matter. However, it is for our purposes sufficient to note that Sauerland (1996) proposes that the accusative *-a* actually realizes a singular number feature, rather than any case feature. (This does not show up in the nominative because of an Impoverishment rule that we will not discuss here.) The dative form *-ni*, however, is argued by Sauerland (1996) to realize the dative case, feminine gender, and singular features. Translating this analysis into the present feature system, we would have the Vocabulary Items in (47).[20]

(47) a. /a/ ↔ {[D],[−pl]}
b. /ni/ ↔ {[D],[−pl],[+fem],[+obl]}

According to this analysis, both dative and accusative are subject to Vocabulary Insertion, so they tie on Least Effort, but the dative expresses more case features, so dative wins on Maximum Ex-

[20]Sauerland (1996) uses the feature DAT for dative, so we could translate that into [−n,+v,+obl] in (47b). However, as far as we can tell, sticking with [+obl] is sufficient for our purposes, and brings the analysis closer to the analysis of other dative singulars, which also contain an *-i*.

pression. Thus, dative is weakly favored over accusative in these cases, just like with other Class B cases discussed in this section.[21]

6 Syncretism Effects: Feminine Singulars

We now turning to the remaining class, Class A, and focus on syncretic feminine singulars. We can now see more precisely why syncretism leads to no preference for conjunct order.[22] In (48), we repeat the corpus results from (14) above, and in (49) we show a sample paradigm.

(48)

	v_{ACC} & v_{DAT}	v_{DAT} & v_{ACC}	Total
Feminine Singular Syncretic	64 **50%**	64 **50%**	128

(49)

	tunga 'tongue' FEM SG
NOM	tung + -a → *tunga*
ACC	tung + **-u** → *tungu*
DAT	tung + **-u** → *tungu*

To derive the forms of feminine singulars, we use the Vocabulary Items in (50) and (51), and Impoverishment Rule B, shown in (52).

(50) **Weak Elsewhere Suffix**
/a/ ↔ {[−pl],[+weak]}

(51) **Feminine Weak Non-Nominative**
/u/ ↔ {[−pl],[+weak,+fem],[+v]}

(52) **Impoverishment Rule B**
[±obl] → Ø / {[−pl],[+fem],[−n]} __

≈ *'Delete [±obl] in feminine singulars (for every case but genitive)'*

Consider in (53) how these rules derive the surface forms if we are doing Vocabulary Insertion

[21] This once again illustrates the importance of a precise formal analysis, because if the *-a* were analyzed as expressing an accusative case feature, then the two would tie on maximum expression as well. The details matter. However, we should point out at least one other way of looking at the data, which would be to say that the accusative case feature is deleted by Impoverishment, and the *-a* suffix does not count for 'Least Effort' because it does not realize a case feature. This would derive the same result. What would not work would be to assume that Impoverishment applies and the insertion of *-a* counts as work, because then there would be two mechanisms for accusative and one for dative. As mentioned above, however, the present analysis can only be a sketch at the moment, because incorporating the inflection of modifiers and definite suffixes into Müller's system, while sticking to the methodological principles that led him to that analysis, is a non-trivial task that must be left for a future study.

[22] We skip masculine singular syncretic nouns for now, because there weren't enough in our sample; but the few examples that we do have go in the same direction. See the Appendix for further discussion of syncretic masculine singulars.

for either ACC or DAT.[23] Impoverishment Rule B applies, regardless of whether the [±obl] feature is [+obl] or [−obl]. The result is that the feature bundle is exactly the same for accusative and dative. From that point on, anything that would happen to one would happen to the other. In this case, the Vocabulary Item in (51) applies in either case, realizing the [+v] feature as *-u*.[24]

(53)

	ACC	DAT
{[−pl],[+weak,+fem]}	[−n, +v, −obl]	[−n,+v,+obl]
Impoverishment (52)	[−n, +v]	[−n,+v]
Vocabulary Insertion (51)	[−n], *-u*	[−n], *-u*
→ Phonology	*tung-u*	*tung-u*

Because of the Impoverishment rule, there is no distinction between ACC and DAT at spellout—the same thing happens no matter which case was assigned, because the feature bundles are the same. Correspondingly, there is no ordering preference, as we saw above. Since the same thing happens in both cases, there is no difference between them in terms of Least Effort, and for the same reason, there is no difference between them in terms of Maximum Expression either. We will see next that this manner of deriving syncretism is what matters, not the mere fact that the forms end up being the same.

7 Neuter Singular Syncretic

Earlier we briefly mentioned a somewhat surprising fact about Class B: it includes syncretic neuters, despite the fact that the broader pattern has been that syncretic forms show no preference for v_{ACC} & v_{DAT} or v_{DAT} & v_{ACC}. That is, syncretism does not seem to make a difference in the neuter singular: there is a weak preference for v_{ACC} & v_{DAT} either way.

(54) (Non)Syncretic Neuter Objects

	v_{ACC} & v_{DAT}		v_{DAT} & v_{ACC}		Total
Neuter Singular Syncretic	34	**59%**	24	**41%**	58
Neuter Singular Non-Syncretic	44	**59%**	31	**41%**	75

Strikingly, however, all the syncretic neuters in our corpus data come from Class 2, an inflection class that is normally not syncretic. We repeat the inflection class table from (21) in (55).

[23] Here we illustrate with the [+weak] class, because the [−weak] classes are slightly more complicated and harder to visualize (since there are more zeros), and the result is the same (since Impoverishment applies regardless).

[24] While the *-u* is inserted for all non-nominative weak singulars, the leftover *-a* suffix is inserted as a general suffix for [+weak] nouns whenever nothing more specific applies. We do not show its derivation here because we are focused on accusative and dative, but we show the VI to make it clear how the nominative form would be derived in the paradigm in (49).

(55) Icelandic Inflection Classes (Müller 2005:235)

	1 Ma	2 Na	3 Fa(′)	4 Mi	5 Fi	6 Mu	7 Mc	8 Fc1	9 Fc2	10 Mw	11 Nw	12 Fw
nom sg	ur	Ø	Ø	ur	Ø	ur	ur	Ø	Ø	i	a	a
acc sg	Ø	Ø	Ø (u)	Ø	Ø	Ø	Ø	Ø	Ø	a	a	u
dat sg	i	i	Ø (u)	Ø	Ø	i	i	Ø	Ø	a	a	u
gen sg	s	s	ar	ar	ar	ar	ar	ar	ur	a	a	u
nom pl	ar	Ø	ar	ir	ir	ir	ur	ur	ur	ar	u	ur
acc pl	a	Ø	ar	i	ir	i	ur	ur	ur	a	u	ur
dat pl	um	um	um	um	um	um	um	um	um	um	um	um
gen pl	a	a	a	a	a	a	a	a	a	a	(n)a	(n)a

In fact, we did not have any examples of the only other class of neuters, Class 11, where there is a systematic syncretism that we discuss further in the appendix. The reason that the Class 2 neuters in question are syncretic appears to be phonological. As we can see in (55), and as we saw above for both masculine and neuter singulars, the expected suffix is *-i* (IPA = [ɪ]). In the syncretic cases in question, all the stems end in /*i*/ (IPA = [ɪ]).[25]

Just the fact that this group can be characterized phonologically suggests that we are not dealing with feature-based syncretism. But beyond that, it is independently known that vowel deletion applies in Icelandic when two unstressed vowels appear next to each other (see, for example, Dehé 2008). In fact, we see this kind of deletion elsewhere in the same paradigm. Consider the paradigm for *epli* 'apple' in (56).

(56)

	epli 'apple'	
	NEUT SG	NEUT PL
NOM	epli	epli
ACC	**epli**	**epli**
DAT	**epli**	**eplum**

In the plural column, we see that the dative plural suffix *-um* triggers deletion of the /i/ in the stem. Similarly, we can now see that the expected suffix *-i* triggers deletion of the /i/ in the stem—which looks like syncretism, but is derived in the phonology, not in the feature system. We can illustrate this by comparing a decomposed paradigm for *borð* 'table' in (57) with a similar one for *epli* 'apple'

[25]There is one exception to this, where the stem ends in *é* (IPA = [jɛ]); we do not take a stand on whether this example is phonologically-based or not.

in (58).

(57)

	borð 'table'	
	NEUT SG	NEUT PL
NOM	borð + -Ø → *borð*	borð + -Ø → *borð*
ACC	borð + **-Ø** → *borð*	borð + **-Ø** → *borð*
DAT	borð + -i → *borði*	borð + -um → *borðum*

(58)

	epli 'apple'	
	NEUT SG	NEUT PL
NOM	epli + -Ø → *epli*	epli + -Ø → *epli*
ACC	epli + **-Ø** → *epli*	epli + **-Ø** → *epli*
DAT	epli + -i → *epli*	epli + -um → *eplum*

Both nouns are in the same inflection class, with the same gender, and take the same affixes. But since *borð* 'table' ends in /ð/, adding *-i* in the dative leads to a dative form *borði* which is phonologically distinct from the accusative form *borð* (which is just the stem). Since *epli* 'apple' ends in /i/, adding *-i* in the dative leads to vowel deletion, and therefore a dative form *epli* which is phonologically identical to the accusative form *epli*, which is also, as above, just the stem.

What is stunning is that from the perspective of the v_{DAT}-final preference, the fact that the phonology provides an identical form does not seem to matter. The neuter singular syncretic examples do not behave like they are syncretic because from the perspective of the pre-phonological spellout system, they are not. The apparent syncretism is phonological. Therefore, in the current approach, we expect them to pattern like the other "weak preference" examples, as they in fact do. We illustrate this by showing the mechanisms that derive the input to phonology in (59).[26]

(59)

	ACC	DAT
[−pl],[−masc,−fem]	[−n, +v, −obl]	[−n,+v,+obl]
Impoverishment (41)	[]	
Vocabulary Insertion (34)		[−n, +v], *-i*
→ Phonology	*epli*	*epli-i*

Once again, we see that (60) looks exactly like the other neuter singular and masculine singular scoreboards, and thus a weak preference for dative and the v_{ACC} & v_{DAT} word order that leads to dative.

[26] As above, the "[]" indicates that all the case features have been deleted.

(60) **Neuter Singular**

		ACC	DAT	Winner
Least Effort	Vocab. Insertion		x1	A tie!
	Impoverishment	x1		
Max. Expression	Case Features	0	1	DAT (more features expressed)

The lack of a syncretism effect with neuter singular shows that the morphosyntactic factors that affect the word order choice are quite abstract—it is not just a matter of the surface form. This dovetails nicely with the discussion of zeros with accusative case. There we saw that even though spellout processes led to an unambiguous accusative surface form, these processes actually did not count as expressing case features in the relevant technical sense. Zeros in those cases were analyzed as the absence of Vocabulary Insertion, and thus the lack of feature expression. Here, we see that even though something ends up as zero, if the zero is derived in the phonology, then it doesn't count as non-expression. This result also suggests that the string-oriented phonological processes do not "count" for the Least Effort calculation; the Least Effort calculation has to do with the mechanisms that map morphosyntactic features to phonological features, but not the phonology itself.[27]

8 Conclusion

In Icelandic, a v_{DAT} can be coordinated with a v_{ACC}, and while many factors may influence whether the word order for a given example is v_{ACC} & v_{DAT} or v_{DAT} & v_{ACC}, these factors ultimately balance out in the end, as long as the object is morphosyntactically syncretic for accusative and dative. The syncretism in question must be morphosyntactic—based in the feature system and not the phonology. Syncretism that is based in the phonology, exemplified by Class 2 neuters with stems that end in /i/, patterns with non-syncretic classes.

When the object is not syncretic, the v_{ACC} & v_{DAT} word order is preferred to different degrees depending on how the non-syncretism is derived. If the accusative is not realized by an overt suffix, then the dative is weakly preferred. If the accusative is realized by an overt suffix that is just distinct from the dative, then the dative is strongly preferred.[28] We have characterized the effect of affixation vs. non-affixation as a consequence of a competition, driven by two principles: Least Effort and Maximum Expression. Neither is sufficient on their own, but together they accurately characterize when the v_{ACC} & v_{DAT} order is weakly or strongly preferred, and also account for the equalizing

[27]This makes sense, if one considers how complex phonology can be; the present results are surprising enough on their own—it is very hard to imagine that word order choice would be affected by counting up every rule of palatalization, assimilation, segment deletion, lengthening/shortening, (pre)aspiration, etc., for accusative versus dative forms.

[28]Note that there are no classes where the accusative is realized by an overt suffix and the dative is not realized by an overt suffix.

effect of feature-based syncretism.

The results are quite striking, and our account of them depends on some non-trivial assumptions about how spellout works. The most important of these have to do with Impoverishment and the realization of "zero affixes". It is crucial for our account that "elsewhere zeros" do not count as expressing a feature bundle. If they did, then there would never be any differences in terms of Maximum Expression. It is also important that Impoverishment exists as a mechanism (so it incurs a "Least Effort" cost), but that this mechanism is distinct from Vocabulary Insertion. If we adopted an account where Impoverishment is modeled as the insertion of a zero, then "Impoverishment" would have to count as expressing a feature. Even in our model, it would be possible to insert a zero, for example a specifically conditioned, non-elsewhere zero. In that case, the zero in question would incur a cost for Least Effort (since it would be an instance of Vocabulary Insertion) and it would count as expressing that feature.[29] If Impoverishment were simply Vocabulary Insertion of zeros, then every Impoverishment rule would count as expressing the feature that is "deleted". This is obviously not what we want: in our account, Impoverishment incurs a Least Effort cost, and then the feature is gone, and does not get expressed. This was an important part of our analysis of the difference between the weak v_{DAT}-final preference and the strong v_{DAT}-final preference.

Our focus of this study has been somewhat narrow, focusing specifically on accusative and dative, and specifically on verb coordination. We have not commented on the syntax of such coordination, such as how it is that the final verb determines the case on the object, or whether the word-order preferences are somehow part of the grammar. We have simply shown how the effects can be grounded in specific formal spellout mechanisms that attend to fine-grained details of Icelandic morphology. We would like to conclude this paper with a call for further studies that likewise attend to such details. From the perspective of the formal system, syncretism is not one thing; it can arise in different ways, and we should expect that these different sources of syncretism will have different effects, if we know where to look. But even more striking, and far less frequently acknowledged or attended to, the lack of syncretism can also arise in different ways, and this too should be expected to have different effects, if we know where to look.

[29] Thanks to Karlos Arregi for bringing up this point.

Appendix: Some Further Nuances

In the main text we stuck to the most frequent and basic illustrative cases. There are many nuances in the Icelandic inflection system which might make different predictions if we had a larger dataset. Here we discuss a few of those nuances and what they mean for the present system.

Beginning with neuters, we noted above that we do not have any examples in our corpus of Class 11 neuter nouns being used as objects of coordinated verbs that assign distinct cases, as this class is quite small.[30] We would expect Class 11 neuters, which are [+weak], to behave the same as the other neuters in the plural. The Impoverishment rule still deletes all the case features in the nominative and the accusative. But as a [+weak] noun, the weak suffix *-u* is inserted in the nominative and accusative. The singular, however, is distinct from the Class 2 neuters discussed in the main text. Recall that with Class 2 neuters, there was expected to be no syncretism in the singular, and the existing syncretic cases turned out to be phonologically based. In the singular of Class 11, however, the syncretism is systematic and featural. All the case features are deleted in the nominative and accusative, and the [±obl] feature is deleted in the dative and genitive, leaving them as [−n+v] for dative and [+n+v] for genitive. Nevertheless, Vocabulary Insertion is not specified for any of this, and no case features are realized. The [+weak] feature is realized with the elsewhere singular weak affix *-a*, by the Vocabulary Item in (61).

(61) /a/ ↔ {[−pl],[+weak]}

We would therefore expect that unlike with the phonologically derived Class 2 neuters, this syncretism would lead to no word order preference: dative and accusative have the same number of Impoverishment and Vocabulary Insertion operations, and in neither case are any case features expressed.

We noted in the main text that we had very few examples of masculine singulars that were syncretic, and that in general the few examples we did have went in the same direction as the feminine singular syncretic examples. The classes where we would expect syncretism are Class 4 and Class 10. Class 4 is somewhat rare, and we only found 3 potential examples in our corpus.[31]

[30] The most common examples are body parts such as *auga* 'eye' and *hjarta* 'heart'. Thomson (1987) lists only 16 words in this group, and 3 are marked as archaic. Sigurðsson (2005:40) lists 12 words in this group. Svavarsdóttir (1993:112) reports that only 1% of neuter nouns in a dictionary study are in this class.

[31] In fact, we say 'potential' because two of the three examples are not clearly class 4. One example is *hafa bölvað og bannfært bátagjaldeyri* 'have cursed and condemned the boat currency system (special currency system for fishermen)', where the syncretism on *bátagjaldeyri* 'boat currency system' (NOM = *bátagjaldeyrir*) is potentially due to phonology, for the same reason as the neuters with stems that end in /i/. It is not clear if this word should be treated as Class 1, with phonological syncretism, or Class 4, with syncretism due to underspecification. Note that the genitive is *bátagjaldeyris*, as we would expect from Class 1, and not *bátagjaldeyrar* as we would expect from Class 4. The second example is *breyta og bæta hag* 'change and improve circumstance', which more clearly shows the Class 4 type syncretism, although the genitive singular suffix for that word is *-s* rather than the *-ar* that would be expected of that class. The third is *efla og viðhalda búskap* 'strengthen and maintain farming', where *búskapur* 'farming' is the clearest Class 4

The dative/accusative syncretism in Class 4 is not derived by Impoverishment, but rather by underspecification and non-insertion. That is, the dative singular *-i* is specified to be inserted only for non-feminine singular nouns that are [−i-type]. Class 5 is [+i-type], but it doesn't matter because it is feminine, and Class 4 is [+i-type], so the *-i* is not inserted there. There are no [+i-type] neuter nouns. The result is that no accusative morpheme is inserted, just like the other strong neuter and masculine singular cases, but no dative morpheme is inserted either. In the present system, we would expect Impoverishment to apply in the accusative, but no Vocabulary Insertion to apply in either case. So in this case, dative would win on Least Effort, but accusative and dative would tie on Maximum Expression—since neither expresses anything. Given the reasoning in the present study, this would lead us to expect a weak preference for dative final order, but for a slightly different reason from the weak preference cases we have seen. We would need more examples of verb coordination sharing Class 4 objects to see if this prediction is borne out.

Class 10, the other class that would contain syncretic singular masculine nouns, is the class for weak masculine nouns. The accusative/dative syncretism in this class is featural, and due to Impoverishment Rule D:

(62) **Impoverishment Rule D**
[±obl] → Ø / {[−pl],[+weak]} __
≈ *'Delete [±obl] for singular weak nouns'*

We would therefore expect no word order preference. As it is, we have only 6 examples in our corpus results, and they are evenly split, with 3 taking the order v_{ACC} & v_{DAT} and 3 taking the order v_{DAT} & v_{ACC}.[32] This is of course what we expect, although with such a small number of examples, it could just as easily be an accident.

The main text illustrated feminine syncretism with Class 12 weak feminine nouns. Most of the strong classes have no suffixes in the singular nominative, accusative or dative, so there is no Vocabulary Insertion. The same reasoning in the main text applies to them, however; we expect no asymmetries in word order because there is an Impoverishment rule applied in all cases, and then, for the strong feminine nouns, that is all that happens, regardless of whether they are accusative or dative. And indeed, the choice of word order is fairly even within each noun class, as shown in the table in (63).

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example that we have.

[32]Note that Svavarsdóttir (1993:108) reports that around 37% of masculine nouns fall into this group, so with 122 masculine nouns in our results, it may seem surprising that we do not have more examples. In fact, we have 19 other examples of Class 10 nouns, to make a total of 25; it's just that these 19 examples are not syncretic; 12 are not syncretic because they are plural, and 7 are not syncretic for other reasons, such as the definite suffix or (in one case) a possessive modifier.

(63)

Noun Class	v_{ACC} & v_{DAT}		v_{DAT} & v_{ACC}		Total
3	10	**56%**	8	**44%**	18
5	22	**52%**	20	**48%**	42
9	0	**0%**	1	**100%**	1
12	26	**50%**	26	**50%**	52
Other	6	**40%**	9	**60%**	15

The clear exception is the examples that fall into the "other" category; these are nouns that do not fit clearly into any of the common noun classes. In fact, they have no suffixes in the singular at all for any case, including genitive, and they all end in /i/. In traditional grammar these are referred to as "indeclinable" words. There is no particular reason in the context of the present study that they should show the asymmetry that we seem to find, which is weakly in favor of accusative-final order. At this level of granularity, with the number of examples so small, we will assume it is an accident. With 15 examples in this class, we would expect roughly 7 or 8 to fall into each order. Instead, we have 9 in the v_{DAT} & v_{ACC} order, which is just one item away from what we would expect.

The other feminine class that warrants some comment is class 3, which in our case consists entirely of what Müller referred to as class 3′. This is the only strong feminine class where there is Vocabulary Insertion for the accusative and dative singular, although the syncretism still does hold. The suffix *-u* is used for both accusative and dative, which is accounted for by Müller with the highly specified Vocabulary Item shown in (64):[33]

(64) /u/$_3$ ↔ {[−pl],[−weak,+fem,+a'-type],[−n+v]}

The derivation for these feminine nouns would be different from the others, because the case features would actually be expressed. But there still would not be a relevant difference between accusative and dative. Impoverishment Rule B would still delete the [±obl] feature in the nominative, accusative and dative. The Vocabulary Item in (64) would realize the remaining case features, which would be identical for accusative and dative. There would thus be no difference between the two: both would involve Impoverishment and Vocabulary Insertion, and the same number of case features are expressed. We would therefore expect no particular case preference, all else being equal, and the results we find are close enough to that to not raise any special doubts. The details are different, but the results and conclusions we draw from them are the same.

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[33]The numerical subscript is meant to indicate that this is a different /u/ from the /u/ that is inserted for other Vocabulary Items, much as most linguists would assume that the 3rd singular *-s* in English is a different *-s* from the plural *-s*.

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Prepositional vs. indirect objects in Icelandic

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Abstract A corpus study of the Prepositional Object Construction (POC) in Icelandic shows that the POC is basically restricted to ditransitive verbs encoding motion or entailing successful transfer (Kristínardóttir 2021). By contrast, non-transfer verbs, e.g. communication verbs and verbs of future having, are more or less excluded from the POC. The goal, flagged by the preposition *til* 'to', preferably refers to clubs, associations, institutions, unspecified groups of people etc. rather than specific individuals or specific groups of individuals. Since the preposition *til* encodes the endpoint of motion in a broad sense, typical possessors like specific individuals are rare in the POC.

1 Introduction

Ditransitive verbs raise important issues about the syntactic realization of arguments because many languages allow the dative alternation where the two internal arguments of ditransitive verbs are expressed as two DPs (goal-theme) or as a DP-PP (theme-goal). For convenience, we will refer to the DP-DP variant as the double object construction (DOC) and the DP-PP variant as the prepositional object construction (POC). Much of the literature on the dative alternation is focussed on in English but the dative alternation has also been investigated in other languages (see e.g. Colleman 2009 on Dutch, Adler 2011 on German, Fedriani 2020 on Latin and Valdeson 2021 on Swedish).

The dative alternation in English is sensitive to verb class as some ditransitive verbs allow both the DOC and the POC (*give John a book* vs. *give a book to John*), whereas other verbs allow only the DOC (*refuse him a raise* vs. **refuse a raise to him*) or only the POC (*donate some books to the library* vs. **donate the library some books*). These verb classes are strongly linked to lexical semantics (Gropen at al. 1989) and many scholars have suggested that the two constructions also have different event structures. More specifically, the DOC encodes *caused possession* whereas the POC encodes *caused motion*, where both concepts must be understood broadly (see e.g. Goldberg 1995, Hale & Keyser 2002, Harley 2003 and Krifka 2004).

In contrast to English and many other languages, Icelandic has been claimed to allow the POC only to a very limited extent (Ottósson 1991, Holmberg & Platzack 1995:204-205 and Thráinsson 2005:293-294). However, two recent studies, Kristínardóttir (2021) and Ussery et al. (2022) show that the POC is more widely used and accepted than previously thought although it is much more restricted than the DOC. In this paper, we will discuss the corpus study of Kristínardóttir (2021), which shows that the POC in Icelandic is sensitive to the semantic class of the ditransitive verb and the type of the PP-goal. The POC is restricted to cases where the verb expresses transfer and the goal denotes something that can be viewed as a location. As discussed in more detail below, this follows from the fact that the preposition *til* 'to' encodes an endpoint of motion.

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2 The basic facts

Ditransitive verbs in Icelandic have been studied within the generative literature since the early eighties (see Rögnvaldsson 1982:133-135, Zaenen, Maling & Thráinsson 1985, Falk 1990, Holmberg 1991, Holmberg & Platzack 1995:185-214, Ottósson 1991, Collins & Thráinsson 1996, Dehé 2004, Barðdal 2007, Ussery 2017, 2018 and Jónsson 2020, 2022). As discussed in these works, the two internal arguments of ditransitive verbs in Icelandic are usually expressed as two DPs with two different cases, as in (1) below:

(1) a. Þóra lánaði Kristínu bókina
Þóra lent Kristín-DAT book.the-ACC
'Þóra lent Kristín the book.'

b. Jón seldi einhverjum bílinn
John sold somebody-DAT car.the-ACC
'John sold somebody the car.'

c. Ég hef sýnt gestunum stofuna
I have shown guests.the-DAT living.room.the-ACC
'I have shown the guests the living room.'

The verbs illustrated above belong to the biggest class of ditransitive verbs in Icelandic, the class where the indirect object is a dative goal and the direct object is an accusative theme. There are also four smaller classes of ditransitive verbs in Icelandic (Zaenen, Maling & Thráinsson 1985, Yip, Maling & Jackendoff 1987, Jónsson 2000, and Maling 2002) but they will only be discussed briefly in 4.1 since they generally do not permit the POC with the preposition *til*.

The literature on ditransitive verbs in Icelandic has largely ignored the POC with the exception of the two recent studies, Kristínardóttir (2021) and Ussery et al. (2022). According to Thráinsson (2005:293-294), the POC is mainly found with verbs denoting motion such as *senda* 'send', the endpoint of which is expressed by the PP-goal, but it is also possible with *gefa* 'give' if the goal is an association or an institution. This is shown by the following examples (from Thráinsson 2005:293-294):[1]

(2) a. Ég sendi Guðmundi bókina
I sent Guðmundur-DAT book.the-ACC
'I sent Guðmundur the book.'

b. Ég sendi bókina til Guðmundar
I sent book.the-ACC to Guðmundur
'I sent the book to Guðmundur.'

(3) a. Ég gaf Guðmundi bókina
I gave Guðmundur-DAT book.the-ACC
'I gave Guðmundur the book.'

[1] Example (3c) was added by the authors for completeness.

b. *Ég gaf bókina til Guðmundar
I gave book.the-ACC to Guðmundur

c. Ég gaf Háskóla Íslands bókasafnið
I gave university-DAT Iceland book.collection.the-ACC
'I gave the University of Iceland the book collection.'

d. Ég gaf bókasafnið til Háskóla Íslands
I gave book.collection.the-ACC to university Iceland
'I gave the book collection to the University of Iceland.'

Holmberg & Platzack (1995:204-205) claim that with ditransitive verbs like *gefa* 'give', the goal PP must be interpretable as a "pure goal" rather than an experiencer. As a result, the goal PP is preferably inanimate, e.g. an institution. They also suggest that the PP-goal need not be understood as the receiver or new possessor of the theme object, at least with verbs like *senda* 'send'. In a similar vein, Thráinsson (2005:294) suggests that there may be a difference between (2a) and (2b) in that the DP-goal in (2a) more strongly implies that the book is intended for the goal, e.g. for reading or owning. It seems to us that our claims about the POC are very similar in spirit to Holmberg & Platzack's remark about a "pure goal". However, we do not think that there is any truth-conditional difference between examples like (2a) vs. (2b) or (3c) vs. (3d).

As illustrated in (2) and (3) above, the preposition used in the POC in Icelandic is *til* 'to'. In its basic meaning, *til* is a directional preposition denoting the endpoint of motion, or at least something that can be conceptualized as motion (e.g. *Vegurinn nær frá Keflavík til Reykjavíkur* 'The road goes from Keflavík to Reykjavík'). Thus, the goal-PP headed by *til* in the POC can encode a pure location whereas this is impossible for the goal-DP in the DOC:

(4) a. Þóra sendi pakka til Akureyrar
Þóra sent parcel-ACC to Akureyri
'Þóra sent a parcel to Akureyri.'

b. *Þóra sendi Akureyri pakka
Þóra sent Akureyri-DAT parcel-ACC

Since a town like Akureyri cannot possess anything, it cannot be the indirect DP-object of verbs like *senda*. This contrast is well-known from languages like English and it illustrates a crucial difference between the DOC and the POC, namely that the former construction can only express caused possession. In this respect, Icelandic *til* behaves exactly like English *to*, as has been amply documented in the literature (see Green 1974:103-104 and much subsequent work). However, *til* is very different from *to* in that it has no grammatical uses as a case assigner. For instance, the adjectives *andvígur* 'opposed', *skyldur* 'related' and *vanur* 'used to' take dative objects in Icelandic (see Jónsson 1996:109 for examples) whereas the corresponding adjectives in English require the preposition *to*. More generally, there are no clear examples of *til* being grammaticalized and this can also be seen in the POC where *til* retains its basic meaning, encoding endpoint of motion.

One may wonder why POC is relatively unrestricted in English but not in Icelandic. We will not go into this issue in detail here but the standard answer for English relates this to the lack of morphological case as the POC began to spread in the history of English at roughly the same time as case endings started to disappear (McFadden 2002). The erosion of case endings created a need to distinguish between indirect and direct objects in English and this was achieved by employing the preposition *to* as a marker for indirect objects. Conversely, the limited use of the POC in Icelandic can be attributed to the fact that Icelandic has a rich case morphology where the two objects of ditransitive verbs have two different cases.[2] Thus, the use of prepositions like *til* is not called for to distinguish goals from themes.[3]

3 Kristínardóttir (2021)

3.1 Introduction

This chapter reviews the corpus study of Kristínardóttir (2021) which was based on extensive searches in the 2019 edition of the Risamálheild Corpus (RMC). The verbs examined are listed in Table 1 and the classification shown below is based on Barðdal (2007):[4]

Table 1 Verb classes in Kristínardóttir (2021)

I. Motion verb(s)	
send-verb(s)	senda ‘send’
II. Transfer verbs	
give-verbs	afhenda ‘deliver, hand over’, gefa ‘give’, selja ‘sell’, veita ‘award, provide’
pay-verbs	borga ‘pay’, bæta ‘compensate’, greiða ‘pay’, launa ‘reward’
loan-verbs	lána ‘loan’, leigja ‘rent’
III. Non-transfer verbs	
communication verbs	kenna ‘teach’, segja ‘tell’, sýna ‘show’
verbs of future having	bjóða ‘offer’, skulda ‘owe’, tryggja ‘guarantee’, ætla ‘intend’
verbs of enabling	auðvelda ‘make easier’, heimila ‘permit’, leyfa ‘allow’
verbs of hindrance	banna ‘prohibit, ban’, meina ‘prevent, deny’

The main division here is that between transfer verbs and non-transfer verbs because verbs in the latter class are very rarely found in the POC. The smaller verb classes in Table 1 should not be taken too literally since there are alternative ways of grouping ditransitive verbs together on a semantic basis; see e.g. Gropen et al. (1989). In fact, the results from the corpus study

[2] The only exception is a small class of verbs taking two dative objects.

[3] It is interesting to note that the POC is on the rise in Faroese (Fiebig 2012, Ussery & Petersen in press), a language that makes a clear morphological distinction between accusative and dative case. The reason for this may be that language contact with Danish plays a crucial role in this development.

[4] We leave out three verbs investigated by Kristínardóttir (2021), *flytja* ‘move’, *færa* ‘bring’ and *skrifa* ‘write’, because they introduce complications that we want to avoid here. It should also be pointed out that *senda* is not the only *send*-verb in Icelandic but all the others are compounds based on *senda*, e.g. *áframsenda* ‘forward’, *endursenda* ‘resend’ and *póstsenda* ‘send by mail’.

discussed in 3.2 below show that verbs within the same class may behave very differently with respect to the POC and verbs may also pattern the same way across classes.

We use the term transfer verb to refer to verbs that entail successful transfer (*give*-verbs, *pay*-verbs and *loan*-verbs). Typical verbs in this class include *gefa* 'give' and *lána* 'loan'. These verbs entail successful transfer and thus the transfer cannot be denied. We illustrate this with the DOC but the same applies to the POC:

(5) #Ég gaf/lánaði henni bókina en hún fékk hana aldrei
I gave/lent her-DAT book.the-ACC but she got it never
'I gave/lent her the book but she never got it.'

This example sounds like a contradiction. By contrast, verbs like *kenna* 'teach' (communication verb) and *bjóða* 'offer' (verb of future having), do not entail successful transfer, as shown in (6) below:

(6) a. Ég kenndi þeim þýsku en þau lærðu ekki neitt
I taught them-DAT German-ACC but they learned not anything
'I taught them German but they did not learn a thing.'

b. Ég bauð honum aðstoð en hann sagði nei takk
I offered him-DAT assistance-ACC but he said no thanks
'I offered him assistance but he said no thanks.'

It is quite obvious that (6b) is not a contradiction but the status of (6a) is perhaps less clear. Our intuition is that (6a) is acceptable and the same applies to comparable examples with the other communication verbs examined by Kristínardóttir (2021). Thus, we will henceforth assume that communication verbs should be classified as non-transfer verbs.

Note that successful transfer is not the same as caused possession because verbs of future having encode caused possession but do not entail successful transfer of the theme object, as exemplified in (6b). Thus, (6b) claims that the goal came to possess an offer of assistance but not necessarily the assistance itself.[5] For further discussion of ditransitive verbs (in English) that do or do not ential successful transfer, see Rappaport Hovav & Levin (2008).

3.2 The results

The following table gives an overview of the frequency of the POC vs. the DOC across all the verb classes studied by Kristínardóttir (2021) that allow the POC, i.e. transfer verbs as well as the motion verb *senda* 'send'. Since the POC is highly infrequent with non-transfer verbs, these verbs are not included here:[6]

[5] Alternatively, one could say that assistance was successfully transferred in a "subset of the set of possible circumstances" (Koenig & Davis 2001:85) but this would still mean that verbs of future having are crucially different from the verbs we have defined here as transfer verbs.

[6] The numbers in brackets show the estimated number of examples of the two constructions in the RMC but see Kristínardóttir (2021) for further information about the corpus searches.

Table 2	Verbs which allow the POC	POC	DOC
send-verb(s)	senda ‘send’	54% (13.289)	46% (11.481)
give-verbs	afhenda ‘deliver, hand over’	8% (553)	92% (6527)
	gefa ‘give’	3% (1990)	97% (61.131)
	selja ‘sell’	48% (5111)	52% (5566)
	veita ‘award, provide’	7% (3026)	93% (43.259)
pay-verbs	borga ‘pay’	20% (618)	80% (2405)
	bæta ‘compensate’	0% (0)	100% (2987)
	greiða ‘pay’	14% (4678)	86% (28.953)
	launa ‘reward’	0% (0)	100% (336)
loan-verbs	lána ‘loan’	27% (793)	73% (2199)
	leigja ‘rent’	20% (443)	80% (1765)

This table shows the frequency rates for individual verbs but Kristínardóttir (2021) also investigated different semantic classes of goals. The goals were divided into four groups and the results for each group were as follows: (a) a company, club, association or an institution (53%), (b) non-specific individuals or groups of individuals (31%), (c) specific individuals or groups of individuals (15%) and (d) other types of goals (1%). This is consistent with the requirement of the preposition *til* to express an endpoint of motion rather than a possessor because specific individuals or groups of individuals are more typical possessors than the other goal types mentioned above.

In the following subsections, we will discuss the verb classes shown in Table 2 as well as non-transfer verbs. We will also examine one class not included in the study of Kristínardóttir (2021), verbs of instrument of communication. It will be argued that the key property of the POC is that the event described by the ditransitive verb can be conceptualized as something (concrete) expressed by the direct object being moved from the agent of the action to the endpoint encoded by the goal.

3.3 POC-verbs

3.3.1 *Send*-verb(s)

The POC with *senda* ‘send’ in the RMC is exemplified in (7a). As expected, the DOC can also be used instead without any obvious change in truth conditions, as in (7b):[7]

(7) a. En auðvitað geta allir sent klæðnað til Rauða krossins
but of.course can everybody send clothes-ACC to red cross.the
‘But of course, anyone can send clothes to the Red Cross.’

b. En auðvitað geta allir sent Rauða krossinum klæðnað
but of.course can everybody send red-DAT cross.the-DAT clothes-ACC

[7] In the interest of space, we will henceforth not show the corresponding DOC examples for the POC examples illustrated here unless it is important for the issue at hand.

The verb *senda* is very common in the POC, as can be seen in Table 2, and this is because it encodes caused motion. Thus, it is very natural to view the goal as an endpoint of motion in examples like (7a) as required by the preposition *til*.

3.3.2 *Give*-verbs

Examples from the RMC of the four *give*-verbs in the study are provided in (8) below:

(8) a. að þurfa að afhenda lykla til nýs ráðherra
to need to hand keys-ACC to new minister
'to have to hand over keys to a new minister (in the government)'

b. Gefum peninga til björgunarsveitanna
give money-ACC to rescue.services.the
'Let's give money to the rescue services.'

c. Þeir eru í raun í því að selja heimahlutabréf til útlendinga
they are in fact in it to sell local.shares-ACC to foreigners
'They are in fact selling local shares to foreigners.'

d. þegar Seðlabankinn veitir lán til innlendra banka
when central.bank.the grants loans-ACC to domestic banks
'when the Central Bank grants loans to domestic banks'

The verbs exemplified above do not have a clear sense of motion, unlike e.g. *senda*. With verbs of this kind, it is crucial that the PP-goal can be interpreted as the endpoint of motion in a broad sense, rather than a possessor. This requires the object of *til* to refer to something other than specific individuals or groups of individuals. Hence, it is no coincidence that the objects of the preposition *til* in (8a), (8c) and (8d) are indefinite and the only definite object is in (8b), which refers to the rescue services in Iceland and not some specific individual.

Table 2 shows that the verb *selja* is more common in the POC than the other verbs in the *give*-class. Presumably, this is due to the fact that *selja* tends to involve movement of the things to be sold, e.g. from Iceland to some foreign country, as in (8c). As a result, the object of the preposition *til* can easily be viewed as the endpoint of motion. Moreover, this verb has uses where the POC is possible but the DOC is not:

(9) a. Fyrirtækið selur margar vörur til útlanda
company.the sells many-ACC products-ACC to countries.abroad
'The company sells many products to foreign countries.'

b. *Fyrirtækið selur útlöndum margar vörur
company.the sells foreign.countries-DAT many-ACC products-ACC

The goal here is purely spatial and not capable of possession. Therefore, the DOC is excluded, just as in examples like (4b).

3.3.3 *Pay*-verbs

Only two of the four *pay*-verbs included in the study under discussion allow the POC, *borga* ‘pay’ and *greiða* ‘pay’:

(10) a. Þetta félag hafði ekki borgað krónu til leikmanna allt árið
this club had not payed penny-ACC to players all year
‘This club had not payed a penny to it’s players all year.’

b. að stefndi hafi áður greitt bætur til tjónþola
that defendant has before payed compensation-ACC to injured party
‘that the defendant compensated the injured party in the past’

Since these two verbs are virtually synonymous, their frequency in the POC might be expected to be roughly equal. As shown in Table 2, *borga* is more common than *greiða*, which may be due to the fact that *greiða* is quite formal and the DOC is generally a more formal construction compared to the POC.

In contrast to *borga* and *greiða*, *bæta* ‘compensate’ and *launa* ‘reward’ are excluded from the POC although they are possible with two DP objects:

(11) a. bæta bændum tekjumissinn
compensate farmers-DAT income.loss.the-ACC
‘compensate farmers for their loss of income’

b. *bæta tekjumissinn til bænda
compensate income.loss.the-ACC to farmers

(12) a. launa bændum aðstoðina
reward farmers-DAT assistance.the-ACC
‘reward farmers for their assistence’

b. *launa aðstoðina til bænda
reward assistance.the-ACC to farmers

The verbs *bæta* and *launa* are quite different from the other *pay*-verbs in that the theme object denotes some past event that the goal was a part of but not something that the goal receives. The farmers will neither receive the loss of income nor the assistance in (11) and (12). The result is that the goal cannot be interpreted as the endpoint of motion in any sense as required by the preposition *til* and thus the POC is ruled out.

3.3.4 *Loan*-verbs

The RMC has various examples of the POC with the two *loan*-verbs in the study, *lána* ‘loan’ and *leigja* ‘rent’. Two of them are shown below:

(13) a. Molde hefur jafnframt lánað Sverri til FH-inga fram á haustið
Molde has also lent Sverrir-ACC to FH until fall.the
‘Molde has also lent Sverrir to FH-football club until the fall.’

b. Hugmyndin er að leigja ferjuna til ríkisins
idea.the is to rent ferry-ACC to state.the
'The idea is to rent the ferry to the authorities.'

The example in (13a) is quite typical of examples of *lána* in the RMC as approximately half of them involve football, handball or basketball players lent to sports clubs. Importantly, this may explain why the POC is more common with *lána* (27%) than *leigja* (20%). Since sports clubs do not own their players, it is probably more natural to use the POC rather than the DOC in examples like (13a) because the POC cannot have a pure possession reading. Still, the DOC is possible as an alternative to the POC as shown in (14):

(14) Molde hefur jafnframt lánað FH-ingum Sverri fram á haustið
Molde has also lent FH-DAT Sverrir-ACC until fall.the

Although this may not affect the choice between the POC and the DOC, it should be noted that *lána* in this case does not require the goal to return the theme back to the agent. It just means that the new club can use the player without buying him/her from the old club. Thus, loaning a player to a sports club is not quite the same thing as loaning your neighbour a screwdriver.

3.2.5 Verbs of instrument of communication

One class of transfer verbs that could not be tested by Kristínardóttir (2021) is verbs of instrument of communication like *meila* 'e-mail'. The reason is that the 2019 edition of the RMC mostly contains formal texts where such verbs are more or less absent. The POC and the DOC with a verb of this class is exemplified in (15): [8]

(15) a. Sigga emeilaði uppskriftina til gamals vinar
Sigga emailed recipe.the-ACC to old friend
'Sigga e-mailed the recipe to an old friend.'

b. Sigga emeilaði gömlum vini uppskriftina
Sigga emailed old-DAT friend-DAT recipe.the-ACC

As shown by Ussery et al. (2022), there is no clear preference for either construction in examples like (15a) and (15b) and this fact puts verbs of instrument of communication in a class with verbs like *senda* 'send' and *selja* 'sell' discussed earlier. Since verbs of instrument of communication encode caused motion (Rappoport Hovav & Levin 2008), this is exactly what one would expect.

3.4 Non-transfer verbs

Of all the non-transfer verbs investigated by Kristínardóttir (2021), the communication verbs are probably the most interesting from a cross-linguistic perspective. Thus, the preposition *ad*

[8] Although this is not shown here, the theme argument with these verbs can also have dative case (Jónsson & Thórarinsdóttir 2020), both in the POC and the DOC.

'to' is frequently used in Merovingian Latin to express the goal of communication verbs (see Fedriani 2020 and references cited there) even though it is otherwise very similar to the preposition *til* in Icelandic. Note also that the POC was possible in Old English with verbs of motion and communication although it was not attested with verbs describing transfer of possession (Cuypere 2014).

As for communication verbs in Icelandic, no examples of the POC are attested with *kenna* 'teach' and *segja* 'tell' and the few examples of *sýna* 'show' that are attested have the sense 'show visible signs of, display', as in (16a). There were no examples of *sýna* in the meaning 'demonstrate' and such examples are in fact ungrammatical in our judgment, as shown in (16b).

(16) a. að meta og sýna náungakærleik til okkar minnsta bróður
to value and show neighbour.love-ACC to our smallest brother
'to appreciate and show neighbourly love to our smallest brother'

b. *Leiðbeinandinn sýndi réttu aðferðina til fólks
instructor.the showed right-ACC method.the-ACC to people
'The instructor showed people the right method.'

Kristínardóttir (2021) found almost no examples of the other subclasses of non-transfer verbs in her study, i.e. verbs of future having, verbs of enabling and verbs of hindrance. As exemplified below, verbs in these three subclasses are either ungrammatical or highly deviant in the POC:

(17) a. Hann skuldar ríkissjóði háar fjárhæðir
he owes treasury-DAT high-ACC amounts-ACC
'He owes the treasury a lot of money.'

b. ??Hann skuldar háar fjárhæðir til ríkissjóðs
he owes high-ACC amounts-ACC to treasury

(18) a. Þetta auðveldar kjósendum valið
this makes.easier voters-DAT the.choice-ACC
'This makes it easier for voters to chose between parties.'

b. *Þetta auðveldar valið til kjósenda
this makes.easier the.choice-ACC to voters

(19) a. Samningurinn bannar fyrirtækjum afskipti af stjórnmálum
agreement.the prohibits companies-DAT interference-ACC in politics
'The agreement prohibits companies from interfering in politics.'

b. *Samningurinn bannar afskipti af stjórnmálum til fyrirtækja
agreement.the prohibits interference-ACC in politics to companies

While we will not discuss this issue in detail here, we hypothesize that non-transfer verbs are excluded from the POC in Icelandic because they are incompatible with the preposition *til*, which encodes endpoint of motion in a broad sense. Crucially, non-transfer verbs like *kenna*

'teach' do not describe an event where the referent of the direct object is moved from the agent to the goal. Thus, if Mary teaches John German, the knowledge of German still stays with Mary and may not even reach John. By contrast, if she gives him a book, Mary loses possession of the book and John becomes the new owner. This indicates that verbs like *kenna*, unlike *give*-verbs, cannot express motion in a broad sense. The result is that, when used with *kenna*, the preposition *til* cannot encode an endpoint of motion as required by its semantics and this leads to ungrammaticality.

4 Ditransitive constructions in Icelandic

In this final chapter, the POC will be compared to the other two ditransitive constructions in Icelandic to bring out more clearly the differences and similarities between the POC and these constructions. We start in 4.1 by a short comparison with the DOC, adding a few remarks to what has already been discussed. In 4.2, the POC will be compared to yet another ditransitive construction in Icelandic, which is characterized by a theme-goal order of two DPs. The POC will be shown to be very different from this superficially similar construction and this is consistent with the view that these two constructions have very different syntactic structures.

4.1 The POC vs. the DOC

The restrictions on the POC discussed in chapter 3 clearly set the POC apart from the DOC, which is not restricted to transfer verbs and verbs of motion and can occur with all kinds of goals that are potential possessors.

There are also conditions on the DOC that do not apply to the POC. We have already seen in chapter 2 that the DOC is excluded with purely spatial goals that are not capable of possession. Further restrictions on the DOC can be seen with *throw*-verbs. These verbs are incompatible with the DOC in Icelandic (Barðdal 2007), in contrast to English (cf. *throw me the ball*), whereas the POC is possible with such verbs. This is shown in (20) below (from Jónsson 2022:7):

(20) a. Hún kastaði/henti/sparkaði boltanum til barnsins (POC)
she threw/threw/kicked ball.the-DAT to child.the
'She threw/kicked the ball to the child.'

b. *Hún kastaði/henti/sparkaði barninu boltanum (DOC)
she threw/threw/kicked child.the-DAT ball.the-DAT

It should also be noted that not all uses of ditransitive transfer verbs allow the POC. Thus, if the transfer does not involve concrete things, the POC seems to be excluded:

(21) a. Forstjórinn gaf hluthöfum nýja von (DOC)
director.the gave share.holders-DAT new-ACC hope-ACC
'The director gave shareholders a new hope.'

b. *Forstjórinn gaf nýja von til hluthafa (POC)
director.the gave new-ACC hope-ACC to shareholders

This is not surprising, however, since there is no sense of movement of the direct object in examples like (21a) due to its abstract nature.

As already stated in section 2, the DOC is found in five syntactic classes of ditransitive verbs as defined by different case patterns. By contrast, the POC is mostly confined to verbs in the biggest class of ditransitive verbs, the DAT-ACC class. The only exceptions that we know of are two verbs taking two dative objects, *skila* 'return' and *úthluta* 'assign, allot'. Importantly, both verbs are transfer verbs in the sense assumed here because both of them entail successful transfer. For instance, if someone returns a book to the library, the book will inevitably end up in the library. In fact, it appears that there are no restrictions on the POC that relate directly to the case patterns exhibited by ditransitive verbs in Icelandic; rather, all ditransitive verbs are compatible with the POC so long as they describe events that can be conceptualized as something (concrete) expressed by the direct object undergoing movement from the agent to the endpoint encoded by the goal.

4.2 The POC vs. the OIC

In addition to the DOC and the POC, Icelandic has a third ditransitive construction, the Object Inversion Construction (OIC) where the direct object precedes the indirect object as in (22b):

(22) a. Ég gaf barninu boltann (DOC)
I gave child.the-DAT ball.the-ACC
'I gave the child the ball.'

b. Ég gaf boltann barninu (OIC)
I gave ball.the-ACC child.the-DAT

The OIC in Icelandic has been subject to numerous investigations for the past four decades (see e.g. Zaenen, Maling & Thráinsson 1985, Falk 1990, Holmberg & Platzack 1995:185-214, Ottósson 1991, Collins & Thráinsson 1996, Dehé 2004, Ussery 2017, 2018 and Jónsson 2020, 2022). It is restricted to the biggest class of ditransitive verbs in Icelandic, the dative-accusative class, and some verbs with two dative objects (Harðarson 2022). It is also highly infrequent in texts compared to the DOC (Jónsson 2020).

This construction is of special interest here because it has been claimed to be a kind of a POC with a null preposition instead of *til*; see especially Holmberg & Platzack (1995). This analysis is very tempting because it utilizes a structure that is independently attested in the syntax and it also obviates the need for movement of either argument in the OIC. However, as argued by Jónsson (2022), there are such striking differences between the POC and OIC that this analysis is highly implausible. He proposes instead that, due to the strong similarities between the OIC and the DOC, the former is derived from the latter by movement of the direct object across the indirect object (see also Ottósson 1991). This highly local movement has the properties traditionally associated with A-movement as shown by the fact that it creates new binding possibilities for Binding Condition A (see Zaenen, Maling & Thráinsson 1985 for examples).

One of the outstanding properties of the OIC is that the direct object preceding the indirect object must denote old information (Jónsson 2020). Thus, if the direct object is indefinite,

expressing new information, the OIC is ungrammatical, as in (23b). By contrast, this makes no difference for the POC, as exemplified in (23a):

(23) a. Margir senda föt til Rauða krossins (POC)
many send clothes-ACC to red cross.the
'Many people send clothes to the Red Cross.'

b. *Margir senda föt Rauða krossinum (OIC)
many send clothes-ACC red-DAT cross.the-DAT

In examples where this condition on the OIC seems to be violated, it can be argued that the indirect object has moved to the right of the direct object by Heavy NP Shift (Jónsson 2020). By contrast, there are no known restrictions on the information status of the indirect object following the direct object in the OIC. However, the indirect object cannot be an unstressed pronoun, as shown in (24b). For comparison, the possibility of having an unstressed pronoun as the goal in the POC is shown in (24a).

(24) a. Ég sendi myndina til hans (POC)
I sent picture.the-ACC to him
'I sent the picture to him.'

b. *Ég sendi myndina honum (OIC)
I sent picture.the-ACC him-DAT

Still, pronominal goals are rare in the POC. Thus, Kristínardóttir (2021) found pronominal goals to be 3% of all the examples collected from the RMC, mainly pronouns referring to individuals. This is not surprising since the POC requires goals that can be viewed as endpoints of motion.

5 Conclusion

This paper reviews a recent corpus study of the POC with ditransitive verbs in Icelandic (Kristínardóttir 2021). The results show that the POC is almost exclusively found with ditransitive verbs encoding motion (*send*-verbs) and verbs which entail successful transfer of possession (*give*-verbs, *loan*-verbs and *pay*-verbs). By contrast, non-transfer verbs (communication verbs, verbs of future having, verbs of enabling and verbs of hindrance) are more or less ruled out in the POC. As for verb classes not studied by Kristínardóttir (2021), it has been shown that verbs of instrument of communication alternate quite freely between the DOC and the POC whereas *throw*-verbs are only possible in the POC.

The type of goal, expressed in a PP headed by *til* 'to', is important because the POC is most frequent with goals that do not refer to specific individuals or groups of individuals. Since the preposition *til* encodes the endpoint of motion in a broad sense, also in the POC, typical possessors like specific individuals are expected to be rare in the POC.

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The Emergence of Oblique Subjects: Oblique-Case Substitution and Shift in Anticausative Strategy in Modern Icelandic

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Abstract
Oblique subjects can emerge at any point in a language like Icelandic. We focus here on two such changes, Oblique-Case Substitution (OCS) and Shift in Anticausative Strategy (SAS). OCS is a change in case marking where an oblique experiencer replaces a nominative subject. OCS goes against the Case Directionality Hypothesis, by which marked (lexical) case is replaced by unmarked (structural) case. SAS, on the other hand, is independent of the Case Directionality Hypothesis as it involves a shift from one anticausative strategy to another, and not a replacement of one case by another. The anticausative strategy that gives rise to new oblique subjects is that of Case-Preserving Anticausativization. Interestingly, neither OCS nor SAS target just a single NP, but rather both the subject and the predicate. Thus, even though most case changes in Icelandic follow the Case Directionality Hypothesis, exceptions to the general rule occur under identifiable conditions.

Keywords: anticausative, case marking, case preservation, diachronic syntax, Icelandic, language change, oblique case, oblique subject

1 Introduction

Icelandic is well known for having oblique subjects (Andrews 1976, 1982, and many others; for an overview and discussion, see Thráinsson 2007:146–150 and passim). Some of the predicates which take oblique subjects have parallels in other Germanic languages, especially German, as well as Old Germanic languages such as Old English. Others are limited to North Germanic, including older stages of Mainland Scandinavian and Modern Faroese, in addition to Icelandic, while others still seem to be limited to Icelandic. Although several observations have been made in the literature on the emergence and development of oblique subjects and their predicates in Icelandic (e.g., Eythórsson 2002, 2015a, 2015b), this topic has never been investigated systematically.[1] The goal of this paper is to make up for this neglect and present our findings on how oblique subjects emerge.

[1] Diachronic studies on oblique subject (or "impersonal") constructions have concentrated on showing that such phenomena represent an archaic layer in the languages in which they occur (Barðdal et al. 2020, Eythórsson & Barðdal 2005, Bauer 2000). Nevertheless, it has been recognized that predicate-specific oblique subjects have emerged at different times in various languages (e.g., Pooth et al. 2019).

Assuming the traditional periodization of the Icelandic language, as divided into two parts, Old Icelandic (1150–1540) and Modern Icelandic (1540 to the present), we focus on the period within Modern Icelandic spanning from the late 18th century to the early 21st century. We observe that some verbs that took a nominative subject in earlier times are now found with an oblique subject. This fact gives us a valuable opportunity to study the emergence of oblique subjects. Two examples of recent oblique subject constructions in Icelandic are shown in (1) and (2); the a-examples show the original variant, whereas the b–c examples represent the innovation.[2]

(1) a. **Stelpan** hlakkar til jólanna.
the.girl-N looks.forward to Christmas
b. **Stelpuna** hlakkar til jólanna.
the.girl-A looks.forward to Christmas
c. **Stelpunni** hlakkar til jólanna.
the.girl-D looks.forward to Christmas
'The girl looks forward to Christmas.'

(2) a. **Fuglarnir** fjölga.
the.birds-N.PL multiply-3.PL
b. **Fuglunum** fjölgar.
the.birds-D.PL multiply-3.SG
'The birds increase in number.'

Interestingly, the emergence of new oblique subjects in Modern Icelandic goes against other changes in case marking such as the more common Nominative Substitution (NS), shown in (3b); the older pattern, attested since Old Icelandic, is shown in (3a).

(3) a. **Bátinn** rekur til lands.
the.boat-A drifts to land
b. **Báturinn** rekur til lands.
the.boat-N drifts to land
'The boat is drifting towards land.'

NS is in accordance with the Case Directionality Hypothesis (Eythórsson 2002, 2015a, 2015b, Eythórsson & Thráinsson 2017) which states that marked (lexical) case yields to unmarked (structural) case. This hypothesis was primarily set forth on the basis of evidence in Icelandic and Faroese.

(4) Case Directionality Hypothesis:
marked (lexical) case → unmarked (structural) case

[2] For convenience, the examples in (1) and (2) are constructed on the basis of authentic examples that have been discussed in the literature (see, e.g., Svavarsdóttir 1982, Halldórsson 1982, Eythórsson 2002, Jónsson & Eythórsson 2003, 2005, Jónsson 1997–98, 2003, 2017, Thráinsson 2007:146–248).

While it may be tempting to assume that oblique case is the unmarked option for subjects of experiencer predicates, this is not so. The majority of subjects in Icelandic, including experiencer subjects, exhibit nominative case, e.g. the subjects of the experiencer verbs *elska* 'love', *hata* 'hate', *skynja* 'sense', *vera svangur* 'be hungry', and *þjást* 'suffer' (see Jónsson 2003 for a discussion of experiencers with a nominative subject). Thus, the emergence of subjects with oblique case marking goes against the Case Directionality Hypothesis given that they are considered marked (lexical) vis-à-vis unmarked (structural) nominative subjects.

As we demonstrate in Section 3, oblique subjects can emerge in different ways. Specifically, we argue that recent oblique subjects in Modern Icelandic emerge through two types of changes. The first of these is Oblique-Case Substitution (OCS), which only affects a handful of predicates and involves a change in case marking from nominative to accusative or dative (Section 3.2). The second type of change involves a Shift in Anticausative Strategy (SAS for short), where an older anticausative structure is replaced by a new one. The new oblique subject can be attributed to a choice of a strategy termed Case-Preserving Anticausativization (CPA).[3] In CPA, the subject of the intransitive (anticausative) structure preserves the case of the object of the transitive structure. Importantly, only OCS goes against the Case Directionality Hypothesis. The creation of oblique subjects via CPA is a more complex process. While CPA as such does not violate the Case Directionality Hypothesis, the choice of CPA over other strategies with a nominative subject does.

The paper is structured as follows. In Section 2 we briefly discuss subject case in Icelandic, focusing on predicates taking an oblique subject, and we review some changes in subject case marking in light of the Case Directionality Hypothesis. In Section 3 we elaborate on the two types of change which give rise to oblique subjects, carefully documenting some cases which have so far not received much attention in studies of Icelandic syntax. We first discuss OCS (3.2), focusing in particular on the predicate *hlakka til* 'look forward to'. Next, we provide an overview of anticausativization strategies in the history of Icelandic (3.3), including CPA, before turning to SAS (3.4), where we disentangle the complex manifestations of this phenomenon. Section 4 contains a summary and some final remarks on the emergence of oblique subjects.

[3] A number of terms have been used for this phenomenon. The term case-preserving anticausativization is mentioned by Schäfer (2008:291), although his analysis does not assume that the structures in question really are anticausatives. Rather, Schäfer (2008) assumes that the oblique NPs are "stray accusatives" and "stray datives", respectively, following Haider (2001). Sigurðsson (2006) applies the terms "fate accusative" and "accusative unaccusative". Cennamo et al. (2015) talk about "oblique case preserving anticausative strategy", whereas Barðdal et al. (2020) use the term "oblique anticausatives/anticausativization". We, however, use the label Case-Preserving Anticausativization because we consider it more accurate than the others on the market as it captures the "preservation" of the oblique case of the object of a transitive structure in the matching anticausative structure.

2 Case marking in Icelandic

2.1 The case of subjects

In Icelandic, arguments in subject position can be in any of the four cases: nominative, accusative, dative or genitive. Of these, nominative is by far the most common subject case, and also the most productive one. New predicates entering the language (as borrowings, calques, or neologisms) usually take a subject in the nominative case (Barðdal 2001 and later work). As for the oblique cases, some 700 predicates take dative subjects in Modern Icelandic; accusative subjects occur with about 200 predicates, and genitive subjects with only about ten predicates (Jónsson 1997–98, Barðdal & Eythórsson 2009, among others).[4] While nominative subjects are unspecified for lexical semantics, dative subjects typically denote experiencers and goals (including beneficiaries and recipients), whereas accusative subjects denote experiencers and themes (and patients). As for genitive subjects, the relation between case and semantic role is less clear Importantly, only nominative subjects can denote agents (Jónsson 1997–98; for a more fine-grained semantic analysis, see Barðdal 2001 and later work).

2.2 Oblique subjects: origins and characteristics

Ever since Andrews (1976, 1982), there has been a general consensus that Modern Icelandic has oblique subjects. Although oblique subjects are in some respects different from nominative ones, for instance in not showing agreement with the predicate, they nevertheless pass numerous reliable subject tests which have been proposed for Icelandic. Such tests include control infinitives (PRO-infinitives), conjunction reduction, raising to object (ECM or "AcI"), raising to subject, and reflexivization (both clause-bound and long-distance reflexivization). For an overview of oblique subjects in Icelandic, the application of the subject tests, and exhaustive references, see in particular Thráinsson (2007:161–167).

While tests for subjecthood are fairly well established for Modern Icelandic, they have proven more difficult to apply at older stages of the language. Nevertheless, it has been proposed with some solid arguments that Old Icelandic had oblique subjects (Rögnvaldsson 1995, 1996, Barðdal & Eythórsson 2003, contra Faarlund 2001, Askedal 2001). In a wider context, it has also been claimed that Old Germanic had oblique subjects, in particular Old English, as has been carefully argued by Allen (1986, 1995). The situation is less clear in other Old Germanic languages (see, however, Eythórsson & Barðdal 2005 and other work). Finally, oblique subjects have been argued to occur outside Germanic, both in Indo-European and non-Indo-European languages.[5]

[4] Barðdal (2001:180; cf. also Thráinsson 2007:156) reports on a statistical analysis of selected texts, according to which roughly 94% of subjects in Modern Icelandic occur in nominative case, about 4% occur in dative, around 1% in accusative and less than 1% in genitive. Barðdal's study also estimates that the percentages for Old Icelandic are similar.

[5] It has been suggested that oblique subjects in old and modern Indo-European languages are a common inheritance from Proto-Indo-European and are not due to a separate development in the individual branches. This matter is the subject of ongoing research (e.g., Eythórsson & Barðdal 2005, Barðdal et al. 2020).

Those predicates in Modern Icelandic that take oblique subjects can be divided into three categories, based on their historical origins. The first category contains predicates whose oblique case patterns can be traced back to Proto-Germanic. These include *hungra* 'hunger' and *þyrsta* 'thirst', which take a single argument in the accusative case, and *líka* 'like' which takes two arguments, a dative and a nominative (e.g., Barðdal & Eythórsson 2012:370).[6] Whether or not the oblique argument had the status of a subject in Proto-Germanic is not crucial for our present purposes. What matters is that the *case pattern* of the oblique NPs occurring with the predicates under discussion is old.

The second category contains predicates whose oblique case pattern is attested only within North Germanic, in at least two of the following languages: Old Norse-Icelandic, Old Swedish, Old Danish, and Modern Faroese, for instance *minna* (Icel.), *minnast* (Far.), *minnas* (OSwed.) 'remember (vaguely)' (e.g., Jónsson & Eythórsson 2011:234, Falk 1997:54).

The third category contains predicates whose oblique case pattern seems to be unique to Icelandic. These predicates can be further subdivided into two groups: (i) predicates that are found with oblique subjects since their earliest attestation in Old Icelandic, e.g., *reka* 'drift',[7] and (ii) predicates that originally took a nominative subject but at some point shifted to an oblique subject. The focus of this paper is on the second group. However, we first review the types of documented changes in subject-case marking in Icelandic.

2.3 Changes in subject case marking

Several types of changes in case marking can be observed in the history of Icelandic. A common change in subject case marking is Nominative Substitution, i.e. the replacement of oblique case by nominative. This type of change typically affects oblique theme subjects.[8] A second type of change involves Dative Substitution, sometimes referred to as "Dative Sickness", whereby dative case replaces accusative case, i.e. one type of oblique case is substituted for another. Dative Substitution exclusively affects experiencer subjects.[9] A third type of change involves Genitive Avoidance, i.e. the replacement of genitive with another case, usually dative. Although Genitive Avoidance tends to primarily affect objects, a few examples involving subjects have been reported (Jónsson 2017).

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[6] The cognates of these Icelandic verbs include the Gothic accusative verbs *huggrian* 'hunger' and *þaursian* 'thirst' and the dative–nominative verb *ga-leikan* 'like, please', and related verbs in Old English, Old Saxon, and Old High German (cf. Eythórsson & Barðdal 2005, Barðdal & Eythórsson 2012, Barðdal et al. 2016). Verbs which take a single argument in the dative case are found in individual Germanic languages, but cognate verbs with dative only do not seem to be attested across Germanic.

[7] For a comprehensive list of predicates occurring with accusative subjects, see Jónsson & Eythórsson (2011:236–237). Some of the predicates that are attested with an oblique subject in Old Icelandic also occur with a nominative, including *langa* 'want'.

[8] Another way to lose oblique subject is lexical substitution, by which the relevant lexical item is marginalized and then lost (e.g., the accusative subject verb *hungra* 'hunger' in Modern Icelandic has largely been replaced by *vera svangur* 'be hungry' which takes a nominative subject).

[9] The term Dative Substitution has sometimes also been used to refer to a change from nominative to dative with experiencer subjects (e.g., Jónsson 1997–1998:29, 2003:155). However, we believe the two changes – accusative to dative, on the one hand, and nominative to oblique, on the other hand – should be kept distinct, and regard the term Oblique Case Substitution as being more appropriate for the latter change (see e.g., Eythórsson 2000:198–199).

The three changes can be schematized as follows:

(i) Nominative Substitution: oblique → nominative
(ii) Dative Substitution: accusative → dative
(iii) Genitive Avoidance: genitive → dative, accusative or nominative

An example of Nominative Substitution affecting accusative was shown (3b) above, whereas Nominative Substitution affecting dative is given in (5b). Dative Substitution is exemplified in (6b), and Genitive Avoidance in (7b).

(5) a. **Bátnum** hvolfdi.
the.boat-D capsized
b. **Báturinn** hvolfdi.
the.boat-N capsized
'The boat capsized.'

(6) a. **Mig** langar í nammi.
me-A wants in candy
b. **Mér** langar í nammi.
me-D wants in candy
'I want candy.'

(7) a. **Þeirra** bíður erfitt verkefni…
them-G awaits difficult-N project-N
b. **Þeim** bíður erfitt verkefni…
them-D awaits difficult-N project-N
'A difficult task awaits them…'
(https://www.vf.is/frettir/umfn-tharf-ad-sigra-keflavik)

It has been proposed that these changes can be captured by the Case Directionality Hypothesis, stated in (4), according to which unmarked case is generalized at the expense of marked case (Eythórsson 2002, 2015a, 2015b, Eythórsson & Thráinsson 2017). In accordance with the Case Directionality Hypothesis, Nominative Substitution involves a change from a marked to an unmarked subject case, whereas Dative Substitution and Genitive Avoidance involve a change from a highly marked ("idiosyncratic lexical") case (accusative) to a less marked ("regular lexical") case (dative).[10]

However, there are exceptional cases that go against the general direction of the Case Directionality Hypothesis.[11] The most salient of these is the converse of Nominative Substitution, which we term Oblique-Case Substitution (OCS): the nominative case is replaced by an oblique case. OCS has received much less attention than the other changes mentioned

[10] The division of lexical case into regular (thematic) lexical case and idiosyncratic lexical case was proposed for Icelandic by Yip, Maling & Jackendoff (1987); see also Jónsson (1997–98, 2003) and Eythórsson (2002).
[11] An unexpected directionality in changes in subject case marking is the topic of a more recent study by Guðmundsdóttir et al. (2019).

above; one reason for this may be that it is attested for very few predicates (see Section 3.2. below), including *hlakka til* ‘look forward to’ and *kvíða fyrir* ‘be anxious about’. Importantly, all of these take an experiencer subject.

Another phenomenon which might at first glance seem to resemble OCS was exemplified in (2) above, repeated here as (8) and (9). In Modern Icelandic the intransitive verb *fjölga* ‘increase, multiply’ takes a dative subject:

(8) **Fuglunum** fjölgaði.
the.birds-D multiplied
‘The birds increased in number.’

However, the corresponding verb in Old(er) Icelandic occurred with a nominative subject, as in (9) (cf. Jónsdóttir 2015b).

(9) **Fuglarnir** fjölguðu.
the.birds-N multiplied
‘The birds increased in number.’

Although the difference between the examples in (9) and (8) may look like OCS, there being a nominative subject at an older stage and an oblique subject at a later stage, this is not the case. In fact, the dative in (8) is not an experiencer and did not directly replace the nominative in (9). Rather, a new oblique subject arose through Shift in Anticausativization Strategy (SAS), following the process of Case-Preserving Anticausativization (CPA), as discussed in 3.3.

3 How oblique subjects emerge

3.1 A note on methodology

As stated above we deal here with two types of changes: Oblique-Case Substitution (OCS) and Shift in Anticausativization Strategy (SAS) in favor of Case-Preserving Anticausativization (CPA).[12]

By OCS a nominative subject is replaced by an oblique subject with experiencer predicates. By SAS, on the other hand, anticausative structures with a nominative subject are replaced by anticausative structures with an oblique subject. Note that the predicates affected by OCS are always experiencers, whereas in SAS they are not. For a more detailed discussion of these changes, see 3.2 and 3.3, respectively.

Before proceeding further, let us comment briefly on our methodological approach in this paper. Variation in subject case marking has been shown to occur with certain predicates in Modern Icelandic. In some cases, the variation in question is quite old, such as with the predicate *langa* ‘want’, which is documented in Old Icelandic (c. 1100–1540) with both a

[12] A third type is Argument Swapping (ARS), found only in Old Icelandic, which we discuss separately in a forthcoming paper.

nominative and accusative subject. In other cases, the variation is more recent and arose in Modern Icelandic (c. 1540 – today, although we use the term Present-Day Icelandic to refer to current situation in the language). We focus here on predicates that have started to show variation in case marking in recent times, i.e., within the last 200 years or so, and where the original case marking can be determined to have been nominative. We categorize these predicates depending on how the new case marking emerged, i.e., whether it arose through SAS where a CPA strategy was chosen, or whether it is an instance of OCS. We mainly rely on sources that cover the period from the 17th to the 21st century, occasionally using Google to find "new" examples. The sources used are listed in Table 1:

Table 1: List of sources used to find examples of relevant constructions

SOURCE	MATERIAL TYPE	PERIOD COVERED
The Gigaword Corpus	A tagged corpus containing various texts from news media, social media, journals, books, and parliamentary speeches.	Modern Icelandic, mostly material from 2000–2022
Timarit.is	A digital library containing millions of pages from periodicals, newspapers, and other printed material	Modern Icelandic from 1696 – present
Íslenskt textasafn	Whole texts of various types, including novels, blogs, periodicals, cookbooks, biographies, and law texts	Mostly material from the 6th century to the present although some Old Norse/Icelandic
Ritmálssafn Orðabókar Háskólans (ROH)	Collection of examples of word usage in written Icelandic	16th century – 20th century
An Icelandic-English Dictionary (Cleasby & Vigfússon 1874)	Dictionary with examples and explanations	Old Norse/Icelandic, some Modern Icelandic
Ordbog over det norrøne prosasprog (ONP)	Dictionary of Old Norse/Icelandic prose with attested examples of word usage in written material	Old Norse/Icelandic
Ordbog over det gamle norske sprog (Fritzner 1954–1972)	Dictionary of Old Norse	Old Norse/Icelandic
Íslensk orðabók (ÍOB)	Dictionary of Icelandic	Modern Icelandic with occasional examples from older language

In addition to the sources listed in Table 1, the following dictionary portals were consulted: snara.is, málið.is and arnastofnun.is. We also cite examples from journal articles and squibs by various scholars (in particular, Jónsdóttir 2015a, 2015b, 2018, Friðjónsson 1993). In cases where scholars are not cited, the examples were found using the above-mentioned sources.

Providing a complete statistical overview of subject-case marking with each predicate was not necessary for our purposes, and would in any case go beyond the scope of this paper. Rather, the goal is simply to locate the oldest attested examples of the new case marking with the particular predicates and relate them to the two types of changes (OCS and SAS) under investigation here.

Finally, it should be noted that individual predicates vary somewhat with respect to their change in case marking. While novel case marking of subjects is regularly encountered in both written and spoken material with some predicates, it may appear only sporadically with others, sometimes attested less than ten times in written corpora. Thus, for example, the predicate *hlakka til* 'look forward to' frequently occurs with an oblique subject, while *beygja* 'bend' does so sporadically. Rather than dismissing sporadic occurrences of novel case marking as errors, we take them seriously, in as much as they occur in reliable sources and are supported by comparable evidence with other lexical items. Given these premises we take such examples to reflect a tendency which has a certain directionality and should be viewed in light of a general pattern in case marking.

3.2 Oblique-Case Substitution

Oblique-Case Substitution (OCS) involves a change in case marking, going directly from nominative to oblique case. Thus, at one point in the history of Icelandic the subject occurs in the nominative with the relevant predicate, and at a later point it occurs in the accusative or dative. Such a change has been reported for the following experiencer predicates (see for instance Friðjónsson 1989:13):[13]

(10) a. *hlakka til* 'look forward to' (prepositional verb)
b. *kvíða* (*fyrir*) 'be anxious about' (both a simple verb and a prepositional verb)
c. *finna til* 'feel pain' and *kenna til* 'feel pain' (particle verbs)
d. *kenna í brjósti um* 'feel sorry for' (a collocation with a verb taking a PP complement)
e. *skjöplast* 'be mistaken', *girnast* 'desire' (*st-v*erbs)

It should be emphasized that the predicates in (10) exhibit variation in case-marking to a different extent. While oblique case is dominant with *skjöplast* and common with *hlakka til* and *kvíða* (*fyrir*), it is rare with *kenna til*, *kenna í brjósti um*, *finna til* and *girnast*.[14]

[13] We take experiencer predicates to be a broad category consisting of subcategories such as verbs of emotion, e.g., *fýsa* 'want', *langa* 'want', *lengja eftir* 'long for' and *lysta* 'desire', and verbs of bodily function such as *verkja* 'feel pain' and *hrylla við* 'be disgusted by' (see, e.g., Jónsson 1997–8, Barðdal 2001).

[14] The predicates *hlakka til* and *kvíða fyrir* are frequently used in Present-Day Icelandic, with over 30.000 and 3.000 attested examples in the Gigaword corpus, respectively. Thráinsson et al. (2015:40) report that there is

In what follows we illustrate OCS by focusing on the origin and development of the predicates in (10), relying on data gathered from the sources discussed in 3.1.

We first discuss the prepositional verb *hlakka til* ‘look forward to’, which historically takes a nominative subject, as shown in (11).

(11) **Ég** hlakka til jóla.
I-N look.forward to Christmas
‘I look forward to Christmas.’

In Present-Day Icelandic this predicate also occurs with an accusative and a dative subject (12). Intra-speaker case variation is also possible, such that the same speaker may alternate between two or more cases (see e.g., Nowenstein 2014, 2017).

(12) a. **Mig** hlakkar til jóla.
me-A look.forward to Christmas
‘I look forward to Christmas.’
b. **Mér** hlakkar til jóla.
me-D look.forward to Christmas
‘I look forward to Christmas.’

The use of accusative with *hlakka til* is first attested towards the end of the 19th century (13).

(13) **Mig** hlakkar til, að fá að verða félagi þinn
me-A look.forward to to get to be partner your
og sessunautur.
and companion
‘I look forward to be allowed to be your partner and companion.’
(*Þjóðólfur* 1892(1):13)

The oldest documented example where *hlakka til* is used with a dative is from 1941, and funnily enough it appears in a short article titled *Verndum móðurmálið* ‘Let us protect the mother tongue’. In the article, an 11-year-old girl named Sigríður Löve complains about people speaking incorrect Icelandic, encouraging her readers (presumably mostly children like herself) to mind their own language, with the aim to preserve it in as pristine a form as possible. The example is given in (14).

considerable variation in subject case marking with these predicates, as shown in extensive surveys conducted in Iceland in 2005–2008. In one of these surveys, involving 772 participants, *hlakka til* occurred in nominative case with 48.6% of the participants, in accusative case with 59.7% of the participants and in dative with 44.2% of the participants. In the same survey, 63.8% of the participants preferred oblique case with *kvíða fyrir*, with 36.6% opting for accusative and 27.2% for dative, while 36.2% opted for nominative. – The verb *skjöplast* occurs little less than 400 times in the Gigaword corpus, almost exclusively with a dative subject. Finally, *kenna til*, *kenna í brjósti um*, *finna til* and *girnast* mostly occur with a nominate subject, and only occasionally with an oblique subject.

(14) Einnig hefi ég heyrt suma segja: „**Mér** hlakkar
furthermore have I heard some say I-D look.forward
svo mikið til að komast í berjatúrinn.“
so much to INF come to berry.picking.tour
‘Furthermore, I have heard some people say: “I look so much forward to being able to go on the berry-picking tour”’ (*Unga Ísland* 1941(1):3)

Following the earliest attested examples with accusative and dative subject, we get a slow increase in the number of cases where *hlakka til* occurs with accusative or dative.[15] The diffusion of the accusative and dative at the expense of nominative with *hlakka til* has been documented in several surveys (Svavarsdóttir 1982, Jónsson & Eythórsson 2003, 2005, Thráinsson et al. 2015:40). Nowadays, the use of these cases with *hlakka til* seems dominant in colloquial Icelandic, whereas nominative still appears the norm in formal language and proofread texts.

The transition from nominative to accusative and dative represents a change that is quite unexpected given that subjects in Icelandic most commonly occur in the nominative case (see the statistical overview provided by Barðdal 2001, cited in fn. 4). To be sure, this change goes against the general trend captured by the Case Directionality Hypothesis, as discussed in 2.3 above. However, this development is understandable in light of the fact that a relatively large subset of experiencer subjects in Icelandic are in an oblique case (cf. Section 2.1). Among the predicates exhibiting accusative subject as far back as records go are the ones in (15a),[16] and among the verbs with dative case we find those shown in (15b) (see the relevant entries in Cleasby & Vigfússon 1874).

(15) a. Predicates with accusative
langa ‘want’, *vanta* ‘need’, *verkja* ‘feel pain’ and *hrylla við* ‘be disgusted by’
b. Predicates with dative
bjóða við ‘be disgusted by’, *blöskra* ‘be shocked/horrified’ and *sárna* ‘be hurt’

Clearly, *hlakka til* has similar semantics as these experiencer verbs, and it is plausible to regard the particular semantics as a precondition for the change in case marking. On this view, *hlakka til* starts patterning with verbs in the same semantic domain which take oblique subjects.

Before discussing the motivation of changes from nominative to oblique case with subjects we must first consider the development of the predicates in question, for which there

[15] A search on timarit.is for the phrase *mig hlakkar* reveals that in the period 1890–1899 there is only one attested example. Two decades later, in 1920–1929 there are three attested examples and in 1950–1959 five. In most of these cases the examples occur in prescriptive articles on “correct” Icelandic. The reason that the examples being so few might be linked to the fact that non-standard language typically does not appear in published material which has been subject to proofreading and standardization.

[16] Although *langa* is attested with an accusative as far back as Old Icelandic, there are few sporadic examples with a nominative (see Halldórsson 1982:171). As for *vanta* and *verkja,* they occur with accusative in Old Icelandic but are occasionally attested with a nominative at later stages (Halldórsson 1982:177–180). The use of nominative seems to be caused by Nominative Substitution. Here we gloss over more recent occurrences of some of these verbs with a dative subject, due to Dative Substitution.

are reasonably good historical records. Let us start with *hlakka til* ‘look forward to’, which is the most common of those predicates.

The verb *hlakka til* ‘look forward to’ is made up of the simple verb *hlakka* and the preposition *til* ‘to’. The verb *hlakka*, which is virtually obsolete in Modern Icelandic, was originally used as a verb of sound emission to describe the expression of the call produced by birds of prey (Cleasby & Vigfússon 1874:269). Nouns derived from this verb include *hlakk* ‘sound of a bird of prey, jubilance (at the misfortunes of others)’, *hlakkan/hlökkun* ‘a screaming with joy’ and *tilhlakkan/tilhlökkun* ‘joyous expectation’. Cognates to *hlakka* exist in related languages such as Old English (*hlacerian* ‘deride, mock’), Latin (*clangō* ‘clang, sound’, with an *n*-infix) and Greek (*klázō* ‘make a sharp piercing sound (scream, bay, clash)’) (Cleasby & Vigfússon 1874:269, Magnússon 1989:337).

In its original use, the verb *hlakka* ‘cry (used of birds of prey)’ appears with an agentive nominative subject NP involving the animal that emits this particular sound. This use is attested in Old Icelandic. In (16), *ari* ‘eagle’ is the subject of the verb *hlakka*.

(16) Ormur knýr unnir
worm turns waves
en **ari** **hlakkar**…
but eagle cries (Völuspá 50, Kristjánsson & Ólason 2014)
‘The serpent churns the waves, the eagle shrieks in anticipation...’
(transl., Larrington 1996:10)

The simple verb *hlakka* can combine with the following three prepositions: *í* ‘in’, *yfir* ‘over’ and *til* ‘to’ to create a derived, often more abstract, meaning. The predicate *hlakka í* is used impersonally with an expletive in the meaning ‘chuckle (i.e., laugh quietly or inwardly)’ (17).

(17) Það hlakkaði í honum við tilhugsunina.
EXPL chuckled in him with the.thought
‘He chuckled at the thought (lit. It chuckled in him at the thought).’

When someone chuckles they may be producing a sound that is reminiscent of the cry made by birds of prey, or they may simply be laughing inwardly. It is unlikely that *hlakka í* (17) still has a connection to the very rare simple verb in the minds of contemporary individuals. A similar expression, also derived from a bird sound (e.g., of a pigeon, a ptarmigan, or an eider), is *kurra í* ‘coo’.

(18) Það kurraði í honum.
EXPL cooed in him
‘He murmured.’ (lit. ‘It cooed in him.’)

A second prepositional verb is *hlakka yfir* meaning ‘emit a cry over prey’, found in an example from 1838, shown in (19).

(19) **Klógulir ernir** yfir veiði hlakka.
claw.yellow-N eagles-N over pray cry
'Claw-yellow eagles make a cry over their pray.'
(Gunnarshólmi, Jónas Hallgrímsson, https://jonashallgrimsson.is/)

In Modern Icelandic this expression means 'exult over a thing, as an eagle over its prey' (Cleasby & Vigfússon 1874:269), which can have a meaning close to 'gloat over'. It is mainly used when someone experiences delight over the misfortune of others, as in (20).

(20) **Einræðisherrann** hlakkaði yfir óförum óvinanna.
the.dictator-N gloated over the.misfortunes of the enemies
'The dictator gloated over the misfortunes of the enemies.'

Finally, *hlakka* can combine with the preposition *til*. Similarly to *hlakka í* and *hlakka yfir*, the original meaning of *hlakka til* was probably construed around the meaning of the simplex verb *hlakka*, yielding 'make a joyous sound at or in the prospect of something' (cf. Cleasby & Vigfússon 1874:269, who provide the meaning '*one screams with joy at* or *in prospect of a thing* (of children, young people)'.[17] We assume that this meaning gave rise to the metaphorical meaning 'experience excitement at or in the prospect of something', eventually resulting in 'look forward to something'. Thus, as with *hlakka í* and *hlakka yfir*, the development is from an agentive to an experiencer verb. The metaphorical meaning is the only one possible of *hlakka til* in the modern language, and speakers never seem to associate it with 'cry (of birds of prey)' expressed by the simple verb *hlakka*. A parallel metaphorical development may be observed in English *look forward to*, where the original construction involved a literal meaning of 'looking forward' but later gained the derived meaning of 'being excited, showing excitement in the prospect of something'. In both cases the literal meaning has given way to the metaphorical one.

Other verbs in Icelandic which have undergone OCS include *kvíða fyrir* 'be anxious about', *kenna til* 'feel pain', *finna til* 'feel pain', and *skjöplast* 'be mistaken'. These verbs have gone through a similar development as *hlakka til*; they are experiencer verbs that were derived from simple verbs, apparently with an agentive subject. For instance, *kvíða fyrir* is based on the simple verb *kvíða* 'be anxious about' which occurs already in Old Icelandic. Originally this verb seems to have meant 'complain', a meaning which is not attested Icelandic, but is found in related languages, including Old English *cwīðan* 'complain', Old Saxon *quīthean* 'wail, whine' and old and modern Nordic languages (Magnússon 1989:527). A semantic shift has occurred in the prehistory of Icelandic, where 'complain' became associated with the fear of being in a situation that can be complained about, thus coming to mean 'be anxious about'. The simple verb *kvíða* with nominative subject occurred earlier with a dative object, as in (21) from Old Icelandic, and it still does in Modern Icelandic, as in (22), although it may have a somewhat formal flavor.[18]

[17] The combination of the simple verb *hlakka* with the preposition *til* is attested once in Old Icelandic. However, the meaning is not 'look forward to' as in Modern Icelandic, but rather 'seek after', translating Latin *expetare* 'desire, seek after' (ONP s.v. *hlakka*).
[18] For a more detailed discussion of the verb *kvíða*, see Jónsdóttir (2015a), which we rely on here.

(21) Ekki kvíði **eg** **því** að eg geti eigi haldið
not am.anxious I-N it-D that I can not hold
mér réttum fyrir Hrúti og sonum hans.
me right before Hrútur and sons his
'I'm not anxious about not being able to stand on my rights against Hrútur and his sons.'
(*Laxdæla saga*, ch. 38)

(22) **Ég** kvíði **því** að fara í vinnuna vegna
I-N am.anxious it-D that go to work because
stöðugra Covid slagsmála
constant Covid fights
'I'm anxious about going to work because of constant Covid fights.'
(*DV*, 18th January 2021)

In Modern Icelandic *kvíða* is occasionally attested with an oblique subject, either accusative (23a) or dative (23b).

(23) a. **Hana** kvíðir þó ekki að takast á við
her-A is.anxious yet not to take on with
forvalið.
the.preliminary.election
'Yet, she is not anxious to come to grips with the preliminary election.'
(https://www.visir.is/g/2009248851d)

b. Tengdó og mákona mín fara á morgun og
mom-in-law and sister-in-law my go tomorrow and
mér kvíðir því dáldið.
me-D is.anxious that-D somewhat
'My mom-in-law and sister-in-law leave tomorrow, and I am somewhat anxious about that.' (https://bland.is/umraeda/ae-omurlegur-dagur-/438242/)

However, in Modern Icelandic this verb is typically found with the preposition *fyrir* (Jónsdóttir 2015a:45, fn. 3), as in (24).[19] While nominative case is the recommended form in the standard language oblique subjects (accusative or dative) appear frequently (Thráinsson et al. 2015).

(24) a. **Ég** kvíði fyrir prófinu.
I-N am.anxious for the.exam
b. **Mig** kvíður fyrir prófinu.
me-A is.anxious for the.exam

[19] In Older Icelandic *kvíða* was also construed with the preposition *við* 'with', as in (i). This usage disappeared in the 19th century (Jónsdóttir 2015a:283).

(i) Ekki kvíði **eg** við dauða mínum.
not am.anxious I-N with death my
'I am not anxious about my death.' (*Sturlunga saga – Þorgils saga skarða*, ch. 16)

c. **Mér** kvíður fyrir prófinu.
me-D is.anxious for the.exam
'I am anxious about the exam.'

The verb *kvíða* was originally a weak verb but later it began to inflect as a strong verb; Jónsdóttir (2015a:285–286) notes that the earliest examples of *kvíða* as a strong verb appear in the 17th century. In the past tense the strong inflection (*kveið*) predominates while the weak inflection (*kvíddi*) rarely occurs (the form *kveið* occurs 1129 times in the Icelandic Gigaword Corpus while *kvíddi* appears only twice). In the present tense both inflections are attested. However, the choice of inflection seemingly affects the choice of case, as nominative case is more common than oblique case with weak inflection in the present tense, and vice versa: oblique case is more common with strong inflection. (24b, c).[20] This suggests that OCS does not target individual NPs but rather the construction as a whole, the predicate and its subject NP (see also section 3.3 below).

The simple predicates *kenna* and *finna*, which can have the meaning 'recognize, find' form the basis of *kenna í brjósti um* 'feel sorry for' (25), as well as *kenna til* and *finna til,* both meaning 'feel pain'. The latter two originally took a PP with *til* 'to' followed by a genitive NP, but the preposition was evidently reanalyzed as a particle.

(25) a. Ég kenni í brjósti um Úkraínubúa.
I-N feel in breast about Ukrainians
'I feel sorry for the Ukrainians.'

b. **Okkur** **kennir** **í** **brjósti** um Gyðingana.
us-A/D feels in breast about Jews
'We feel sorry for the Jews.' (*Morgunblaðið* 1946(52):7)

The predicate *kenna til* standardly appears with a nominative experiencer subject, as in (26a) from the mid-19th century, but is occasionally found with either an accusative, (26b) also from the mid-19th century, or a dative subject, of which the earliest example we have found is from the 20th century (26c).

(26) a. **Eg** kénni til sakir þín, bródir minn Jónatan!
I-N feel to because you brother mine Jonatan
'I feel pain because of you, Jonatan my brother.' (Viðeyjarbiblían 2S 1, 26)

b. Kenni […] kenni til, **mig** kennir til, pro eg kenni til.
feel feel to me-A feel to for I-N feel to
'Feel [...] feel pain, me feels (i.e., I feel) pain for I feel pain.'
(ROH, s.v. kenna, Dr. H Scheving)

c. ýmislegt bendir til að **fiskum** geti kennt til.
various points to that fish-D.PL can feel to
'Many things point towards fishes being able to feel pain.' (*Ægir* 1928(10):227)

[20] The statistics is based on a search in the Gigaword Corpus.

The predicate *finna til* usually takes a nominative subject. The earliest example we have found where the meaning is 'feel pain' and *til* is a particle and not a preposition dates from the mid-19th century (27).[21] Although the example involves a relative clause, the covert subject, referring back to *brjóstum* 'breasts' must be nominative given that the finite verb *geta* 'can' agrees with it in number.

(27) ...beztu blómin gróa / í brjóstum, sem að geta fundið til.
best flowers grow in breasts which can feel-pl to
'...the best flowers grow in hearts that have feel pain.'
(Vísur Íslendinga, Jónas Hallgrímsson, https://jonashallgrimsson.is/)

In any case, this construction is very common in Modern Icelandic, occurring over 28.000 times in the Gigaword corpus, where *til* is clearly a verbal particle. The occurrence of this verb with an oblique subject, either an accusative, as in (28a), or a dative, as in (28b), can, for example, be found in contemporary internet blogs and message boards displaying informal language, although it is rare in the standard variety.

(28) a. **Mig** finnur til í hjartanu.
me-A feels to in the.heart
'My heart hurts.' (skjolid.blog.is)
b. ...**henni** finnur til í hálsinum.
her-D feels to in the.throat
'... her throat hurts.' (bland.is)

Finally, the verb *skjöplast* was originally associated with the meaning 'bring into disorder, be unstable'. In Faroese *skepla* means 'confuse, bring into disorder' and in Neo-Norwegian *skjeplast* means 'be brought into disorder' (Magnússon 1989:852). In older Icelandic *skjöplast* originally meant 'fail' (29a), and occurred with a nominative subject. Diachronically, it seems there was a shift from the more concrete meaning, 'fail', seen in the other Nordic languages, to a more abstract meaning, 'be mistaken', seen in (29b). Importantly, in Modern Icelandic the verb only occurs with a dative experiencer subject meaning 'be wrong, be mistaken' (cf. Jón Friðjónsson 2021).[22]

(29) a. …og seg svo frændum Vigfúss að **þeir**
and tell so kinsmen of Vigfús that they-N
skjöplist eigi meir í liðveislunni móti Snorra goða.
fail-SUBJ not more in the.help against Snorri chieftain
'... and tell the kinsmen of Vigfús that they should not fail in helping against Chieftain Snorri.' (*Eyrbyggja Saga*, ch 27)

[21] The verb *finna til* in the poem in (27) is unlikely to mean 'feel' in a general sense. Rather, the context calls for the experience of a negative emotion, i.e. pain.

[22] The oldest example with an oblique subject that we know of is from the first part of the 18th century. However, an example showing the old meaning and a nominative subject is attested as late as 1892 (cf. http://ritmalssafn.arnastofnun.is/daemi/421588).

b. I þessum atriðum var sízt hætt við,
in these topics was least liable
að **fræðimönnum** ættarinnar mundi skjöplast…
that scholars-D the.family-G would be.mistaken-ST
'In these matters the scholars of the family would be least liable to be mistaken...' (*Tímarit Hins íslenzka bókmentafélags* 1890(11):26)

Concluding this section, predicates that undergo OCS were typically agentive verbs that acquired an experiencer meaning by a semantic change. This applies to all the predicates discussed above: *hlakka til* 'look forward to', *kvíða fyrir* 'be anxious about', *kenna í brjósti um* 'feel sorry for', *kenna til* 'feel pain', *finna til* 'feel pain' and *skjöplast* 'be mistaken'.[23] It seems clear that the semantic change is a necessary precondition for the change in case marking. However, there is no guarantee that a change in case marking should be actuated even if the semantic change has occurred. Note that there are numerous predicates in Icelandic whose nominative subject denotes an experiencer. Yet, a change in case marking does not occur with most of these predicates, or, if it does, it is at any rate much more sporadic than with the predicates listed in (10) above.

It should be emphasized that the change of case only occurs with subjects whose thematic role has changed from an agent (or a theme) to an experiencer; nominative subjects that historically has denoted experiencers seemingly resist such change. To account for this difference, one may assume that the thematic role of the subject is not the driving force for the change in case marking. Alternatively, the thematic role might be a driving force for the change of case, but something prevents the change from happening with other predicates. Since it is unclear (to us) what would prevent regular experiencer predicates from changing their subject from the nominative to an oblique case, we propose an answer in which being an experiencer is a precondition for change but something else sets it in motion. Interestingly, the predicates whose subject case has changed to an oblique all used to take an agentive subject. The old agentive predicates survived alongside the new experiencer predicates. It may be surmised that the change in case marking with the experiencer predicates, i.e. OCS, occurred as a side effect of an attempt to mark them as being distinct from the agentive ones.

Once OCS has taken place, it should in theory be possible for it to be reversed by Nominative Substitution, in accordance with the Case Directionality Hypothesis. The Case Directionality Hypothesis operates irrespective of the lexical semantics of the relevant NP. However, Nominative Substitution is observed more frequently with predicates that take theme arguments than with experiencer subjects. This fact suggests that there are other forces at work, preventing experiencer subjects from acquiring nominative case.[24] Moreover, there seems to be a conditioned resistance to OCS with the verbs *hlakka til* 'look forward to' and *kvíða fyrir* 'be anxious about' (Svavarsdóttir, Pálsson & Thórlindsson 1984, Jónsson & Eythórsson 2003:24), especially with the 1p. singular which is often the focus of prescriptive grammar

[23] Note that the semantics of these predicates presumably did not change all at once; the semantics of some predicates would have changed earlier than others and in some cases, the older meanings would coexist beside the more recent ones.
[24] Among notable exceptions to this general trend is the verb *dreyma* 'dream', originally taking an accusative subject but sometimes found with a nominative subject in Modern Icelandic (e.g., Svavarsdóttir 1982).

teaching (Svavarsdóttir 1982:37, 2013:107-108, Óladóttir 2017:251). In some cases, the same speaker may alternate between the use of nominative and oblique (dative or accusative); see in particular Nowenstein (2014, 2017) and Óladóttir (2017:236-254).

3.3 Anticausative strategies in Icelandic

The second way in which oblique subjects can arise involves the process of Case-Preserving Anticausativization (CPA). To properly understand CPA it is important to note that Icelandic has various different patterns of transitive-intransitive verb pairs (sometimes called ergative pairs), where the (accusative, dative or genitive) object of the transitive variant corresponds to the subject of the intransitive variant. It is common for the intransitive variant in a transitive-intransitive (or ergative) pair to be referred to as *anticausative*, and the process of forming anticausatives is termed *anticausativization* (for an Icelandic-specific discussion of anticausativity, see, e.g., Bernódusson 1982:19–22, Zaenen & Maling 1984:145, Ottósson 1986, 1988, Ottosson 2013, Sigurðsson 1989:216–83, Maling 1991, Jónsson 1997–98, Svenonius 2006, Sandal 2011, Barðdal 2015a, 2015b, Cennamo et al. 2015, Jónsdóttir 2015b, 2018, Eythórsson & Sigurðardóttir 2016, Sigurðardóttir & Eythórsson 2016, 2019, Barðdal et al. 2020; see more generally, e.g., Haspelmath 1987, Koontz-Garboden 2009, Ottosson 2013). We adopt a definition of the term anticausativization according to which it involves the omission of the external argument of a transitive construction, promoting the object (or one of the objects) to a subject position (e.g., Schäfer 2008:9).

A number of strategies to form anticausatives are attested in Icelandic. These are listed in Table 2.

Table 2: List of anticausative strategies in Icelandic

ANTICAUS. STRATEGY	VERB MORPHOLOGY	SUBJECT OF ANTICAUS.
1. Labile verbs	The transitive and intransitive variants use the same verb form	Nominative case on subjects of anticausatives
2. Strong-weak alternation	Strong inflection for the anticausative, weak inflection for the transitive	Nominative case on subjects of anticausatives
3. *na*-verbs	Suffix *-na-* with anticausatives, strong inflection (active morphology) with transitive	Nominative case on subjects of anticausatives
4. *st*-predicates	Suffix *-st* with anticausatives, active verbal morphology on transitive	Nominative case on subjects of anticausatives
5. Case-Preserving Anticausativization (CPA)	The transitive and intransitive variants use the same verb form	Oblique (accusative, dative or genitive) case on subjects of anticausatives

We now briefly discuss each of these strategies in turn.

One of the transitive-intransitive patterns involves an unmarked intransitive (anticausative) variant, which has the same verb form as the transitive variant and the subject is always in nominative case, as in (30). The type of verb where there is no morphological difference between the transitive and the intransitive variant is sometimes called "labile" (Kulikov & Lavidas 2014) and hence we refer to this as the labile-strategy.

(30) a. **Gunna** stækkaði sumarbústaðinn.
Gunna extended the.summer.cottage-A
'Gunna extended the summer cottage.'
b. **Sumarbústaðurinn** stækkaði.
the.summer.cottage-N extended
'The summer cottage was extended.'

It is, however, more common for the intransitive to be morphologically marked in some way, the marking typically occurring on the verb (e.g., Ottosson 2013). The examples in (31)–(33) show transitive-intransitive pairs where the predicates are not formally identical. In (31) an alternation is observed between the weak verb *sökkva* '(cause something to) sink', used in the transitive variant, and the strong verb *sökkva* 'sink', in the intransitive variant.

(31) a. Kalli sökkti **bátnum**.
Kalli-N sank the.boat-A
'Kalli sank the boat.'
b. **Báturinn** sökk.
the.boat-A sank
'The boat sank.'

In (32) the transitive strong verb *brjóta* 'break' is unmarked whereas the intransitive weak verb has a *na*-suffix *brotna* 'break'.[25]

(32) a. Gunnar braut **rúðuna**.
Gunnar broke the.window-A
'Gunnar broke the window.'

[25] Sometimes more than one strategy can be used to create an anticausative variant. Thus, for example, the verb *brjóta* has another intransitive variant, which has a strong past tense *braut* and occurs with an accusative subject (i). This is the type of anticausativization shown in (34)–(35) in the main text.

(i) Bátinn braut í spón.
the boat-A broke in pieces
'The boat broke to pieces.'

Moreover, in child language there are examples like *brotnast* where an additional *st*-morpheme has been added to the existing *na*-anticausative *brotna* (Jónsdóttir 2018). This is reminiscent of "double" plural marking on some nouns in English, e.g., *sheeps* (for *sheep), childrens* (for *children*).

b. **Rúðan** brotnaði.
the.window-N broke
'The window broke.'

Finally, in (33) the weak transitive (*laga* 'fix') is unmarked but the weak intransitive verb has an *st*-suffix (*lagast* 'fix'), marked by *-ST* in the glosses.[26] In all the examples in (30)–(33) the subject is in the nominative case, and in the transitive variants the object is in the accusative.

(33) a. Forstjórinn lagaði **framkomu** sína, eftir að hann
the.director-N improved behavior-A his after that he
talaði við sálfræðing.
talked to psychologist
'The director improved his behavior after talking to a psychologist.'

b. **Framkoma** forstjórans lagaðist eftir að hann
the.behavior-N director-GEN improved-ST after that he
talaði við sálfræðing.
talked to psychologist
'The behavior of the director improved after talking to a psychologist.'

In addition to having intransitive variants with morphological marking on the verb, Icelandic also has intransitives where the verb form is unmarked but the case of the object of the corresponding transitive variant is "preserved" on the subject of the intransitive (see, e.g., Bernódusson 1982, Zaenen & Maling 1984). Examples of such pairs are shown in (34)–(35).

(34) a. Stormurinn blés **strompinn** af húsinu.
the.storm-N blew chimney-A of the.house
'The storm blew the chimney off the house.'

b. **Strompinn** blés af húsinu.
the.chimney-A blew of the.house
'The chimney blew off the house.' (Zaenen & Maling 1984:145)

(35) a. Höfundurinn lauk **sögunni**.
the.author-N finished the.story-D
'The author finished the story.'

b. **Sögunni** lauk.
the.story-D finished
'The story finished.'

Note that a similar type of pattern also exists for some ditransitives which become monotransitive (Barðdal 2015:406), as exemplified in (36). (36a) shows a ditransitive structure with a nominative subject (represented here with the noun *gæfan* 'the luck'), an indirect object

[26] Although *-st* is commonly used to derive anticaustive, it should be emphasized that *st*-predicates can have various other functions, including reflexive, reciprocal and passive (e.g., Ottosson 2008, 2013).

(a dative recipient) and a direct object in the accusative. In the intransitive variant in (36b) the dative recipient occurs in subject position while the direct accusative object remains in situ.[27]

(36) a. Cantona gaf **þeim** byr…
Cantona-N gave them-D wind-A
'Cantona gave them (favorable) wind (i.e., urged them on').'
(https://fotbolti.net/fullStory.php?id=7068)

b. **Þeim** gaf byr.
them-D gave wind-A
'They received wind.'

In cases where the subject of the anticausative variant retains the case-marking of the object in the transitive variant we use the label Case-Preserving Anticausativization (CPA).[28] The intransitives in (34)–(35) above are created through the process of CPA. According to Barðdal et. al. (2020), the synchronic connections between the transitive and anticausative variants of this type are "semantically opaque" in Modern Icelandic. Barðdal et al. (2020:421) claim that while the intransitive (anticausative) structures have a metaphorical meaning, the corresponding transitive ones do not; thus, there would not be a derivational relationship between the intransitive and the transitive construction synchronically, since the transitive non-metaphorical structure must be older historically. We argue against this view, claiming that the connection between the transitive and intransitive variants must still be transparent as new instances of CPA would otherwise not be expected, as we illustrate below.

CPA is in some ways reminiscent of case preservation in Icelandic passives. The case of the objects in active structures is "preserved" on the subjects of passives if it is in the dative or genitive case (37). For discussion and references, see Thráinsson (2007:249–308).

(37) a. María hjálpaði **Önnu**.
Mary-N helped Anna-D
'Mary helped Anna.'

b. **Önnu** var hjálpað.
Anna-D was helped
'Anna was helped.'

If, however, the object in the active structure is in the accusative, the case is not preserved on the subject of the passive; rather, the subject receives a nominative case (38). This is unlike CPAs where preservation of the accusative is also possible, as in (34b) above.

[27] The fact that transitive structures like (36a) occur in Modern Icelandic is a sign of the expression being transparent and the structure productive. Although we recognize the anachronicity of the correspondence between the specific examples given in (36), our point here is merely to show that the derivational relationship between a transitive structure and an anticausative structure is still perceived as productive in Modern Icelandic.

[28] The structures we consider created by CPA are analyzed differently by some authors, arguing that the relevant intransitive predicates are in fact a special type of transitives, with a covert element corresponding to the subject (e.g Schäfer 2008, Wood 2014).

(38) a. Jón las **bókina**.
John-N read the.book-A
'John read the book.'
b. **Bókin** var lesin (af Jóni).
the.book-N was read-N (by John-D)
'The book was read (by John).'

Another characteristic distinguishing CPAs from passives is that in passives an agent can be added by means of a *by*-phrase (Icelandic *af* 'by').[29]

(39) a. Önnu var hjálpað **af** **Maríu**.
Anna-N was helped by Mary-D
'Anna was helped by Mary.'
b. *Sögunni lauk **af** **höfundinum**.
the story-D finished by the.author-D

In this respect, CPAs pattern with other anticausatives where *by*-phrases result in ungrammatical structures, as shown in (40).

(40) a. Sumarbústaðurinn stækkaði (*af Gunnu).
the.summer.cottage-N extended (by Gunna-D)
'The summer cottage was extended (*by Gunna).'
b. Rúðan brotnaði (*af Gunnari).
the.window.pane-N broke (by Gunnar-D)
'The window broke (*by Gunnar).'
c. Stóllinn eyðilagðist (*af barninu).
the.chair-N fell.apart (by the.child-D)
'The chair was fell apart (*by the child).'

In the corresponding passives a *by*-phrase is grammatical (41).

(41) a. Sumarbústaðurinn var stækkaður (af Gunnu)
the.summer.cottage was extended (by Gunna-D)
'The summer cottage was extended (by Gunna)'
b. Rúðan var brotin (af Gunnari)
the.window.pane was broken (by Gunnar-D)
c. Stóllinn var eyðilagður (af barninu)
the.chair was damaged (by the.child-D)

[29] In English, a similar pattern is found. An agent in an active sentence (***The author*** *finished the story*) can be included in a *by*-phrase in the corresponding passive (*The story was finished* ***by the author***); however, in an anticausative/intransitive variant adding a *by*-phrase results in an ungrammatical sentence (**The story finished* ***by the author***).

Despite some similarities between passives and CPA, the difference between them suggests that the underlying structure is not identical. First, passive allows *by*-phrases while CPA does not, and second, accusative is preserved in CPA but not in passive.[30]

Although many oblique subjects formed by CPA have existed in Icelandic since ancient times, there are recent additions to this category. While the new anticausative structure can be shown to be derived from a transitive structure containing the same predicate, an exact match containing the same lexical NP arguments as the CPA structure may not always be attested. This also applies to older CPA structures. An exact transitive match containing the same NP argument as the anticausative structure in (42a) happens to be attested, as shown in (42b).

(42) a. **Eldingu** laust í rafmagnsstaur.
lightning-D struck PREP electricity.pole
'A lightning struck an electricity pole.'

b. Seifur laust hann **eldingu**.
Zeus-N struck him lightning-D
'Zeus struck him with lightning.'
(https://www.geimurinn.is/stjornuskodun/stjornumerkin/tviburarnir/)

Moreover, structures corresponding to (42b) are well attested with other lexical items, as in the following example.

(43) tók hann þá handöxi … laust hamrinum á hausinn…
took he then hatchet struck the.hammer on the.head
'Then he took a hatchet… and struck the head with the hammer...' (Egils saga, ch 89)

3.4 Shift in Anticausative Strategy

Sometimes more than one anticausative strategy can be used to create an intransitive structure. In these cases, we maintain that one strategy is historically older for the relevant predicate and that a "newer" strategy may coexist with it and eventually replace it. We refer to this (gradual) replacement of one strategy in favor of another as Shift in Anticausative Strategy (SAS). We are primarily interested in SAS where an older strategy is replaced by a CPA strategy, giving rise to new oblique subject structures. Interestingly, the CPA strategy as such does not violate the Case Directionality Hypothesis since it involves a relationship between transitive and intransitive structures and not the replacement of nominative by an oblique. However, the selection of CPA by SAS to the detriment of a strategy with a nominative subject is unexpected given the Case Directionality Hypothesis. The shifts in anticausative strategy favoring CPA can be divided into three groups (Groups I–III), depending on the original strategy and its case marking and verb morphology.

[30] Icelandic also has a so-called "new passive" where accusative is preserved (e.g., Maling & Sigurjónsdóttir 2002, Eythórsson 2008, Jónsson 2009, Sigurðsson 2017).

Group I contains examples where an intransitive construction with a nominative subject is replaced by a construction with an accusative; in both instances the verb is morphologically unmarked. Examples of this type include constructions with the predicates *taka niðri* (*niður*) 'touch the ground (lit., take down)' and *setja ofan* 'suffer a setback (lit., put from above)'. In (44) and (45) the original intransitive constructions with *taka niðri* and *setja ofan* are shown. The predicates *taka* and *setja* can both be used transitively, see (44b) and (45b), although the transitive variant is not attested with the same lexical items as the intransitive, i.e., with the particles *niðri* and *ofan*. However, we assume that it is from such a transitive stage that we assume the new intransitive variant, (44c) and (45c), to have been formed, through the strategy of CPA.[31] Thus we see that SAS involves the shift from an anticausative strategy with a nominative subject to a strategy involving CPA.

(44) a. **Báturinn** tók niðri.
the.boat-N took down
'The boat touched the ground.'

b. Einhver tók **bátinn**.
someone-N took the.boat-A
'Someone took the boat.'

c. **Bátinn** tók niðri.
the.boat-A took down
'The boat touched the ground.'

(45) a. **Við** **allir** setjum ofan.
we-N all-N puts down
'We all suffer a setback.'

b. Einhver setur **okkur** **alla** (eitthvert).
someone puts us-A all-A somewhere
'Someone puts us all (somewhere).'

c. **Okkur** **alla** setur ofan.
we-A all-A puts down
'We all suffer a setback.'

Some authentic examples with *taka niðri* 'touch the ground' and *setja ofan* 'suffer a setback' with an accusative subject are provided in (46) and (47).

[31] An especially complex case of this type involves the metaphorical construction *skórinn kreppir* 'the shoe pinches' used to express the meaning 'there are difficulties'. Instead of the older nominative *skórinn* we observe an innovative accusative *skóinn* among many speakers. The change arguably involves the creation of a new oblique-subject construction through the CPA, where a transitive variant is actually attested. We discuss this particular construction in detail elsewhere.

(46) Hann gerði sér þó grein fyrir að **bátinn** var
he did REFL though difference for that the.boat-A was
að taka niðri.
INF take down
'He realized that the boat was touching the ground.'
(Dagblaðið Vísir DV 2007(108):14)

(47) **Þig** setur ofan...
you-A puts down
'You suffer a setback...'
(https://sigmar6.blog.is/blog/sigmar6/entry/892555/, 8.6.2009)

Group II involves constructions where a nominative subject and a morphologically unmarked intransitive predicate is replaced by a comparable construction with a dative subject. Examples of this type include structures with the predicates *fjölga* 'increase, multiply' and *fækka* 'decrease' (Jónsdóttir 2015b, Rögnvaldsson 2020). There is a twist to the story of the creation of verbs like intransitive *fjölga* with a dative subject, namely that it is preconditioned by another change.[32] In Old Icelandic *fjölga* took an accusative object when used transitively (the earliest example is attested from 1360–1370). However, at the beginning of the 18th century the transitive started appearing with a dative object (48a). On the basis of these facts we argue that an intransitive structure with a dative subject (the earliest example of *fækka* dating from 1726 and of *fjölga* from 1859) was created by CPA from the transitive variant with a dative object. In short, the case of the object of the transitive verb changed from accusative (48a) to dative (49a), and subsequently the intransitive variant with a dative subject (49b) replaced the one with a nominative subject (48b).

(48) a. NP fjölgaði **fuglana**.
NP-N increased the.birds-A
b. **Fuglarnir** fjölguðu.
the.birds-N increased

(49) a. NP fjölgaði **fuglunum**.
NP-N increased the.birds-D
b. **Fuglunum** fjölgaði.
the.birds-D increased

The oldest attested examples of the anticausative variant of *fjölga* with a nominative subject and dative subject are provided in (50) and (51), respectively. In Modern Icelandic, intransitive *fjölga* is only found with dative; the nominative variant had disappeared by the early 20th century.

[32] For documentation and dating of the examples of *fjölga* and *fækka* we draw on valuable empirical research by Jónsdóttir (2015b).

(50) af nokkrum vondum bókum svo sem **margar** ...
of some evil books such as many-N
fjölga daglega.
increase-3PL every.day
'Of some evil books, which become more numerous every day.'
(Jónsdóttir 2015b:192, example (14b), 1541–1550)

(51) **sauðpeningi** hefir fjölgað hér norðanlands.
sheep-D have.3SG increased here in.the.North
'Sheep have increased here in the North.' (Jónsdóttir 2015b:189, example (9b), 1859)

The facts concerning the verb *fjölga* are actually even more complicated than the above discussion indicates. It turns out that there are also cases of accusative subjects with the intransitive (anticausative) variant attested in the period 1584–1738, of the type in (52), as established by Jónsdóttir (2015b:187).

(52) **Fuglana** fjölgaði.
the.birds-A increased
'The number of the birds increased.'

The earliest documented example of an accusative subject with *fjölga* is shown in (53):

(53) Og þá ed **mennina** tók að fjölga á jörðu.
and then when the.people-A began to multiply on earth
'And when people began to multiply on the Earth.'
(Jónsdóttir 2015b:187, example (6a), 1584)

In her discussion of this complex situation, Jónsdóttir (2015b) suggests that the construction with accusative subject is older than the one with nominative subject. On her account, the original accusative subject in the anticausative variant was first replaced by nominative by NS. Later, the nominative subject was replaced by dative for reasons that are not clearly stated. However, a development from accusative via nominative to dative is doubtful for two reasons. First, according to Jónsdóttir's (2015b:187) own research, the examples with nominative are older than those with accusative and hence it is very implausible that the accusative was ousted by NS. Second, the sequence of the changes is better motivated from the perspective of known historical tendencies on the assumption that the accusative emerged later than the nominative in this construction. We take the nominative to be the original state of affairs in the anticausative variant with *fjölga*, and propose that the accusative subject was created by CPA from the transitive variant with an accusative object (cf. Group I above). Next, there was a change in case marking in the transitive variant whereby the accusative object was replaced by dative. Subsequently, a new anticausative variant with a dative subject was created by CPA. Note that the emergence of the anticausative structures with accusative and dative subject both involve CPA, i.e. "preservation" of the object case of the transitive in an anticausative structure,

first the accusative and later the dative. On this account there is no need to assume a stage at which NS affected the accusative subject of this construction.

Finally, Group III comprises an intransitive construction where a nominative subject and an *st*-verb is replaced by a construction involving an active (morphologically unmarked) verb with an accusative subject. In short, the CPA strategy replaces the *-st* strategy, although apparently the latter structure continues to be much more common. Examples of this type include the predicate *beygjast* (*st*-verb) and *beygja* (active) 'bend'.

The facts regarding *beygja* and *beygjast* are somewhat complex. The original anticausative formation may have been a labile one, containing the active form *beygja* and a nominative subject, as in (54a). A variant with an *-st* predicate is also reasonably well attested. Finally, (54c) shows an anticausative variant with an accusative subject; this structure is found only once with *vegur* (the attested example is given below).

(54) a. **Vegurinn** beygir.
the.road-N turns
'The road turns.'

b. **Vegurinn** beygist.
the.road-N bends
'The road turns.'

c. Hann tók ekkert eftir því fyr en **veginn** beygði
he noticed not after it until the.road-A bent
í hring...
in circle
'I did not notice it until the road curved in a circle.' (*Vestri* 19. January 1915)

The CPA variant in (54c) was presumably formed on the bases of a transitive structure with *beygja* and an accusative object, as shown in an attested example given in (55).

(55) …að verkstjórinn beygði **veginn** svo fram á við...
that the.foreman-N bends the.road-A then forward
'The foreman bent the road forward (i.e., made the road turn forward).'
(*Ísafold* 1915(74):2)

In addition to the single example of an intransitive structure with *vegur* 'road' as the oblique-subject of *beygja* (54c) we have found a parallel one with *stígur* 'path', given in (56).

(56) Þar sem **stíginn** beygði niður með grenilundinum, blasti
there where the.path-A bent down along the.spruce.grove faced
húsið vel við.
house well with
'Where the path curved down along the spruce grove, the house could be clearly seen.' (*Morgunblaðið* 1947(56):14)

Moerover, the *st*-verb *beygjast* occurs in the metaphorical expression *krókurinn beygist* '(lit.) the hook bends', which conveys the information that someone's interest takes a turn in a certain direction. The metaphorical expression, attested since the 17th century (Friðjónsson 1993), typically occurs in a fixed phrase shown in (57a). The matching transitive structure is attested in (57b) and a new intransitive variant, attested only once, with an accusative subject in (57c).[33] Note that an intransitive variant with an active verb and a nominative subject is not attested in this case.

(57) a. Snemma beygist **krókurinn**.
early bends-ST the.hook-N
'The hook turns early (i.e. the interest turns early on in a certain direction).'

b. Það er holt að beygja snemma **krókinn**
it is healthy to bend early the.hook
að því, sem verða á.
to that-D that become must
'It is good to bend the hook (i.e., turn one's interest) early in the desired direction.' (*Nýtt kvennablað* 3, 1954.)

c. Þannig að **krókinn** hefur tekið að beygja snemma.
so that the.hook-A has begun to bend early
'So [she] developed this interest early in her life.' (*Fréttablaðið* 2004(264):16)

We envisage that the process of forming a new CPA structure involves two steps. First the *st*-predicate in the anticausative variant *krókurinn beygist* (57a) is semantically associated with transitive *beygja* with a nominative subject and an accusative object (57b). Then, on the basis of the transitive variant, a new anticausative is created (57c) by means of CPA, involving both an active verb and an accusative subject. It furthermore transpires that the structures involving *beygjast* and *beygja* shows that CPA, just like OCS (as discussed in 3.2 above), does not target individual NPs but rather the construction as a whole, both the predicate and its subject NP.

The formation of the new oblique subject constructions by means of CPA, shown in (54c), (56) and (57c) above, is different from the formation of new oblique subject constructions by OCS. As noted at the outset, OCS goes against the Case Directionality Hypothesis as it involves the replacement of an unmarked case by a marked case. The process of CPA, on the other hand, is independent of the Case Directionality Hypothesis as it primarily involves a derivational relationship between transitive and intransitive (anticausative) structures. However, selecting a CPA strategy in favor of one with a nominative subject is unexpected in the light of the Case Directionality Hypothesis. This may seem complicated, but it is in accordance with the observed facts.

Finally, it should be noted that oblique subjects created through CPA may be affected by changes in case marking in accordance with the Case Directionality Hypothesis. Thus, NS may affect the subject of some of these verbs and thus obliterate the consequences of CPA, as

[33] While the examples with an accusative subject with *beygja* 'bend' are extremely few, we still believe that they must be taken seriously given that their syntactic structures are identical, although the NPs in each example involve different lexical items.

discussed above. For example, the transitive sentence in (58) contains a dative object, which is traditionally retained with the subject of the anticausative variant (59a). However, most speakers of Modern Icelandic appear to use nominative case instead (Rögnvaldsson 2019), which is likely caused by Nominative Substitution (59b).[34]

(58) Kaupmaðurinn lokar **búðinni**.
merchant-N closes the.store-D
'The Merchant closes the store.'

(59) a. **Búðinni** lokar.
the-store-D closes
b. **Búðin** lokar.
the-store-N closes
'The store closes.'

In summary, CPA is a different process from OCS in that it creates new oblique subjects with intransitive verbs on the basis of the case pattern of the transitive variant. As we have shown, the connection between the transitive and the intransitive (anticausative) variants must still be transparent as new instances of CPA would otherwise not be expected. This productive process does not violate the Case Directionality Hypothesis because it does not involve a simple change in case marking from nominative to oblique. However, the selection of a strategy that creates new structure with an oblique subject over a nominative subject strategy does violate the Case Directionality Hypothesis. By observing relatively recent examples of CPA we gain a valuable insight into the mechanisms that gave rise to oblique subjects in the prehistory of Icelandic.

4 Conclusion

In this paper we have shown that oblique subjects can emerge at any point in a language like Icelandic. Specifically, we discussed two pathways whereby new oblique subject constructions emerge, Oblique-Case Substitution and Case-Preserving Anticausativization.

Oblique-Case Substitution (OCS) involves a change in case marking where an oblique case is substituted for a nominative case with subjects. OCS only affects a handful of experiencer predicates: *hlakka til*, *kvíða fyrir*, *kenna til, finna til* and *skjöplast.* OCS goes against the Case Directionality Hypothesis, by which marked (lexical) case is replaced by unmarked (structural) case. OCS is nevertheless understandable given that experiencer predicates often take an oblique subject, and the predicates in question follow their pattern.

As an example of OCS, we focused on the origins and development of *hlakka til* in Icelandic. We showed how this prepositional verb can be traced back to the simple verb *hlakka* meaning 'cry (used of birds of prey)' which took an agentive subject in the nominative case.

[34] A search for the phrases *búðinni lokar* and *búðin lokar* on Google suggests that the latter is much more common, occurring more than 400 times, while the former has less than 10 results.

The first step in the development was for *hlakka til* to gain an experiencer meaning. Once the semantic change had happened a change in subject case marking could follow. The other verbs undergoing OCS arguably developed in a similar fashion.

Shift in Anticausative Strategy (SAS) involves a (gradual) replacement of one type of anticausative strategy by another. We focused on a replacement type where the strategy selected is Case-Preserving Anticausativization (CPA). By the CPA strategy an intransitive construction with an oblique subject is created from a corresponding transitive construction. Importantly, the subject of the intransitive matches the object of the transitive, not only with respect to semantics but also case marking. Many oblique-subject predicates in Icelandic were formed in this way at various points in the history of the language. Already in Old Icelandic we find examples like *bátinn rekur* 'the boat drifts', with an accusative, and *bátnum hvolfir* 'the boat capsizes', with a dative. More recent examples of oblique subjects being formed through CPA are also found. For instance, we occasionally observe an intransitive variant with a nominative subject being replaced by an intransitive variant with an oblique subject, such as *fuglunum fækkar* for older *fuglarnir fækka* (both meaning 'the number of birds decreases'). At first glance this might look like OCS, a nominative subject case being replaced by an oblique case. However, the nominative case of the subject NP of the old construction does not "change" to accusative or dative. Rather, the entire existing intransitive construction is replaced by a new intransitive one, which in turn is created via CPA on the basis of a transitive construction.

An interesting byproduct of our investigation is the finding that both OCS and CPA do not just target the relevant NP, but rather the construction it is embedded in as a whole, i.e. the subject and the predicate. Thus, it is not only the case marking of the NP that can change, but the form of the predicate can also be affected by the change.

To conclude, even though most case changes are hypothesized to follow the Case Directionality Hypothesis, we nevertheless observe the emergence of new oblique subjects under identifiable conditions. OCS is a countermovement to the Case Directionality Hypothesis whereas SAS is more complex. To be sure, the process of CPA, involving a particular anticausativity strategy and not a change in case marking as such, is independent of the Case Directionality Hypothesis. However, CPA as a result of a Shift in Anticausative Strategy (SAS) is a violation of the Case Directionality Hypothesis since it favors a structure with an oblique subject over a structure with a nominative subject.

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Alternating Dat-Nom/Nom-Dat Verbs in Icelandic: An Exploratory Corpus-Based Analysis*

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Abstract

Alternating Dat-Nom/Nom-Dat verbs in Icelandic are notorious for instantiating two diametrically opposed argument structures: the Dat-Nom and the Nom-Dat construction. Since the discovery of this verb class in Icelandic, considerable work has been carried out on different aspects of the nature of these verbs in Icelandic and related languages. Yet, what is missing from the literature is a systematic study of the distribution of the relevant verbs across the two argument structure constructions in language use and whether all alternating verbs instantiate both argument structure constructions to the same degree. For this purpose, we have carried out a study of 15 verbs, five alternating ones, and as a control, five ordinary Nom-Dat verbs and five non-alternating Dat-Nom verbs. Our findings show that alternating verbs instantiate the Nom-Dat construction in 54% of the cases, and the Dat-Nom construction in 46% of the cases on average for four of the five verbs when both arguments are full NPs, although considerable statistical differences are found between the five verbs. Another remarkable finding is that when the two arguments are pronouns, the Nom-Dat construction takes precedence over the Dat-Nom construction.

1 Introduction

Modern Icelandic is legendary in the syntactic literature for having non-nominative subject verbs of different types. This includes verbs which select for dative subjects and nominative objects, so-called Dat-Nom verbs. What is less well known is that Dat-Nom verbs in Icelandic divide into two classes with respect to argument structure and the syntactic behaviour of the arguments. One class of Dat-Nom verbs consistently occurs in the Dat-Nom argument structure construction, while another class of verbs alternates between the Dat-Nom and the Nom-Dat argument structure construction (cf. Bernódusson 1982, Jónsson 1997–98, Barðdal 1999, 2001, 2022: Ch. 3, Platzack 1999, Sigurðsson 2006, Rott 2013, 2016, Wood & Sigurðsson 2014, Barðdal, Eythórsson & Dewey 2014, 2019). The difference in behaviour between alternating and non-alternating verbs is illustrated by means of the verbs *nægja* 'find/be sufficient' and *líka* 'like'. The verb *nægja*, being an alternating verb, allows both verbal arguments to take clause-

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initial position, thus confirming their status as syntactic subjects. At the same time, the other argument is realised in the postverbal slot, which is reserved for objects. The verb *líka* does not allow for this kind of alternation, as the dative must never occupy the postverbal object slot:

(1) a. *Gunnari hafði nægt þessi skýring.*
Gunnar.DAT had sufficed this.NOM explanation.NOM
'Gunnar found this explanation sufficient.'

b. *Þessi skýring hafði nægt Gunnari.*
this.NOM explanation.NOM had sufficed Gunnar.DAT
'These explanations were not sufficient for Gunnar'

(2) a. *Barninu hafði líkað bragðið illa.*
child.the.DAT had liked taste.the.NOM badly
'The child had not liked the taste.'

b. **Bragðið hafði líkað barninu illa.*
taste.the.NOM had liked child.the.DAT badly
Intended meaning: 'The taste had not been to the child's liking.'

The fact that either argument of alternating verbs may function as the syntactic subject or the syntactic object was first documented by Barðdal (1999, 2001) with respect to a host of accepted subject tests for Icelandic. Since then, further work has been carried out on the nature of alternating Dat-Nom/Nom-Dat verbs in Icelandic, including a systematic comparison between the syntactic behaviour of the arguments of classical Dat-Nom verbs and the alternating Dat-Nom/Nom-Dat verbs in Icelandic, also compared to German (cf. Barðdal, Eythórsson & Dewey 2014, 2019). This work further corroborates the dichotomy between classical Dat-Nom verbs and alternating Dat-Nom/Nom-Dat verbs in Icelandic.

However, what is missing from the literature is a systematic study of how frequently alternating verbs instantiate the Nom-Dat construction and the Dat-Nom construction, respectively, in Icelandic texts. In other words, do all alternating Dat-Nom/Nom-Dat verbs instantiate the two argument structure constructions to the same degree or are the frequencies skewed in favour of one of the argument structure constructions over the other? Further, what determines the speakers' choice of one of the two argument structure constructions, Dat-Nom or Nom-Dat, over the other?

A first attempt at an investigation of this type was carried out by Rott (2013). He extracted his data from a corpus of 70 million words and collected tokens for eight verbs in total, i.e. four classical Dat-Nom verbs and four alternating Dat-Nom/Nom-Dat verbs. Rott's study is certainly meritable in that it is the first to lend corpus-based support to the 'alternating predicate puzzle', but it nevertheless suffers from several drawbacks. First, Rott only harvested 50 tokens per verb, and his full dataset only comprised 372 observations. Another disadvantage of Rott's study is that it also includes clausal arguments, i.e. instances where the nominative is realised as a clause, as opposed to when it is realised as a nominal argument. Since clausal arguments are *de facto* considerably longer than nominal arguments, clausal arguments are

more prone to occurring later in the clause than nominal arguments. As a consequence, clausal arguments should show a greater tendency to be realised as objects, as objects generally occur later in the clause than subjects in Icelandic. In fact, this is exactly what Rott's results show, as 82 out of 87 clausal nominatives occur in postverbal position. This skewness, in turn, greatly inflates the number of Dat-Nom attestations in his sample, since 82 out of 94 Dat-Nom attestations can probably be attributed to a length effect.

Another limitation of Rott's (2013) study is that it does not specify word order distributions per verb lemma, thus positing a verb class effect without actually demonstrating that such an effect should exist in the first place. Finally, Rott also does not investigate any basic interactions between the argument slots. At least for alternating predicates, he specifies per word order pattern (i.e. Dat-Nom, or Nom-Dat) how often each argument is realised as either a full NP, a pronoun, or a clause. For (pro)nominal constituents, he also specifies the type of constituent (proper noun, definite NP, indefinite NP; personal pronoun, demonstrative pronoun, indefinite pronoun). However, he fails to disclose how often each of these co-occur with one another, which also makes it difficult to properly assess the scope of his results.

The goal of this paper is to provide a systematic study of the degree to which the two argument structure constructions are instantiated by alternating verbs in Icelandic. This entails a study which compares nouns with nouns and pronouns with pronouns, instead of mixing the two types of argument realisations with each other. It is also important that both arguments be (pro)nominally realised as opposed to one of the arguments being realised as a clause. Such a study is better designed to control for different factors that may determine speakers' choice of one argument structure construction over the other.

In the remainder of this paper, we present a corpus-based study of alternating Dat-Nom/Nom-Dat verbs in Icelandic texts, extracted from the Icelandic Web 2020 corpus (isTenTen20, Jakubíček et al. 2013) which consists of 520 million words. However, in order to establish a baseline with which our findings for alternating verbs may be compared, we first present an identical study involving both classical Dat-Nom verbs and ordinary Nom-Dat verbs in Icelandic. Thus, the study makes use of five verbs for each of the three argument structure classes, 15 verbs in total. For these, 200 eligible instances are extracted for each lemma, resulting in a total of 3,000 observations. We show that the baseline established for ordinary Nom-Dat verbs is also upheld for classical Dat-Nom verbs in Icelandic, while alternating Dat-Nom/Nom-Dat verbs deviate substantially from this baseline.

This paper is organised as follows: in Section 2 we present our object of study, including an overview of the three verb classes selecting for the Nom-Dat construction, the Dat-Nom construction and the alternating Dat-Nom/Nom-Dat constructions. We then present our hypothesis in Section 3, that the three types of verbs show variation in word order distribution depending on which argument structure construction they select for. Section 4 gives an overview of the methodology applied, whereas Section 5 presents the results from our study: a baseline for ordinary Nom-Dat verbs and classical Dat-Nom verbs, and the statistics for alternating Dat-Nom/Nom-Dat verbs in relation to these baselines. Section 6 summarises the main content and conclusions of the paper.

2 Object of study

It is a well-established fact of Icelandic that the subject status of a verbal argument is not necessarily associated with nominative case marking (Andrews 1976, Thráinsson 1979, Zaenen et al. 1985, Sigurðsson 1989, Jónsson 1996, *inter alia*). For these so-called quirky or oblique subjects, at least the following nine subjecthood diagnostics have been identified (Andrews 1976, Thráinsson 1979, Zaenen et al. 1985, Sigurðsson 1989, Jónsson 1996, Barðdal 2001, Barðdal 2006, Barðdal, Eythórsson & Dewey 2019, *inter alia*):

- first position in declarative clauses
- subject-verb inversion
- first position in subordinate clauses
- subject-to-object raising
- subject-to-subject raising
- long distance reflexivization
- clause-bound reflexivization
- conjunction reduction
- control infinitives

It has been demonstrated that Icelandic oblique subjects pass all of the aforementioned tests, usually referred to in the literature as behavioural tests, as opposed to coding tests (cf. Keenan 1976). As such, these tests confirm the status of oblique subjects as *behavioural* subjects in Icelandic (see the references listed above for a more detailed discussion). In this paper we wish to lend corpus-based support to the first and the third test in the bulleted list above, i.e. word order distribution in main and subordinate clauses, applying them to Dat-Nom and Dat-Nom/Nom-Dat verbs in Icelandic.

It has already been mentioned above that Dat-Nom verbs come in two different guises: non-alternating Dat-Nom verbs, and alternating Dat-Nom/Nom-Dat verbs. The latter class, which allows for two diametrically opposed case frames, was first discovered by Bernódusson (1982), and it has since been the subject of several studies (Jónsson 1997–98, Barðdal 1999, 2001, Platzack 1999, Sigurðsson 2006, Rott 2013, 2016, Wood & Sigurðsson 2014, Barðdal, Eythórsson & Dewey 2014, 2019, *inter alia*). In this paper, we either refer to them as **alternating Dat-Nom/Nom-Dat verbs**, or as ***nægja*-verbs** (due to the even distribution of frequencies below).

Verbs of the *nægja*-type allow both the dative as well as the nominative to take on the role of subject, yet not at the same time. This is manifested in the fact that each of the aforementioned arguments independently passes the subject tests mentioned above, so that, when the dative behaves as the subject, the nominative takes on the role of object, and vice versa (cf. Barðdal 1999, 2001, Barðdal, Dewey & Eythórsson 2014, 2019 where it is shown that either argument passes all the subject tests in Icelandic). Examples (1a–b), here repeated as (3a–b), illustrate this phenomenon, in that they show that both arguments may take initial position in declarative clauses without there being a change in meaning or focus.

(3) a. *Gunnari hafði nægt þessi skýring.*
Gunnar.DAT had sufficed this.NOM explanation.NOM
'Gunnar found this explanation sufficient.'

b. *Þessi skýring hafði nægt Gunnari.*
this.NOM explanation.NOM had sufficed Gunnar.DAT
'These explanations were not sufficient for Gunnar'

What speaks against a simple topicalisation analysis of the examples above is the positioning of the verbal arguments relative to the conjugated verb *hafði* 'had'. In Icelandic the subject must be adjacent to the conjugated verb (unless it is either indefinite or heavy): that is, it must either precede or follow the verb. This is because of the so-called verb-second constraint, which also operates on other Germanic languages (cf. Eythórsson 1995, Axel 2007: 27–67, Harbert 2007: 398–415, Thráinsson 2007: 40–45, *inter alia*). Had either (3a) or (3b) been a topicalisation of the other, the nominative in (3a) and the dative in (3b) had been realised in between the conjugated verb *hafði* 'had' and the past participle *nægt* 'sufficed'. This is not the case, though, since both the nominative in (3a) and the dative in (3b) are realised after the non-finite verb, which is an object position.

Because of their dyadic nature, Barðdal (2001) and Barðdal, Eythórsson & Dewey (2019) have suggested that alternating verbs of this type in fact instantiate two different argument structure constructions: a Nom-Dat construction that licences a nominative subject and a dative object, and a Dat-Nom construction that licences a dative subject and a nominative object. Our approach is fully in line with this analysis, and we subscribe to the view that the subject of alternating predicates is constructionally determined.

Interestingly, not all Dat-Nom verbs allow for alternation, as is already mentioned above. Some, such as *líka* 'like' only licence dative subjects; their nominative argument invariably behaves as an object with regard to word order distribution. The fact that, for these verbs, subject status is unequivocally associated with the dative case is illustrated by the following examples:

(4) a. *Barninu hafði líkað bragðið illa.*
child.the.DAT had liked taste.the.NOM badly
'The child had not liked the taste.'

b. **Bragðið hafði líkað barninu illa.*
taste.the.NOM had liked child.the.DAT badly
Intended meaning: 'The taste had not been to the child's liking.'

Recall that (4b) is infelicitous because the subject *barninu* 'the child' and the conjugated verb *hafði* 'had' have been separated from one another by the past participle *líkað* 'liked'. In case the nominative is realised preverbally for information-structural reasons, the dative, being the syntactic subject, breaks open the verbal group and is once again reunited with the conjugated verb:

(5) *Bragðið hafði barninu líkað illa.*
taste.the.NOM had child.the.DAT liked badly
'The taste the child had not liked.'

The example in (5) is topicalisation and not neutral word order; that is, it is a topicalisation construction that fronts a non-subject constituent to initial position for emphasis (Thráinsson 2007: 342). Since the dative subject and the conjugated verb have now been reunited, the example is grammatical. Verbs that, like *líka*, only allow their dative argument to pass the aforementioned subject tests are henceforth called **non-alternating Dat-Nom verbs**, but we will also refer to them as ***líka*-verbs** in the remainder of this paper. In construction grammar terms, it can thus be stated that the default argument structure construction *líka*-verbs occur in is the Dat-Nom construction, and that the linear nominative-first order is only used for information-structural purposes (Barðdal, Eythórsson & Dewey 2019).

Both alternating Dat-Nom/Nom-Dat verbs, as well as non-alternating Dat-Nom verbs, should be distinguished from ordinary **Nom-Dat verbs**, or – as we will also be calling them – ***hjálpa*-verbs**. These are also two-place predicates requiring a nominative and a dative argument, but, crucially, it is the nominative argument that behaves as the syntactic subject, and the dative as the object (Barðdal, Eythórsson & Dewey 2019: 158), as is evident by the grammaticality of (6a) and the ungrammaticality of (6b) below:

(6) a. *Samfélagið verður að hjálpa börnum.*
community.the.NOM has to help children.DAT
'The community must help children.'

b. **Börnum verður að hjálpa samfélagið.*
children.DAT has to help community.the.NOM
Intended meaning: 'Children must get help through the community.'

c. *Börnum verður samfélagið að hjálpa.*
children.DAT has community.the.NOM to help
'Children, the community must help.'

Thus, *hjálpa*-verbs constitute the mirror counterpart of the aforementioned *líka*-verbs, in that they exclusively occur in the Nom-Dat argument structure construction, which is the opposite of the Dat-Nom argument structure construction. Also, *hjálpa*-verbs only allow for preposed datives in cases where the dative is topicalised, as is shown in (6b–c).

3 Hypotheses

In this study we endeavour to lend corpus-based statistical support to the analysis that the dative arguments of *nægja*-verbs are indeed syntactic subjects. This we do by comparing the frequency of topicalised arguments in first position to the frequency of subjects in first position. In other words, if an oblique argument behaves as a subject, it can be expected to be strongly associated with first position in declarative clauses (diagnostic test 1) and first position in subordinate

clauses (diagnostic test 3), while topicalised objects would not show the same association. Thus, our aim is to corroborate Thráinsson's (2007: 21) claim that Icelandic is a subject-first language, and that this inclination is not sensitive to case marking.

As is already pointed out above, Icelandic, like several other languages, allows for a constituent other than the subject to be fronted to initial position for information-structural purposes, a phenomenon also known as topicalisation, However, since word order in Icelandic is understood to be quite rigid (Thráinsson 2007: 342), topicalisation can be expected to be relatively rare, and even less common in subordinate clauses than in main clauses. This is confirmed by Angantýsson's (2020: 261) study, although it is based on acceptability judgements and not corpus frequencies. Nevertheless, empirical studies on how frequent topicalisation actually is, are quite scarce.

One study that does include frequency counts, is Callegari & Ingason (2021). In their diachronic investigation of matrix-clause ditransitive constructions, they explore object topicalisation in 12th to 21st century Icelandic texts, drawing their data from the IcePaHC corpus (Wallenberg et al. 2011). Callegari & Ingason include both pronominal and nominal objects in their study, i.e. objects realised as both pronouns and full NPs. Out of a total of 1,100 hits, they find 128 instances of object topicalisation, of which 89 have the direct object topicalised (8%), and 39 the indirect object (3.5%). Thus, topicalisation affects approximately 11.5% of the tokens under study, and direct object topicalisation turns out to be more than twice as common as indirect object topicalisation. Callegari & Ingason do not include an unambiguous overview of object topicalisation per century, but a summary graph seems to reveal that, for the 21st-century data, both direct objects as well as indirect objects are each topicalised approximately 6% of the time.

It is unclear if the predicates in our study are equally permissive of topicalisation as Callegari & Ingasson's (2021) ditransitive verbs are. For that reason, we map out word order preferences for the *hjálpa*-class and use these counts as a first baseline against which word order preferences for the *líka*- and the *nægja*-classes will be measured. Our expectations regarding word order preferences for *hjálpa*-verbs are captured in Hypothesis 1:

H1 Verbs of the *hjálpa-type* are hypothesised to show a strong preference for the Nom-Dat linear order, as they select for the Nom-Dat argument structure construction. This means that they generally realise the behavioural subject, which is encoded in the nominative, in clause-initial position.

Mutatis mutandis, the same prediction is expected to hold for non-alternating Dat-Nom verbs, which is captured in Hypothesis 2:

H2 Verbs of the *líka*-type are hypothesised to show a strong preference for the Dat-Nom linear order, as they select for the Dat-Nom argument structure construction. This means that they generally realise the behavioural subject, which is encoded in the dative, in clause-initial position.

It has already been pointed out that *nægja*-verbs constitute somewhat of an intermediate category between *hjálpa*- and *líka*-verbs, as both of their core arguments pass the subject tests. Therefore, this class of verbs is expected to deviate significantly from the baseline set by either the *hjálpa*- or the *líka*-class. This expectation is captured in Hypothesis 3:

H3 Verbs of the *nægja*-type are hypothesised to show a significantly less skewed preference for either the Nom-Dat linear order or the Dat-Nom linear order, as they are hypothesised to be able to instantiate both the Dat-Nom and the Nom-Dat argument structure constructions. As subjecthood is constructionally determined, both the nominative as well as the dative are expected to occur in clause-initial position with notable frequency.

We now turn to a description of our methodology, before we present our findings in Section 5 below.

4 Methodology

This study is based on 15 simple verbs that fall into one of three categories: (i) ordinary Nom-Dat verbs (the *hjálpa*-type), (ii) non-alternating Dat-Nom verbs (the *líka*-type), and (iii) alternating Dat-Nom/Nom-Dat verbs (the *nægja*-type). Our aim was to follow Rott (2013) in our selection of verbs, but some of the verbs he used were too infrequent in the corpus to yield enough eligible tokens. Thus, we complemented the dataset with additional known non-alternating Dat-Nom and alternating Dat-Nom/Nom-Dat verbs (cf. Jónsson 1997–98, Barðdal 1999: 89, 2001: 53–58). Each category contains five verb types:

(i) Ordinary Nom-Dat verbs: *hjálpa* ‘help’, *líkjast* ‘resemble’, *mótmæla* ‘contradict’, *treysta* ‘trust’ and *þakka* ‘thank’
(ii) Non-alternating Dat-Nom verbs: *áskotnast* ‘receive’, *blöskra* ‘be shocked, be horrified’, *leiðast* ‘be bored’, *líka* ‘like’ and *þykja* ‘think, find, seem’
(iii) Alternating Dat-Nom/Nom-Dat verbs: *duga* ‘suffice, be enough’, *dyljast* ‘be hidden to sby, be aware’, *endast* ‘last’, *henta* ‘suit, befit’, *nægja* ‘be enough, be sufficient’

We follow Rott (2013: 103) in using *blöskra* ‘be shocked’, *leiðast* ‘be bored’ and *líka* ‘like’ in the class of non-alternating Dat-Nom verbs and *henta* ‘suit’ and *dyljast* ‘be hidden, be aware of’ in the alternating Dat-Nom/Nom-Dat class.

The analysis is based on a data collection from the Icelandic Web 2020 corpus (isTenTen20, Jakubíček et al. 2013), which consists of approximately 520 million words. The corpus itself has been accessed through the Sketch Engine interface. For each of the aforementioned verbs, a lemmatised search query has been carried out targeting the verb’s bare infinitival form. That is also true for the etymologically reflexive *-st*-verbs, as the search engine considers *-st*-forms to be instantiations of the non-suffigated base form. Thus, *líkjast*, *áskotnast*, *leiðast*, *dyljast* and *endast* were run as *líkja*, *áskotna*, *leiða*, *dylja* and *enda*, respectively.

One or more files have subsequently been downloaded of 10,000 randomised tokens per verb type, depending on how abundant the data were. In contrast to Rott, who also includes middle field tokens, we only focus on tokens in which the main verb is flanked by either a nominal or a pronominal element. Thus, only instances of the type [Nom-V-Dat] or [Dat-V-Nom] have been taken into account. As a consequence, there are no tokens in our dataset of any other kinds of topicalised elements, which in turn excludes, for instance, adverbials.

Contrary to the Mainland Scandinavian languages, Icelandic is a so-called symmetric V2-language, which means that the conjugated verb takes second position both in main clauses

as well as in subordinate clauses (Thráinsson 2007: 41, Angantýsson 2020: 243). Eligible tokens are therefore not restricted to main clauses only, but also include subordinate structures. Per verb type, the first 200 tokens have been withheld for study. Hence, the total number of collected tokens equals 3,000, and the number of collected tokens per verb class equals 1,000.

All tokens have been annotated for the following variables: case, (pro)nominality, pronoun type (if applicable), referentiality, person, number, definiteness, animacy, and length, although only the first three are investigated in this study. Each of these three is discussed in turn below:

(i) Case: **nominative** or **dative**
(ii) (Pro)nominality: **pronoun** (*þú* 'you', *ykkur* 'you' 2p.acc/dat.pl, *einhverjum* 'some') or full **NP** (*Ísland* 'Iceland', *ýmsir þingmenn* 'some congressmen', *bókin* 'the book')
(iii) Pronoun type: **personal** (*ég* 'I', *hann* 'hann', *þeir* 'they' 3p.m), **demonstrative** (*þessi* 'this', *hinum* 'the other', *slíkur* 'such'), **indefinite** (*öllum* 'all', *engum* 'no-one', *báðum* 'both'), or **reciprocal** (*hvert öðru* 'each other' neut., *hver annarri* 'each other' fem.). Reflexives are excluded from study, as they are hypothesised to prefer the post-verbal slot. In line with Heylen (2005: 103), conjoined pronouns are also excluded, as they arguably lose their pronominal status

We now turn to our findings and a discussion thereof.

5 Results and discussion

In the following three subsections, 5.1, 5.2 and 5.3, we present our findings for each of the three verb classes. We start with *hjálpa*-verbs, to establish a baseline for ordinary Nom-Dat verbs, from there proceeding towards *líka*-verbs, also to establish a baseline but this time for classical Dat-Nom verbs in Icelandic. In 5.3 we then compare the statistics for alternating *nægja*-verbs with the baselines established for *hjálpa*- and *líka*-verbs in Icelandic.

5.1 Non-alternating Nom-Dat verbs

In the first section below, we give an outline of our findings with *hjálpa*-verbs in general. We discuss our findings for two different configurations, namely when both arguments are full NPs as opposed to when both arguments are pronouns. Finally, we summarise our conclusions for *hjálpa*-verbs in Section 5.1.4.

5.1.1 General findings

As is evident from Table 1, *hjálpa*-verbs show a very robust preference for the Nom-Dat linear order across configurations: no less than 989 out of 1,000 tokens prefer the nominative argument to precede the dative, rather than the other way around. The verbs *líkjast* 'resemble', *þakka* 'thank', and *treysta* 'trust' are absolute in this respect, as they do not yield a single Dat-Nom token.

Table 1. Ordinary Nom-Dat verbs across word order configuration

	Nom-Dat		Dat-Nom	
Verb	**N**	**f**	**N**	**f**
hjálpa	199	99.5%	1	0.5%
líkjast	200	100%	0	0%
mótmæla	190	95%	10	5%
treysta	200	100%	0	0%
þakka	200	100%	0	0%
Total	989	99%	11	1%

The only two verbs with which the Dat-Nom linear order is found are *hjálpa* 'help' (one attestation) and *mótmæla* 'contradict' (ten attestations). Interestingly, the one Dat-Nom attestation for *hjálpa*, shown in (7) below, comes from a biblical text (most likely a translation), which, due to its inherently archaic style, underlines its particular status.

(7) *Hann aumkast yfir bágstadda og snauða, og fátækum hjálpar hann.*
he takes.pity over the.needy and the.impoverished and the.poor.DAT helps he.NOM
'He takes pity on the deprived and the impoverished, and the poor he helps.'

Also, for *mótmæla*, the Dat-Nom linear order seems to represent topicalisations, i.e. a word order pattern that allows the canonical order of constituents to be inverted to signal a constituent's pragmatic salience. This can also be deduced from the fact that all datives in clause-initial position are either demonstrative pronouns (e.g. *því* 'that'; six tokens), or definite NPs (e.g. *þessu fólki* 'these people'; four tokens), as is shown in (8a–b), respectively:

(8) a. *... en því mótmælti Endurvinnslan.*
but that.DAT objected recycling.company.NOM
'... but to that the recycling company objected.'

b. *Þessu fólki mótmælti ég hvar sem ég gat.*
these.DAT people.DAT opposed I.NOM where which I could
'To these people, I objected wherever I could.'

We, thus, conclude that the overwhelming number of attestations of the Nom-Dat linear order corroborates the assumption that this word order represents neutral word order for *hjálpa*-verbs. As such, these findings confirm the already established fact in Icelandic that *hjálpa*-verbs indeed select for the Nom-Dat argument structure construction.

5.1.2 Word order variation in the [NP-V-NP] configuration

Table 2 presents an overview of the word order variation (or rather the lack thereof) in the [NP-V-NP] configuration with *hjálpa*-verbs. The general rule in the [NP-V-NP] configuration is to realise the dative postverbally, as the examples with *hjálpa* 'help' and *líkjast* 'resemble' in (9) below show:

(9) a. *Listamaður hjálpaði börnum að ...*
artist.NOM helped children.DAT to
'An artist helped children to ... '

b. *Einkenni líkjast helst inflúensusýkingu ...*
symptoms.NOM resemble most influenza.infection.DAT
'Symptoms mostly resemble an influenza infection ...'

Table 2 reveals an overwhelming tendency towards the Nom-Dat linear order, which follows naturally from the heavily skewed frequencies for *hjálpa*-verbs in general, as discussed above, but the data still reveal two noticeable trends.

Table 2. Ordinary Nom-Dat verbs in the [NP-V-NP] configuration

	Nom-Dat		**Dat-Nom**	
Verb	**N**	**f**	**N**	**f**
hjálpa	25	100%	0	0%
líkjast	125	100%	0	0%
mótmæla	98	98%	2	2%
treysta	31	100%	0	0%
þakka	55	100%	0	0%
Total	334	99%	2	1%

First, nominal frequencies in the [NP-V-NP] configuration are generally very high; there are never fewer than 25 attestations per verb, and their total number across all five verbs amounts to 336, which is equal to approximately one third of all the tokens collected for this verb class. Thus, our findings for *hjálpa*-verbs in the double-NP configuration can be considered to be very robust.

Secondly, it is worth noting that the [NP-V-NP] configuration seems to further amplify the inclination of these verbs towards the Nom-Dat linear order; again the sole verb that (marginally) allows datives in initial position is *mótmæla* 'contradict' with the following two tokens:

(10) a. *Þessari frásögn mótmælti annar sjónarvottur ...*
this.DAT narration.DAT objected another.NOM eye.witness.NOM
'To this narration, another eyewitness objected ...'

b. *Þeirri fyrirhuguðu málsmeðferð mótmæltu ýmsir þingmenn ...*
the.DAT intended.DAT procedure opposed some.NOM parliamentarians
'This intended procedure, some parliamentarians objected to ...'

Both of these are topicalisations, with the dative occurring in initial position for information-structural purposes. Both tokens also display a discrepancy in definiteness, in that the fronted dative is definite, whereas the postposed nominative is indefinite. Such an asymmetry is

undoubtedly conducive to an inversion of the canonical order of constituents (cf. Siewierska 1993, Lambrecht 1994, 2000, Gregory & Michaelis 2001, *inter alia*).

5.1.3 Word order variation in the [Pro-V-Pro] configuration

Word order preferences in the [Pro-V-Pro] configuration, as they are presented in Table 3, constitute a near-perfect copy of the results presented in Tables 1–2 above.

Table 3. Ordinary Nom-Dat verbs in the [Pro-V-Pro] configuration

	Nom-Dat		**Dat-Nom**	
Verb	**N**	**f**	**N**	**f**
hjálpa	68	100%	0	0%
líkjast	6	100%	0	0%
mótmæla	25	93%	2	7%
treysta	83	100%	0	0%
þakka	56	100%	0	0%
Total	238	99%	2	1%

With the exception of *mótmæla*, all *hjálpa*-verbs tend entirely towards the Nom-Dat linear order. Interestingly, the only two attestations of the Dat-Nom linear order contain a dative demonstrative pronoun in combination with the nominative personal pronoun *ég* 'I', which again clearly points towards an effect of topicality. We demonstrate this with one example of each of the two configurations below, the Nom-Dat order in (11a) and the Dat-Nom order in (11b):

(11) a. *Ég mótmælti þessu og benti á að ...*
I.NOM objected this.DAT and pointed on that
'I objected to this and pointed out that ...'

b. *En hitt, að þetta hafi verið gjört í fullkomnu óþakklæti skólastjóra, því mótmæli ég algjörlega.*
but the.other that this had been done in perfect ingratitude headmaster's that.DAT oppose I.NOM entirely
'But the other [option], that this was done in the total ingratitude of the head master, to that I object completely.'

5.1.4 Interim conclusion

The evidence presented in this section is fully in line with the prediction that Icelandic possesses a class of Nom-Dat verbs, as the Nom-Dat linear order is attested in 989 out of 1,000 times across configurations (i.e. 99%), and 334 out of 336 times in the [NP-V-NP] configuration in particular (i.e. 99.5%). Hypothesis 1 is thus borne out.

Furthermore, our data show that object topicalisation in Icelandic is very rare; it is mostly associated with pronominality (nine out of 11 cases), but the verb *mótmæla* also, albeit

marginally, allows for topicalisation in the [NP-V-NP] configuration (two out of 11 cases). Interestingly, topicalisation is much less frequent in our dataset than in the aforementioned Callegari & Ingason (2021) study, as their data for the 21st century seem to reveal that both direct objects as well as indirect objects allow for topicalisation approximately 6% of the time. In other words, their ditransitive verbs seem to allow for topicalisation more readily than the *hjálpa*-verbs in our study.

We do not know on how many verbs Callegari & Ingason base their topicalisation study, except that it involves all the ditransitive verbs found in the IcePaHC corpus, spanning from the 12th to 20th century Icelandic. Yet, our goal here is not to draw definite conclusions about the prevalence of topicalisation in Icelandic in general, but only to set a baseline for Nom-Dat verbs, for a comparison with alternating Dat-Nom/Nom-Dat verbs below. This is the reason why we compare our numbers with Callegari & Ingason's numbers. We also believe that five Nom-Dat verbs occurring in a set of 1,000 tokens in total is adequate to establish such a baseline for this narrowly defined verb class.

Thus, we conclude that the evidence presented here firmly shows: (i) that Icelandic has an overwhelming tendency for nominative subjects to precede dative objects in the linear order, (ii) that this effect not only plays out at the level of individual verbs, but also that there is an overarching verb class effect, and (iii) that pronouns only mildly swing a verb's preference for a given linear order of constituents (see, however, discussion below).

5.2 Non-alternating Dat-Nom verbs

In this subsection we turn to word order preferences for *líka*-verbs, i.e. verbs selecting for the Dat-Nom argument structure construction. The obvious question is whether dative subjects show the same tendency as nominative subjects with *hjálpa*-verbs to occur in initial position. Thus, these findings constitute the second baseline against which we compare our findings for alternating Dat-Nom/Nom-Dat verbs. We start with an overview of our general results, before we present the two configuration-specific findings involving full NPs vs. pronouns. A special discussion of the effect of demonstratives in the nominative case is also included.

5.2.1 General findings

The frequencies obtained for the non-alternating Dat-Nom verbs in our sample virtually mirror the ones found for the Nom-Dat verbs: out of 1,000 attestations, 931 realise the dative argument in initial position. We take this overwhelming tendency for these verbs to show up with the Dat-Nom linear order to suggest that the Dat-Nom order is, indeed, the neutral word order for this verb class. Table 4 presents an overview of the individual frequencies per verb type.

The fact that *líka*-verbs generally show a very strong inclination towards the Dat-Nom linear order indeed corroborates the assumption that these verbs select for the Dat-Nom argument structure construction, as is already established in the literature on Icelandic syntax. However, the total number of tokens showing the inverted order of constituents is remarkably higher than for Nom-Dat verbs, as the Nom-Dat linear order is attested 69 times (i.e. 7%), as opposed to only 11 attestations of the Dat-Nom linear order for *hjálpa*-verbs (i.e. 1%).

Table 4. Non-alternating Dat-Nom verbs across word order configurations

	Nom-Dat		Dat-Nom	
Verb	**N**	**f**	**N**	**f**
áskotnast	3	1.5%	197	98.5%
blöskra	1	0.5%	199	99.5%
leiðast	7	3.5%	193	96.5%
líka	7	3.5%	193	96.5%
þykja	51	25.5%	149	74.5%
Total	69	7%	931	93%

What is remarkable about these results is the way in which they relate to the numbers presented in the aforementioned study by Callegari & Ingason (2021). Recall that their 21st-century data show topicalisation to occur approximately 6% of the time, both for direct objects and indirect objects. These findings tie in nicely with what we find for Dat-Nom verbs in general, which topicalise the nominative argument approximately 7% of the time (see Table 4), yet they differ starkly from what we attest for Nom-Dat verbs, which topicalise the dative only 1% of the time (see Table 1).

Regardless of the differences between how often the dative of Nom-Dat verbs is topicalised as opposed to the nominative of Dat-Nom verbs, the 7% mean for *líka*-verbs mentioned above is inflated considerably by the high number of Nom-Dat attestations for *þykja* 'think, find, seem' (25.5%). Recalculating the frequencies, without the outlier *þykja*, the number of Nom-Dat attestations for *líka*-verbs drops to 2.25%, which is markedly less than the 6% of object topicalisation Callegari & Ingason documented for their dataset. Also, when zooming in on the high share of Nom-Dat word order attestations with *þykja*, it is striking that 49 out of 51 Nom-Dat tokens found with this verb have their nominative slot filled by either a definite pronoun (41 tokens), or a definite full NP (eight tokens), configurations which are shown in (12a–b), respectively. An array of studies have shown definiteness and pronominality to be key factors in word order variation (cf. Siewierska 1993, Lambrecht 1994, 2000, Gregory & Michaelis 2001, *inter alia*). The verb *þykja* is clearly particularly sensitive to this tendency.

(12) a. *Það þótti honum óskaplega mikið varið í ...*
that.NOM thought he.DAT incredibly much worthy in
'That (which) he felt was extremely worthy ...'

b. *Þetta hey þótti kúnum gott ...*
this.NOM hay.NOM found cows.the.DAT good
'This hay, the cows like ...'

Zooming in further on the Nom-Dat tokens with pronominal nominatives, another remarkable tendency surfaces, again with *þykja*: 37 out of 41 tokens are demonstrative pronouns. This finding is reminiscent of the tendency discussed in Section 5.1.1 above for the verb *mótmæla* 'contradict', which is marginally found in the Dat-Nom linear order, mostly when the dative is a demonstrative pronoun. This is shown in example (13) below:

(13) *Það* *þótti* *henni* *ógeðslegt ...*
that.NOM thought she.DAT disgusting
'That she found disgusting ...'

Given the fact that demonstratives convey highly topical information, it is clear that topicality, especially in combination with effects of definiteness and pronominality, may cause changes in the linear order from the neutral Dat-Nom to the topicalised Nom-Dat order. However, the extent to which the word order of different argument structures can be inverted also seems to be dependent on the verb itself.

It is also worth pointing out that the results presented in Table 4 are very much in line with Rott's (2013) empirical analysis of four Icelandic *líka*-verbs, viz. *blöskra* 'be shocked, be horrified', *gremjast* 'resent, be annoyed', *líka* 'like', and *leiðast* 'be bored', for which he found that the dative argument was realised preverbally 162 times (96%), but postverbally only seven times (4%). Rott does not include any frequencies for individual verbs, but since his results are equally skewed as ours, it is reasonable to assume that the verb class effect he uncovers may also be dependent on individual verb effects. Recall that it is case marking and argument structure that motivates our verb class categorisation, not the behaviour of individual verbs.

Finally, the overwhelming preference of *líka*-verbs for dative-first structures refutes the claim made by Roehm et al. (2007) that non-alternating Dat-Nom verbs in Icelandic are a category in flux, in that they have started adopting the behaviour of alternating Dat-Nom/Nom-Dat verbs. Roehm et al.'s conclusion is based both on an acceptability judgement task as well as on ERP data, but it is unclear exactly which verbs they included in their study.

5.2.2 Word order variation in the [NP-V-NP] configuration

In more than one way, the figures presented in Table 5 constitute the mirror image of those presented in Table 2. First, all *líka*-verbs show a very robust preference for the Dat-Nom linear order, which corroborates the existing analysis of these as being non-alternating Dat-Nom verbs; only *þykja* returns one token in which the canonical order of constituents is inverted. This example, which has already been discussed below as (12b), is here repeated as (14):

(14) *Þetta* *hey* *þótti* *kúnum* *gott ...*
this.NOM hay.NOM found cows.the.DAT good
'This hay, the cows like ...'

Thus, the variance observed in Table 4 is almost non-existent in Table 5, which, again, confirms the status of *líka*-verbs as unequivocal non-alternating dative-subject predicates.

Secondly, both the number of attestations per verb as well as the total number of tokens in the [NP-V-NP] configuration in general is quite high, which means that the proportional frequencies for this verb class in this configuration (one vs. 193 tokens) are as such both trustworthy and reliable.

Table 5. Non-alternating Dat-Nom verbs in the [NP-V-NP] configuration

	Nom-Dat		Dat-Nom	
Verb	**N**	**f**	**N**	**f**
áskotnast	0	0%	48	100%
blöskra	0	0%	68	100%
leiðast	0	0%	26	100%
líka	0	0%	28	100%
þykja	1	4%	23	96%
Total	1	99%	193	1%

Finally, *líka*-verbs, exactly like *hjálpa*-verbs, not only show a strong verb effect in the [NP-V-NP] configuration, but also a robust verb *class* effect, since all verbs prefer the Dat-Nom linear order in equal manner. This shows, once again, that these verbs not only instantiate the Dat-Nom argument structure construction but also that they instantiate only that argument structure and not the Nom-Dat one.

5.2.3 The effect of nominative demonstratives

It has already been pointed out in Section 5.2.1 above that the skewed general frequencies for *þykja* are largely due to the influence of nominative demonstratives. Therefore, it seems worth investigating to what extent the Nom-Dat linear order for *líka*-verbs in general is associated with nominative demonstratives. In order to do so, let us briefly revisit the nominal frequencies capturing the prevalence of the Nom-Dat linear order with these verbs, presented in Table 4, in order to compare them with the number of Nom-Dat attestations containing nominative demonstratives in particular. These numbers are presented in Table 6.

Table 6. Non-alternating Dat-Nom verbs occurring with nominative demonstratives compared to the total number of Nom-Dat attestations

	Nom_{dem}-Dat	Nom-Dat	
Verb	**N**	**N**	**f**
áskotnast	0	3	0%
blöskra	0	1	0%
leiðast	5	7	71%
líka	6	7	86%
þykja	37	51	73%
Total	48	69	70%

Table 6 shows that, for non-alternating Dat-Nom verbs of the *líka* type, the Nom-Dat linear order is indeed strongly associated with nominative demonstratives: out of 69 attestations, 48 contain the demonstratives *það* 'it' or *þetta* 'that'. With the exception of *áskotnast* and *blöskra*, which are generally not found with the Nom-Dat linear order anyway, proportional frequencies are relatively evenly distributed across types, ranging from 71% for *leiðast* to 86% for *líka*. Even though the total numbers for *leiðast* and *líka* are low, it seems clear that nominative

demonstratives trigger the use of the topicalisation construction, as opposed to the neutral word order found with Dat-Nom verbs.[1]

Now that we have established how permissive the initial slot is of nominative demonstratives in the Nom-Dat linear order, let us compare these numbers to the prevalence of nominative demonstratives in the second slot, given in Table 7. Thus, we repeat the numbers from the first column in Table 6, also occurring in the first column in Table 7. The results are, as a matter of fact, quite remarkable. First, Table 7 shows that nominative demonstratives are not uniquely bound to clause-initial position. In fact, nominative demonstratives are far more common in the Dat-Nom linear order than in the Nom-Dat linear order, as the former is attested with nominative demonstratives 136 times, but the latter only 48 times. Thus, the post-verbal position is still more strongly associated with nominative demonstratives than the preverbal position.

Table 7. Non-alternating Dat-Nom verbs in instances involving nominative demonstratives

	Nom$_{dem}$-Dat		**Dat-Nom$_{dem}$**	
Verb	**N**	**f**	**N**	**f**
áskotnast	-	-	-	-
blöskra	0	0%	12	100%
leiðast	5	17%	25	83%
líka	6	9%	61	91%
þykja	37	49%	38	51%
Total	48	26%	136	74%

Secondly, and perhaps more interestingly, the degree to which nominative demonstratives tend to occupy initial position seems to be verb-dependent, with some verbs allowing nominative demonstratives in postverbal position only (*blöskra*), some allowing them to take initial position only marginally (*leiðast*, *líka*), and some allowing them to occupy either slot more or less equally often (*þykja*). These frequencies may be the result of interaction effects between the argument slots that only a more in-depth statistical analysis can reveal, which again means that these results are clearly in want of further investigation.

5.2.4 Word order variation in the [Pro-V-Pro] configuration

Turning to the [Pro-V-Pro] configuration in general, Table 8 summarises the results obtained for this configuration with *líka*-verbs. In total, the Nom-Dat linear order is attested 44 times (20%), and the Dat-Nom linear order 183 times (80%). As was mentioned in Section 5.2.1, the former is almost uniquely associated with nominative demonstratives: 43 out of 44 tokens occurring with the Nom-Dat linear order are headed by the pronouns *það* ‘it’ or *þetta* ‘that’.

[1] Johan Brandtler points out to us (p.c.) that Swedish *tycka* ‘think, believe’ shows a similar pattern, in that an object pronoun is more natural in first position than the subject, especially if the object pronoun refers to a clause, e.g. *Det tycker jag också* vs. *Jag tycker det också* ‘I also believe that’. Note that Swedish *tycka* and Icelandic *þykja* are cognates, so the question arises whether this may be a very old word order pattern with this verb. Even so, it remains to be investigated whether topicalisation of object pronouns is somehow enabled by specific verb semantics.

What this essentially means is that only nominative demonstratives are able to significantly swing a verb's inherent word order preference, and that even non-alternating verbs are not immune to their influence.

Table 8. Non-alternating Dat-Nom verbs in the [Pro-V-Pro] configuration

	Nom-Dat		Dat-Nom	
Verb	**N**	**f**	**N**	**f**
áskotnast	1	33%	2	67%
blöskra	0	0%	11	100%
leiðast	5	11%	39	89%
líka	6	8%	71	92%
þykja	32	35%	60	65%
Total	44	19%	183	81%

Zooming in on tokens with two *personal* pronouns (not singled out in Table 8), another interesting tendency surfaces: two personal pronouns are attested 64 times, and only once (2%) do they prefer the Nom-Dat linear order over the Dat-Nom word order (98%). This result is telling as it stands in stark contrast with the results for alternating predicates in contexts with two personal pronouns, as they almost invariably realise the Nom-Dat word order pattern (see Section 5.3.3 below).

5.2.5 Interim conclusion

The results presented in this section are indicative of several tendencies. First, we have corroborated with corpus frequencies the established analysis that Icelandic indeed possesses a class of Dat-Nom verbs whose non-canonically case-marked subject is very strongly associated with the preverbal slot: dative subjects take initial position in 931 out of 1,000 tokens across all configurations. In the [NP-V-NP] configuration, the Dat-Nom linear order is attested even more frequently, showing up in 193 out of 194 tokens (99.5%). Hypothesis 2 is thus confirmed.

What is especially informative about our results for the [NP-V-NP] configuration, is that Dat-Nom verbs occur with the Dat-Nom linear order to the same degree as ordinary Nom-Dat verbs of the *hjálpa* 'help' type occur with the Nom-Dat linear order. That is, both verb classes realise their syntactic subjects in clause-initial position 99.5% of the time, the nominative for Nom-Dat verbs and the dative for Dat-Nom verbs.

Finally, the inverted order of constituents, involving topicalisation, is mostly brought about by nominative demonstratives (48 out of 69 tokens), but this tendency is essentially unidirectional, as nominative demonstratives also (and, in fact, more frequently) occur in postverbal position. Why some verbs are more permissive of clause-initial nominative demonstratives than others is a question that remains unanswered at present.

5.3 Alternating Dat-Nom/Nom-Dat verbs

In this section we present our findings for the class of alternating Dat-Nom/Nom-Dat verbs, also referred to here as *nægja*-verbs. The organisation of this subsection follows that of sections

5.1 and 5.2 above: we first discuss the general findings, after which we turn to word order variation in the [NP-V-NP] configuration, and finally, the [Pro-V-Pro] configuration. The results are compared to the baseline set by Nom-Dat *hjálpa*-verbs and Dat-Nom *líka*-verbs. The main implications and conclusions are discussed in 5.3.4.

5.3.1 General findings

The results for the class of *nægja*-verbs, as they are presented in Table 9, generally confirm the alternating nature of these predicates: in total, the Nom-Dat linear order is attested 747 times, i.e. ca 75%, and the Dat-Nom linear order 253 times, i.e. approximately 25% of the time on average across all five predicates.

Table 9. Alternating verbs across word order configurations

	Nom-Dat		**Dat-Nom**	
Verb	**N**	**f**	**N**	**f**
duga	180	90%	20	10%
dyljast	150	75%	50	25%
endast	78	39%	122	61%
henta	200	100%	0	0%
nægja	139	69.5%	61	30.5%
Total	747	75%	253	25%

Upon closer inspection, the data reveal three remarkable tendencies. First, the Nom-Dat linear order is generally more common than the Dat-Nom linear order. Secondly, there are notable differences between verbs, in that some seem to allow for word order alternation more readily than others. And, thirdly, it is also remarkable that *henta*, a verb discussed by Barðdal (1999, 2001) as a prime member of the class of alternating verbs, does not yield a single Dat-Nom token.

Our results are generally also less evenly distributed than the ones Rott (2013) documents. He gathered corpus frequencies for the alternating predicates *dyljast* 'be hidden', *henta* 'suit, befit', *veitast* 'find (hard/easy)', and *þóknast* 'satisfy, please', and found that these verbs instantiate the Nom-Dat linear order 76 times, i.e. 51%, and the Dat-Nom linear order 72 times (49%). Interestingly, the verb *henta* is included in Rott's dataset, but it is unclear what its frequency distribution is, as he does not display any frequency counts for individual verbs. And, as is already stated in Section 1 above, Rott also includes clausal arguments in his investigation, which makes it even more difficult to compare his findings with ours.

The results most similar to the ones we have obtained here are probably the ones attained by Roehm et al. (2007). Their acceptability judgement task reveals that alternating verbs can be used equally felicitously in both case frames, but participants seemed to prefer the nominative-first structure. In their subsequent ERP-study, alternating verbs even elicited a violation response in the dative-before-nominative configuration, but since it is not made explicit which verbs Roehm et al. actually studied, that claim cannot be verified. In any case, it seems rather unexpected that all alternating verbs should elicit the same response, as the within-class variation is quite substantial, as we document here.

5.3.2 Word order variation in the [NP-V-NP] configuration

In total, alternating verbs are attested 217 times in the [NP-V-NP] configuration; 157 tokens (72%) instantiate the Nom-Dat linear order, and 60 tokens (28%) the Dat-Nom linear order. A more detailed overview of the frequencies per verb can be found in Table 10.

Table 10. Alternating verbs in the [NP-V-NP] configurations

	Nom-Dat		**Dat-Nom**	
Verb	**N**	**f**	**N**	**f**
duga	33	79%	9	21%
dyljast	2	25%	6	75%
endast	9	30%	22	70%
henta	86	100%	0	0%
nægja	27	54%	23	46%
Total	157	72%	60	28%

The frequencies in Table 10 are indicative of several different tendencies. First, frequencies in the [NP-V-NP] configuration are much less skewed than for Nom-Dat verbs or non-alternating Dat-Nom verbs, thereby confirming the generally alternating nature of Dat-Nom/Nom-Dat verbs. A chi-squared goodness-of-fit test comparing both word orders across verbs yields a highly significant result ($X^2 = 43.36$; df = 1; $p_{\text{two-tailed}} < 0.001$), which should be interpreted as a statistical indication that the distribution of both word orders cannot be attributed to chance. This does not mean that the verbs in question do not alternate, but rather that there are factors guiding the alternation that have yet to be uncovered.

One of these factors, it seems, is verb type: with the exception of *henta*, all verbs are attested at least 21% of the time in either the Dat-Nom or the Nom-Dat linear order, but the degree to which they do is verb dependent. The verb *duga*, for instance, is clearly more permissive of clause-initial nominatives, whereas the opposite is true of *dyljast* and *endast*. The verb *nægja* is the most evenly balanced type, favouring a dative-first structure about as often as a nominative-first structure. One example of each word order is given in (15a–b) below:

(15) a. *... að Víkingum myndi nægja jafntefli til að ...*
that Vikings.DAT would suffice tie.NOM in.order to
'... that the Viking team would make do with a tie in order to ...'

b. *En skotfærasafnið hans hefði nægt hverri meðal herdeild.*
but munition.collection.NOM his had sufficed every.DAT average division
'And his munition collection had been sufficient for every average division.'

Turning to *henta*, the generally skewed frequencies for that verb presented in Table 9 are evidently replicated in the [NP-V-NP] configuration, and since nominal frequencies for this verb are very high (86 tokens), its tendency towards the Nom-Dat linear order can be taken to be very robust, which makes this result all the more enticing. Recall that previous research has

confirmed *henta*'s status as an alternating verb, as both the nominative as well as the dative independently pass the subjecthood tests presented in Section 2, as is documented by Barðdal (1999, 2001). Clearly, future research is needed to better understand *henta*'s behaviour as an outlier with respect to the word order test.

Also, it is striking how frequencies in the [NP-V-NP] configuration differ from the general frequencies presented in Table 9. For some verbs, like *duga* and *nægja*, the alternation is less skewed in the [NP-V-NP] configuration than it is in general, since the proportional frequencies move closer towards a 50–50 distribution. Other verbs, like *dyljast* and *endast*, tend more towards the Dat-Nom linear order in the [NP-V-NP] configuration. It is evident that a more in-depth analysis of this class of verbs is needed in order to lay out a more detailed picture of the alternation and the degree to which every factor impacts the competition between the two diametrically opposed argument structure constructions.

Finally, our findings for alternating verbs in the [NP-V-NP] configuration tie in nicely with Allen's (1995: 108) study on Old English Dat-Nom verbs. Allen (1995) shows that the [NP-V-NP] configuration displays a symmetric distribution between the Nom-Dat linear order and the Dat-Nom linear order (21 attestations vs. 19 attestations). This certainly suggests that Allen's Dat-Nom verbs are indeed alternating verbs, as Allen (1995: 116) herself assumes. Unfortunately, exactly like Rott (2013), Allen does not specify how each individual verb weighs in on the alleged verb class effect, so (i) it is unclear whether all verbs in her sample can actually be regarded as alternating, and (ii) if they do, whether they are all equally attracted to both argument structure constructions. This is evidently not a trivial matter, as if we were to remove *henta* from our sample on the assumption that it is not an alternating verb, the four remaining verbs would together instantiate the Nom-Dat linear order 71 times, and the Dat-Nom linear order 60 times. If one consequently fails to break these numbers down and present verb type-specific counts, as we have done, one obscures any verb-specific tendencies, thereby creating the impression that all verbs occur in either construction approximately equally often.

5.3.3 Word order variation in the [Pro-V-Pro] configuration

Table 11 shows that in the [Pro-V-Pro] configuration alternating predicates almost invariably occur in the Nom-Dat linear order: out of 337 attestations, only 19, i.e. 6%, contain a dative in clause-initial position. Some examples of Dat-Nom word orders involving pronouns are given in (16) below, while examples of the more abundant Nom-Dat word order are given in (17):

(16) a. *... að honum hafi dulist neitt af þessu.*
that he.DAT has be.aware none.NOM of this
'... that he was not aware of any of this.'

b. *Henni duldist það ekki að ...*
she.DAT be.aware it.NOM not that
'She was aware that ...'

c. *Og honum entist hún yfir daginn.*
and he.DAT lasted she.NOM over day.the
'And he got her to last over the whole day.'

(17) a. *... og það hafi nægt honum.*
and it.NOM would.have sufficed him.DAT
'... and it would have been enough for him.'

b. *það myndi ekki duga okkur samt.*
it.NOM would not be.enough us.DAT anyway
'Yet, it would still not be enough for us.'

c. *Og vonuðumst til að þeir mundu endast okkur.*
and hoped to that they.NOM would last us.DAT
'And hoped that they would last us.'

Table 11 also shows that the Nom-Dat linear order is not disproportionately associated with any one verb in particular, as frequencies are consistently higher than, or equal to, 92% per verb. In other words, these numbers clearly point towards an overarching **verb class** effect and not towards individual verb effects.

The findings for the [Pro-V-Pro] configuration also explain at least part of the skewness for alternating predicates in general, as the [Pro-V-Pro] configuration is not only heavily biased towards the Nom-Dat construction, but is also very frequent in general, since it accounts for about one third of all the data collected for *nægja*-verbs (318 tokens out of 1,000).

Table 11. Alternating predicates in the [Pro-V-Pro] configuration

	Nom-Dat		**Dat-Nom**	
Verb	**N**	**f**	**N**	**f**
duga	72	97%	2	3%
dyljast	117	92%	10	8%
endast	30	94%	2	6%
henta	39	100%	0	0%
nægja	60	92%	5	8%
Total	318	94%	19	6%

Given the skewed frequencies in the [Pro-V-Pro] configuration, it should not come as a surprise that tokens containing two personal pronouns show an equal bias: 81 out of 88, or 92%, instantiate the Nom-Dat construction (not singled out in Table 11). These findings again mirror Allen's (1995: 109) results for 12 Old English alternating verbs, which, in the double personal pronoun configuration, also show a clear tendency towards the Nom-Dat order. Thus, with tokens containing two personal pronouns, alternating verbs clearly behave as Nom-Dat verbs, and not as Dat-Nom verbs, as the latter tend almost uniquely towards the Dat-Nom linear order across configurations.

This pronominal skewness with alternating verbs raises the question of whether occurrences with pronouns are perhaps unevenly distributed across the three verb classes in terms of frequency and whether that may possibly explain the high proportion of the Nom-Dat construction here. Out of 3.000 observations in total for all 15 verbs (1,000 for each verb class)

there are 664 Nom-Dat observations, 806 Dat-Nom observations, and 783 alternating Dat-Nom/Nom-Dat observations including at least one pronoun. This shows that alternating verbs are not particularly more frequent with pronouns in general, even though they yield most tokens in the [Pro-V-Pro] configuration (337 for alternating verbs, 227 for classical Dat-Nom verbs, and 240 for ordinary Nom-Dat verbs, see next section for a further discussion).

5.3.4 Interim conclusions

The findings presented in this section show that Icelandic indeed possesses a class of alternating Dat-Nom/Nom-Dat verbs. This is evident from the different behaviour of *nægja*- vs. *líka*-verbs documented above. For instance, in the [NP-V-NP] configuration, the Nom-Dat linear order is attested 72% of the time, and the Dat-Nom linear order 28% of the time, which is very different from both *líka*- and *hjálpa* verbs. For these two verb classes, it is clear that the Dat-Nom and the Nom-Dat linear orders represent neutral word order, as 99,5% of all instances involving full NPs show up with the Dat-Nom vs. the Nom-Dat linear order respectively, as is shown in Table 12. We base our conclusions of neutral word order on attestations where both arguments are lexically realised as full NPs, as pronouns clearly impose an information-structural bias on word order.

Furthermore, Table 12 also shows that the numbers for alternating Dat-Nom/Nom-Dat verbs deviate significantly from the baseline set by *hjálpa*- and *líka*-verbs. The results are all the more powerful once *henta*, the outlier, is excluded from the statistics, yielding 54% Nom-Dat and 46% Dat-Nom linear order. Hypothesis 3 is therefore largely borne out that there are two neutral word orders for *nægja*-verbs, and thus that these verbs may instantiate both the Dat-Nom and the Nom-Dat argument structure constructions. In contrast, *líka*-verbs only instantiate the Dat-Nom argument structure construction, with the Nom-Dat linear order representing topicalisation, and vice versa for *hjálpa*-verbs.

Table 12. Nom-Dat vs Dat-Nom linear order in the [NP-V-NP] configuration for *hjálpa*-, *líka*-, and *nægja*-verbs, and for *nægja*-verbs excluding *henta*

	Nom-Dat	**Dat-Nom**
hjálpa-verbs	99.5%	0.5%
líka-verbs	0.5%	99.5%
nægja-verbs	72%	28%
nægja-verbs (excluding *henta*)	54%	46%

We now turn to the question asked in Section 1, namely which factors determine the speakers' choice of one of the two argument structure constructions, Dat-Nom or Nom-Dat, over the other with alternating verbs. We have shown here that alternating Dat-Nom/Nom-Dat verbs are much more sensitive to the distinction between nominal and pronominal influence than *hjálpa*- and *líka*-verbs are. There is thus no doubt that for the [Pro-V-Pro] configuration, alternating verbs instantiate the Nom-Dat construction to a much greater degree than *líka*-verbs, which in turn make extensive use of the topicalised Nom-Dat linear order, as is evident from Table 13.

Taking a closer look at the proportions between the three verb classes, as represented in Table 13, *nægja*-verbs instantiate the Nom-Dat argument structure construction in 95% of the

cases in which the two arguments are lexically realised as pronouns. Corresponding numbers for *hjálpa*- and *líka*- verbs are 99.2% vs. 20%, respectively. That *hjálpa*-verbs show a 99.2% prevalence for the Nom-Dat linear order is, of course, expected since the Nom-Dat linear order represents neutral word order for *hjálpa*-verbs. Hence, these instances simply represent the ordinary Nom-Dat argument structure construction for these verbs with subject status and topicality coinciding in one argument, the nominative. Thus, the really interesting comparison to be carried out here is between classical Dat-Nom verbs of the *líka*-type and alternating Dat-Nom/Nom-Dat verbs of the *nægja*-type.

Table 13. Nom-Dat vs Dat-Nom linear order in the [Pro-V-Pro] configuration for *hjálpa*-, *líka*-, and *nægja*-verbs, and for *nægja*-verbs excluding *henta*

	Nom-Dat	**Dat-Nom**
hjálpa-verbs	99.2%	0.8%
líka-verbs	20.0%	80.0%
nægja-verbs	94.4%	5.6%
nægja-verbs (excluding *henta*)	95.0%	5.0%

For *líka*-verbs, as much as 20% of the instances in the [Pro-V-Pro] configuration are topicalised Nom-Dat structures, while 95% of the instances with *nægja*-verbs in the same configuration instantiate the Nom-Dat argument structure construction. These numbers simply show that when both arguments of *nægja*-verbs are pronouns, the Dat-Nom argument structure construction is more or less excluded. The same cannot be said about *líka*-verbs with which the Dat-Nom argument structure construction is employed in 80% of the cases where two pronouns are involved. Moreover, as is discussed in the preceding section, when the two pronouns are both lexically realised as **personal** pronouns, in 81 out of 88 cases, or in 92%, the Nom-Dat argument structure construction is chosen over the Dat-Nom one.

These facts tie in with Barðdal's (2001: 65) claim that discourse factors, or more closely topicality, really is the issue when Icelandic speakers choose between the two argument structure constructions. That is, they choose the Dat-Nom construction when the dative is topical and the Nom-Dat construction when the nominative is topical, except for when both arguments are realised as pronouns, including personal pronouns. In such cases, the nominative clearly takes precedence over the dative, irrespective of whether the nominative is in the 1st, 2nd or 3rd person (cf. discussion in Barðdal & Eythórsson 2003).

Another compelling result yielded by this study of alternating verbs concerns *henta* and its categorical behaviour as a Nom-Dat verb. This bias can be explained in two ways: (i) our sample is off, or (ii) *henta* is not an alternating verb. The former would be indicative of a discrepancy between what is theoretically possible and what is actually attested, the latter of a potential linguistic change, but both hypotheses warrant further investigation.

One study that has found homogeneous results for Icelandic alternating verbs, thus corroborating their status as an actual verb class with uniform properties, is Bornkessel-Schlesewsky et al. (2011). They were able to show that alternating verbs consistently trigger a different brain response compared to non-alternating Dat-Nom verbs. However, as was the case for Roehm et al. (2007) and Rott (2013), it is unclear which exact verb types this study is based on, so that it is difficult to gauge the scope of these findings. Nevertheless, the uniform

electrophysiological response Bornkessel-Schlesewsky et al. were able to elicit seems to mitigate the conclusion that alternation might be a gradient property.

6 Summary and conclusions

In this paper we have succeeded in lending empirical support to the claim that behavioural subjects in Icelandic are strongly tied to clause-initial position, and that this tendency is not sensitive to case marking. For this purpose, we have extracted 200 examples of 15 verbs from the Icelandic Web 2020 corpus, all occurring with a dative and a nominative. The first class consists of five ordinary Nom-Dat verbs like *hjálpa* 'help', the second consists of five classical Dat-Nom verbs like *líka* 'like' and the third one of five alternating Dat-Nom/Nom-Dat verbs like *nægja* 'find/be sufficient'.

Our dataset is annotated for three variables, (i) case marking, (ii) (pro)nominality, i.e. whether the arguments are full NPs or pronouns, and (iii) the type of pronoun. This, in addition, of course, to verb class. We also put forward three hypotheses:

(i) That ordinary Nom-Dat verbs like *hjálpa* show a strong preference for the Nom-Dat linear order, since these verbs instantiate the Nom-Dat argument structure construction
(ii) That classical Dat-Nom verbs like *líka* show a strong preference for the Dat-Nom linear order, since these verbs instantiate the Dat-Nom argument structure construction
(iii) That alternating Dat-Nom/Nom-Dat verbs like *nægja* show a much less skewed preference for either of the two linear orders, since these verbs may instantiate either the Dat-Nom or the Nom-Dat argument structure constructions

We first establish a baseline for ordinary Nom-Dat verbs, i.e. the *hjálpa*-verbs, with two full NPs. For this configuration, the nominative subject is realised clause-initially 99.5% of the time. For classical Dat-Nom verbs, i.e. *líka*-verbs, the dative subject is also realised clause-initially in 99.5% of the time in the same configuration, i.e. when both arguments are full NPs. However, *líka*-verbs' propensity for the Dat-Nom construction may occasionally be swung by nominative demonstratives and definite NPs.

In contrast, for alternating Dat-Nom/Nom-Dat verbs, i.e. *nægja*-verbs, our findings generally confirm that subjecthood is constructionally determined. When *nægja*-verbs occur with two full NPs, their distribution is considerably less skewed towards one of the two argument structure constructions than with either *hjálpa*- or *líka*-verbs. There are, however, considerable differences found across verbs, with the Nom-Dat case frame attested more frequently than the Dat-Nom case frame, or in 72% vs. 28% of the cases. There is one particular verb, *henta* itself, as a matter of fact, that behaves unexpectedly in that it occurs consistently with the Nom-Dat linear order, irrespective of whether the two arguments are realised as full NPs or as pronouns. However, when recalculating the numbers for full NPs without the outlier, *henta*, the distribution amounts to 54% Nom-Dat vs. 46% Dat-Nom. These facts are in line with Barðdal's (2001) claims that the choice of construction is determined by the topicality of the two arguments, that the Nom-Dat construction is used when the nominative is topical and the Dat-Nom construction when the dative is topical.

There is one major exception to the above-mentioned distribution of alternating verbs across the two argument structure constructions, and this involves cases where the two arguments are pronouns, including personal pronouns. In such cases, the Nom-Dat construction takes a clear precedence over the Dat-Nom construction, as is also discussed by Barðdal & Eythórsson (2003) for Icelandic and Allen (1995) for Old English. This certainly is a topic in need of further investigation.

Finally, the results we have obtained for *henta* prompt the use of experimental methods, as this verb interestingly passes all subjecthood tests for both of its nominal arguments, but in our dataset it has nevertheless been found to occur solely in the Nom-Dat construction. This raises questions about the correlation between corpus frequencies and neutral word order, which in turn motivates the use of experimental methods, as these may help establish if there is indeed a major mismatch between corpus frequencies and acceptability with regard to *henta*.

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We ...with Anna: the Inclusory Plural Pronominal Construction in Finnish and Fenno-Swedish

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This article provides a syntactic analysis of the inclusory plural pronominal construction in Fenno-Swedish and Finnish. In this construction, a plural pronoun has a singular reading: *vi ...med Anna* (literally "we ...with Anna") means 'Anna and I'. In addition to the plural pronoun, the construction includes a comitative PP. In both Fenno-Swedish and Finnish, the PP can be placed rather flexibly. This article discusses the resulting variety of outcomes and what they indicate about the syntactic nature of the construction. At the same time, the singular reading is unavailable in almost all scenarios including an expanded pronoun: *vi lingvister ...med Anna* (literally "we linguists ...with Anna"). Similar constructions can be found in several other languages, especially in the eastern parts of Europe which suggests it is an areal feature. The diversity of the acceptable syntactic compositions in Fenno-Swedish and Finnish seems to require an analysis that differs from previous analyses of other languages. Instead of a derivation involving movements, the study suggests that the analysis must employ an unvalued feature. In some compositions, the necessary movements would be far too complex for an appealing explanation.

1 Introduction

The Fenno-Swedish expression in (1), which is widely used in colloquial language, is ambiguous as to what the pronoun *vi* 'we' is referring to. The combination of a plural pronoun and DP denoting one of the participants can refer either to a scenario with more than two people or only two people. The plural pronoun 'we' can thus have a singular reading in some cases. The same applies to the plural pronouns corresponding to 'you(PL)' and 'they'.

(1) **Vi** for **med** **Anna** till stan.
we went with Anna to town.DEF
'Anna and I went into town.'/'We went into town with Anna.'

A corresponding expression can, as seen in (2), be found in Finnish, with which Fenno-Swedish shares a long geographical history.

(2) **Me** mentiin **Annan** **kanssa** kaupunkiin.
we went Anna.GEN with town.ILL
'Anna and I went into town.'/'We went into town with Anna.'

The structural similarity is obvious. In Finnish, the expression is used in more formal registers as well. In (1) as well as (2) the expression includes a comitative adposition connecting a plural pronoun with another DP. The expected reading, based on what the pronoun 'we' usually means, would include a group of at least three people, the one denoted by the DP component and at least two denoted by the plural pronoun. However, the expression often refers to a group

of two, ‘DP and I’. A similar construction is found in a variety of languages in eastern parts of Europe.[1] It may be a very old phenomenon, which has spread over a long time among Slavic, Baltic, and Uralic speakers in Europe. The construction is absent from other Scandinavian languages, though Icelandic and Faroese exhibit a slightly different structure that seems to share the core mechanism with the Fenno-Swedish and Finnish expressions, namely the ability to refer to a scenario with only two people. The Icelandic counterpart is shown in (3) (Sigurðsson & Wood 2020).

(3) **Við** **María** fórum.
we.NOM María.NOM went.1PL
‘Mary and I went/left.’

The construction we are dealing with is familiar from the literature, and is sometimes called *inclusory construction* or *inclusory coordination*, as it considers the reference of the DP as a part of the reference of the plural pronoun. The term is imprecise, as it does not capture the crucial singular interpretation of the plural pronoun. The plural pronouns *vi* and *me* seem to mean ‘I’ instead of ‘we’ in (1) and (2). In Dékány's (2009) terms, the interpretation picks out the focal referent of the plural pronoun, combining it with the referent of the DP in the comitative PP. The focal referent of ‘we’ is ‘I’, the speaker. In spite of our misgivings, the reading that includes the singular interpretation of the plural pronoun is called *the singular reading* in this article. The two elements of the expression are referred to as *Pro* and *the annex PP* or simply *the annex* (following Sigurðsson & Wood 2020). In this paper, the combination of the elements is called *inclusory plural pronominal construction*, abbreviated to IPPC.

The aim of this paper is to show how structural factors are linked to the availability of the singular reading. In the case of the IPPC in Fenno-Swedish and Finnish, the two syntactic questions are as follows: How can the annex PP be placed in sentences containing the IPPC and what kind of analysis will account for all possible options? In our proposition, adopting Vassilieva & Larson’s (2005) analysis similarly to Sigurðsson & Wood (2020) is considered to be an insufficient solution as it fails to predict some grammatical constructions correctly while it strongly depends on a structural composition that seems to be marginal in Fenno-Swedish and at least partially atypical in Finnish. Instead of a specific composition, we suggest that the analysis must employ a special plural pronoun with an unvalued feature.

The article is organised as follows. In Section 2, we introduce the overall picture of how the construction is structured in Fenno-Swedish and Finnish. In Section 3, we will discuss the known properties of the IPPC. In Section 4, we display how the data for this paper has been collected. A grammaticality judgment test has a pivotal role as it sets out the overall view of the research questions. While many of them can be answered by examining the data, the dispreference of the contiguous compositions requires additional means. In Section 5, we will

[1] Russian (Vassilieva & Larson 2005), Estonian (Erelt 2008), Latvian (Schwartz 1988), Polish (Cable 2017) and Hungarian (Dékány 2009). In addition, the following linguists have provided data by personal communication from the following languages, all of which have a similar construction: Hanna Danbolt Ajer (Lule Sami), Sirkka Saarinen (Northern Sami), Marija Girulienė (Lithuanian), Lena Borise (Belarusian), Ludmila Veselovská (Czech), Michal Starke (Slovak), Adrian Stegovec (Slovenian), Dalina Kallulli (Albanian), Iliyana Krapova (Bulgarian), Georg Höhn (Greek) and Kadri Kuram (Turkish).

present an analysis aiming to satisfy the questions raised by the data. In Section 6, we will discuss the question of what is the parameter resulting in the availability of the IPPC. Section 7 concludes the article.

2 The structure of the IPPC

The IPPC can occur in different structural compositions. The placement of the PP is quite flexible, as both pre-verbal and predicate-internal positions are available. However, the contiguous composition of Pro and annex seems to be somewhat dispreferred in Finnish and more clearly so in Fenno-Swedish. Consider first the examples in (4); the translations indicate the preferred reading.

(4) a. **Vi** har **med Anna** aldrig varit till Rhodos.
we have with Anna never been to Rhodes
'Anna and I have never been to Rhodes.'

b. **Vi** har aldrig **med Anna** varit till Rhodos.
we have never with Anna been to Rhodes
'Anna and I have never been to Rhodes.'

c. **Vi** har aldrig varit **med Anna** till Rhodos.
we have never been with Anna to Rhodes
'We have never been to Rhodes with Anna.'
'Anna and I have never been to Rhodes.'

d. **Vi** har aldrig varit till Rhodos **med Anna**.
we have never been to Rhodes with Anna
'We have never been to Rhodes with Anna.'

e. ?**Vi med Anna** har aldrig varit till Rhodos.
we with Anna have never been to Rhodes
'Anna and I have never been to Rhodes.'

The placement of the annex PP seems to have a certain effect on the preference of the interpretations. The further away the annex is, the more likely is the plural reading of the pronoun. Due to this, the singular reading is preferred in (4a,b) but in (4c,d) the plural reading becomes gradually more prominent. Example (4e) is less grammatical than (4a,b,c,d), regardless of the intended interpretation. The placement of the annex has a similar effect in Finnish as displayed in (5).

(5) a. **Me Annan kanssa** ei olla koskaan käyty Rodoksella.
we Anna.GEN with not have ever been Rhodes.ADE
'Anna and I have never been to Rhodes.'

b. **Me** ei **Annan** **kanssa** olla koskaan käyty Rodoksella.
we not Anna.GEN with have ever been Rhodes.ADE
'Anna and I have never been to Rhodes.'

c. **Me** ei olla **Annan** **kanssa** koskaan käyty Rodoksella.
we not have Anna.GEN with ever been Rhodes.ADE
'Anna and I have never been to Rhodes.'

d. **Me** ei olla koskaan **Annan** **kanssa** käyty Rodoksella.
we not have ever Anna.GEN with been Rhodes.ADE
'Anna and I have never been to Rhodes.'
('We have never been to Rhodes with Anna.')

e. **Me** ei olla koskaan käyty **Annan** **kanssa** Rodoksella.
we not have ever been Anna.GEN with Rhodes.ADE
'We have never been to Rhodes with Anna.'
'Anna and I have never been to Rhodes.'

f. **Me** ei olla koskaan käyty Rodoksella **Annan** **kanssa**.
we not have ever been Rhodes.ADE Anna.GEN with
'We have never been to Rhodes with Anna.'

In (5a,b,c) the singular reading is preferred. In (5d,e,f) the plural reading becomes more prominent. The distance between the components seems to emphasise the plural reading. The same effect is reported by our informants to be found in other languages that have the IPPC (Ludmila Veselovská, personal communication; Iliyana Krapova, personal communication). The readings do not rule out each other, though, and different contexts can favour one of them over the other.

The pattern illustrated in (4) and (5) aboveis exceptional, as the contiguous compositions are the most prototypical composition cross-linguistically and the analytical approaches are designed accordingly (Vassilieva & Larson 2005, Sigurðsson & Wood 2020). This results in a superficially contradictory situation in Fenno-Swedish and Finnish, as discussed in Section 5. However, if the pronoun has a complement, the singular reading of the plural pronoun is excluded, regardless of the position of the PP (6). Here and in the following # signifies that the sentence is grammatical but lacks the singular reading.

(6) #**Me** **kielitieteilijät** mentiin **Annan** **kanssa** kaupunkiin.
we linguists went Anna.GEN with town.ILL
'We linguists went into town with Anna.'

The same applies to adjuncts of the pronoun (7).

(7) #**Vi** **från Finland** ska **med** **Anna** bo på hotellet
we from Finland shall with Anna live on hotel.DEF
'We who are from Finland will stay at the hotel with Anna.'

Thus (6) cannot mean ‘Anna and I, who are linguists, went into town’ and (7) cannot mean ‘Anna and I who are from Finland, will stay at the hotel’. This fact indicates that the pronoun and the annex PP of the IPPC have a special relation that cannot hold in (6) and (7). The nature of the relation is one of the questions dealt with in Section 5.

The construction has been discussed by Vassilieva & Larson (2005), Dékány (2009), Cable (2017) and Sigurðsson & Wood (2020) but they have not examined discontiguous placements of Pro and the annex in a way that would provide a deeper understanding of the syntactic relation between these two components.[2] An incomplete analysis of the relation has been presented by Holmberg & Kurki (2019). The details of it are reviewed in Section 3. A key question is what is the parameter that makes the IPPC available only in some languages.

3 Defining properties

An attempt to account for the grammatical properties of the inclusory pronominal construction in Fenno-Swedish and Finnish was done by Holmberg & Kurki (2019). This paper included observations on apparent syntactic restrictions on the usage of the expression, similar to related articles on comparable constructions in other languages (e.g. Vassilieva & Larson 2005, Dékány 2009, Sigurðsson & Wood 2020). However, as no comprehensive empirical data were available at that point, the exact nature of the relationship could not be determined. The most important observation considers expanding Pro (Section 3.3). The significance of this restriction is explained in 3.3.

3.1 Properties of the pronoun

As discussed in Holmberg & Kurki (2019), the most common setting of the IPPC is with ‘we’, but the pronoun can also be ‘you.PL’ (8), (9) or, slightly more marginally, ‘they’ (10), (11).

(8) När var **ni** sist **med** **Anna** till Berlin?
when were you.PL last with Anna to Berlin
‘When were you.SG and Anna in Berlin the last time?’

(9) Milloin **te** viimeksi olitte **Annan** **kanssa** Berliinissä?
when you.PL last were Anna.GEN with Berlin.INE
‘When were you.SG and Anna in Berlin the last time?’

(10) Question: Var är Hasse?
where is Hasse
‘Where is Hasse?’
Answer: **De** for **med** **Anna** till stan.
they went with Anna to town.DEF
‘He and Anna went into town.’

[2] Discontiguous versions of the construction are not available in all languages, e.g. Icelandic only permits the adjacent placement of the components (Sigurðsson & Wood 2020).

(11) Question: Missä Hasse on?
where Hasse is
'Where is Hasse?'
Answer: **Ne** meni **Annan** **kanssa** kaupungille.
they went Anna.GEN with town.ALL
'He and Anna went into town.'

This property in Russian and Icelandic has been discussed by Vassilieva & Larson (2005) and Sigurðsson & Wood (2020). Additionally, Finnish is a pro drop language, with optional pro drop of the 1st and 2nd person pronouns (see Vainikka & Levy 1998; Holmberg 2005, 2010). In Finnish, pro drop can be applied in the IPPC as seen in (12).

(12) (**Me**) mennään[3] **Pyryn** **kanssa** mökille.
(we) go Pyry.GEN with cottage.ALL
'Pyry and I are going to the cottage.'

Swedish has topic-drop and diary-drop (Haegeman 2013, see also Haegeman 1990, Holmberg 2003, Sigurðsson 2011) under similar conditions as other Germanic languages (Mörnsjö 2002). However, since Swedish entirely lacks subject-verb agreement it is impossible to distinguish a topic or diary drop of 'we' from a drop of 'I' which makes it impossible to identify the topic or diary drop taking place in the IPPC.

3.2 Properties of the annex

The annex consists of a preposition and a DP-complement. The latter is called *the annex DP* (following Sigurðsson & Wood 2020).[4] In Fenno-Swedish, the preposition is *med*, 'with'. The Finnish construction has the postposition *kanssa*, correspondingly meaning 'with'.[5] As discussed by Holmberg & Kurki (2019), the annex DP of the Fenno-Swedish and Finnish IPPC can be plural as in (13) (14).

(13) **Vi** for **med** **kusinerna** till stan.
we went with cousins.DEF to town.DEF
'The cousins and I went to the town.'

(14) **Me** mentiin **serkkujen** **kanssa** kaupunkiin.
we went cousins.GEN with town.ILL
'The cousins and I went to the town.'

[3] The verb form *mennään* is an impersonal passive form commonly used as 1PL in colloquial Finnish. In standard Finnish the 1PL form of the verb has a suffix *-mme*. Pro drop can take place in the IPPC with the standard form too.

[4] The annex examined by Sigurðsson & Wood (2020) consists of the DP only as Icelandic does not employ any preposition in the construction. Due to this, it is necessary to apply dedicated terms for the whole annex PP and the DP placed in it.

[5] Marginally, the synonym *kera* and the Finnish comitative case (see Sirola-Belliard 2016) are viable alternatives.

Typically, the annex DP consists of a proper name or a kinship term.[6] An indefinite DP is also possible if it is specific.[7] Even pronouns can be considered under some specific conditions. However, the 'me and you' interpretation is rather exceptional for a construction with a second person pronoun as its annex DP (15), (16). This can be explained as a redundancy effect: in many contexts the meaning will be unambiguously 'me and you' even without the annex. A 3rd person pronoun is also quite unusual, but conventional contexts can be constructed (17), (18) (Holmberg & Kurki 2019).

(15) ?#Jag kommer ihåg när **vi** var **med dig** på teater.
I come in.mind when we were with you on theatre
'I remember when we went with you to the theatre.'

(16) ?#Mä muistan sen kun **me** oltiin **sun** **kanssa** teatterissa.
I remember it when we were you.SG.GEN with theatre.INE
'I remember when we went with you to the theatre.

(17) Vet du Hasse?
know you Hasse
Vi var en gång **med honom** helt ensamma på bussen till Helsingfors.
we were one time with him totally alone on bus.DEF to Helsinki
'You know Hasse, right? We were once all alone, him and me, on the bus to Helsinki.'

(18) Sä tiedät Hassen?
you know Hasse
Me oltiin kerran **hänen kanssa** kahdestaan Helsingin bussissa.
we were once he.GEN with two.of Helsinki.GEN bus.INE
'You know Hasse, right? We were once all alone, him and me, on the bus to Helsinki.'

In addition to the properties discussed by Holmberg & Kurki (2019), there seem to be some semantic requirements for the choice of DP. For example, (19) cannot have the singular reading, because an injury is not an entity that has an ability of going somewhere by itself. The reading is odd for the same reason as 'Me and my hand injury went to the doctor' sounds odd.

(19) #**Me** mentiin **mun käsivammani** kanssa lääkäriin.
we went my hand.injury.GEN.1SG.POSS with doctor.ILL
'We went to the doctor due to my hand injury.'

However, inanimate objects can be given human-like properties for various rhetorical purposes, for example humor, as in (20). The IPPC is available in such contexts.

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[6] This is similar to the Icelandic construction (Sigurðsson & Wood 2020) and proper names seem to make typical examples in other languages too (see e.g. Vassilieva & Larson 2005, Dékány 2009, Cable 2017).

[7] (i) Vi stod med en annan passagerare och väntade på stationen.
we stood with one other passenger and waited on station.DEF
'Me and another passenger stood and waited at the station.'

(20) **Me** ollaan **tämän talon** **kanssa** yhtä vanhoja.
we are this house.GEN with as old
'This house is as old as I am.'

Lastly, if the annex DP is a pronoun, as displayed in (15)–(18), a specific interplay takes place between the two pronouns in the construction. Similar to Russian (Vassilieva & Larson 2005), the person in the annex pronoun must be higher on the person-hierarchy (Silverstein 1976) than the person in the main pronoun of the IPPC. For example, a composition including a third person plural pronoun cannot have a second person pronoun as the annex DP. The singular reading in (21) is unavailable because the person in the annex is higher in (21) than that of the initial pronoun. This applies to both Fenno-Swedish and Finnish.

(21) #**He** menivät **sinun** **kanssa** silloin kauppahalliin.
they went you.SG.GEN with then market.hall.ILL
'They went to the market hall with you then.'

We will not discuss this issue further in this paper.

3.3 No expansion of the pronoun

As displayed in Section 2, the availability of the singular reading appears to require that Pro is not expanded. A similar constraint holds true in Icelandic (Sigurðsson & Wood 2020). If Pro is expanded, the plural reading is the only possible interpretation (Holmberg & Kurki 2019).

(22) **#Vi lingvister** ska **med** **Anna** fara till Berlin.
we linguists shall with Anna go to Berlin
'We, who are linguists, are going to Berlin with Anna.'

(23) **#Me** **kielitieteilijät** ollaan **Annan** **kanssa** menossa Berliiniin.
we linguists are Anna with going Berlin.ILL
'We, who are linguists, are going to Berlin with Anna.'

Following Postal (1969), the standard analysis of expressions like *we linguists*, is that the pronoun is the head, a determiner, taking the NP *linguists* as a complement: [$_{DP}$ we [$_{NP}$ linguists]]. This analysis has recently received strong support by the comparative investigation reported in Höhn (2017).

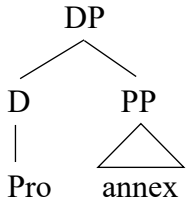
However, the singular reading is equally unavailable in if the expansion is an adjunct, as in (24), (25), rather than a complement.

(24) #**Vi från Finland** kan **med** **Anna** bo på hotellet.
we from Finland can with Anna live on hotel.DEF
'We, who come from Finland, can stay at the hotel with Anna.'

(25) #**Me, jotka ollaan Suomesta**, voidaan **Annan** **kanssa** olla hotellissa.
we who are Finland.ELA can Anna.GEN with be hotel.INE
'We, who come from Finland, can stay at the hotel with Anna.'

These observed restrictions indicate a structural conflict between the expansion of Pro and the annex of the IPPC. The availability of a position for possible expansions seems to be a requirement of the IPPC. A reasonable conclusion is that the structure of the IPPC must be the following: Pro is the head of the constituent, taking the annex PP as complement, and the core structure is a constituent:

(26)



The analysis in (26) immediately excludes a singular reading of 'we' in (22) and (23), as the NP excludes the PP from the complement position. It excludes a singular reading in (24), (25) as well, if the PP in (24) and the relative clause in (25) are adjuncts to an NP with a null head.

The analysis also supports the analysis of the Russian IPPC presented by Vassilieva & Larson (2005) who discuss the structural role of the annex PP by comparing its adjunct and complement positions. In general, comitative PPs can occur in different positions as adjuncts in Russian, and the position of the PP affects the interpretation. A DP-adjunct (27a) and a VP-adjunct (27b) will be interpreted differently as seen in (27).

(27) a. **Malčik s koškoj** ušël domoj.
boy.NOM with cat.INSTR went.SG home
'The boy with the cat went home.'

b. **Malčik** ušël **s koškoj** domoj.
boy.NOM went.SG with cat.INSTR home
'The boy went home together with the cat.'

In (28), the examples include the Russian IPPC. In this case the contiguous and the discontiguous version both have the same meaning.

(28) a. **My s Petej** ušli domoj.
we with Petja.INSTR went home
'Me and Petja went home.'

b. **My** ušli **s Petej** domoj.
we went with Petja.INSTR home
'Me and Petja went home.'

The comparison indicates that the PP combined with the plural pronoun is not an adjunct, so it must be a complement. Vassilieva & Larson consider this structure to be the general condition for the IPPC and the reason for its singular reading. Outside of these requirements, the structural variants can very well be grammatical, but they do not have a singular reading. This is the

prediction derived from Vassilieva & Larson analysis. At the same time, the existence of the singular reading does not eliminate the other possible reading.

However, there is at least one recognisable exception in Fenno-Swedish and Finnish. If the expansion is a numeral stating the number of participants, the singular reading is allowed.

(29) **Vi två** ska **med Anna** fara till Berlin.
vi two shall with Anna go to Berlin
'The two of us, Anna and I, are going to Berlin.'
'The two of us are going to Berlin with Anna.'

(30) **Me kaksi** ollaan **Annan kanssa** menossa Berliiniin.
we two are Anna.GEN with going Berlin.ILL
'The two of us, Anna and I, are going to Berlin.'
'The two of us are going to Berlin with Anna.'

The significance of the exception in (29), (30) will be discussed in Section 5.

4 Data-driven approach

4.1 A grammaticality judgement experiment

In order to observe actual language user data, an experimental investigation of acceptability judgments of a large cohort of Finnish and Fenno-Swedish speakers was carried out in 2019. The data resulting from this online experiment consists of answers given by 618 speakers of Fenno-Swedish and 810 speakers of Finnish. The informants were asked initially if the examples represent something they would say themselves. While judging the grammaticality of the examples, they were allowed to modify the phonological form so that it would fit the way they speak. Only those informants who confirmed that they would use the example themselves and those who were not sure about this, were asked to judge the possible readings. The informants who answered *no* to the very first question were not asked to judge the readings.

The Fenno-Swedish survey included 14 example sentences. Due to its syntactic properties, Finnish includes some additional test conditions and the Finnish version of the survey included 17 example sentences to cover these.[8] Some of the example sentences were purposely marginal as the goal of the survey was to discover the grammatical constraints of the IPPC.

The results reveal that the Finnish informants were more prone to accept the example sentences, regardless of the reading, than the Fenno-Swedish group. On average, the Finnish sentences were accepted by 63.4 % of the informant group while the Fenno-Swedish sentences were accepted by 36.3 %.

The informants that accepted the examples as such were asked to judge which readings were acceptable. Among these groups, the singular reading was accepted by 67.9 % of the

[8] For example, in (5), the negation allows a slightly more versatile word order than in (4).

Fenno-Swedish informants and 79.3 % of the Finnish informants.[9] The result is slightly skewed by the larger number of Finnish example sentences but direct comparison between the most uncontroversial examples reveals that the IPPC is more widely accepted in Finnish. There are specific conditions affecting the acceptance. The results reveal two clear structural factors that lessen the acceptability of a singular reading: i) the contiguous placement of the pro and the annex, and ii) the function of the IPPC as the object of the sentence[10]. There are, however, slight differences in this respect between the languages.

Most Fenno-Swedish informants in the dataset rejected the contiguous example in (31) as something they would say (83.2 %). However, of the rather small number of informants that accepted the example in (31), the majority of them (87.5 %) also accepted the singular reading.

(31) ?**Vi med Anna** ska fara på semester.
we with Anna will go on holiday
'Anna and I are going on a holiday.'

Contiguous IPPC constructions could, at least hypothetically, also occur as objects. However, the Fenno-Swedish example in (32) was unconditionally accepted by only 1.3 % of the informants (8 individuals). Additionally, 2.8 % (17 individuals) were not sure. Of these 25 informants, the majority (64.0 %, 16 individuals) stated that the singular reading is possible.

(32) *De känner inte **oss med Anna**.[11]
they know not us with Anna
'They do not know me and Anna.'

In contrast, Finnish informants accepted the contiguous version to a much higher degree. The example in (33) is adequately (59.8 %) accepted by the informants as something they could possibly say themselves. The example also successfully represents the singular reading, as 97.4 % of the informants that got to judge the meaning expressed that it can refer to 'Anna and I'.

(33) **Me Annan kanssa** lähdetään lomamatkalle.
we Anna.GEN with go holiday.trip.ALL
'Anna and I are going on a holiday.'

On the other hand, the Finnish version of the object setting in (34) was accepted by 14.6 % (118 individuals) which is among the lowest scores in the experiment. The singular reading was, however, widely accepted (80.2 %) by those who could use the expression or stated that they were not sure. At the same time, there are examples of the setting occurring in Finnish, as discussed in the next section.

[9] All percentages concerning readings are percent of informants that either could use the example as such or have announced that they are not sure.
[10] The subject position is the typical placement of the IPPC (Holmberg & Kurki 2019).
[11] Test sentences accepted by less than 5 % are considered ungrammatical in this paper.

(34) ?He eivät tunne **meitä Annan kanssa**.
they not know us Anna.GEN with
'They do not know me and Anna.'

4.2 Unresolved questions raised by the data

In the following, we briefly explain why questions concerning the dispreference of the contiguous IPPC are difficult to examine and why they do not necessarily concern the IPPC alone in Fenno-Swedish. Even though the issue ultimately remains unresolved, the observation as such shapes the research problem of the IPPC in Fenno-Swedish and Finnish and forces us to consider discontiguous compositions; these compositions have largely been ignored in the cross-linguistic perspective on inclusory constructions even though discontiguous placements occur in several other languages too.

It is practically impossible to find Fenno-Swedish evidence of sentences like (31) and (32) being used by searching corpora or scanning the internet.[12] In combination with the low acceptability rating, this fact further strengthens the claim that both settings are strongly dispreferred. Due to the lack of extensive corpus material, it is not possible to make further observations. As a consequence, it remains unclear whether the examples in (31) and (32) are dispreferred as a result of the contiguous version of the IPPC or if the dispreference of (32) includes factors concerning the object position of the construction. However, a relevant question concerns the acceptability of Fenno-Swedish [Pro with XP] structures in general. The example in (35a) seems to be acceptable as subject and the example in (35b) can be a grammatical object.

(35) a. pojken med katten
boy.DEF with cat.DEF
'the boy who was with the cat'

b. oss utan pengar
us without money
'us who do not have money'

The case of the parallel Finnish settings can be discussed utilising additional material. In order to examine the contiguous version, we have collected an additional corpus of examples like (33) from a Finnish family-oriented internet forum.[13] This collection consists of 265 contiguous occurrences of the contiguous expression in (36) appearing in different sentences and discussions.

[12] Unfortunately, there are not many websites with strictly Fenno-Swedish content, although corresponding Finnish examples can be found online.

[13] Vauva.fi, a Finnish family-oriented internet forum, is one of the most visited websites in Finland. A wide variety of topics, of which many are not family-related at all, is discussed on the forum daily.

(36) me miehen kanssa
we man.GEN with
'my husband and I'

The number of examples found in the first collection shows that the contiguous placement of the components is sufficiently common in Finnish. The case of objects is slightly more complicated. The example in (37) is a headline on a Finnish news site and the IPPC seems to occur as the object.

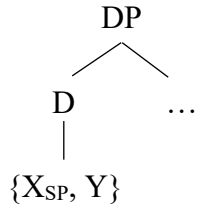
(37) Hometalosotku lähensi **meitä vaimon kanssa**.
mould.house.mess brought.closer.together us.PTV wife.GEN with
'The mess caused by the mould-damaged house brought me and my wife closer together.'

How does the acceptable example (37) differ from the largely dispreferred one in (34)? We leave this question unresolved, pending more research.

5 Analysis

The ambiguity of the inclusory pronominal construction requires a specific understanding of the general composition of plural pronouns. A customary way to describe 'we' is something like this: "'We' refers to the speaker plus some other individuals." (Vassilieva & Larson 2005). Following Sigurðsson & Wood (2020) this can be described in terms of two variables {X,Y} (38). The first variable ranges over the focal referents of the pronoun. In the case of 'we', the first variable has the value 'speaker'. In the case of 'you.pl', the first variable has the value 'addressee'. In the case of 'they' it can be 'he' or 'she'. The second variable is normally context-dependent. It obtains its value from the situational context.

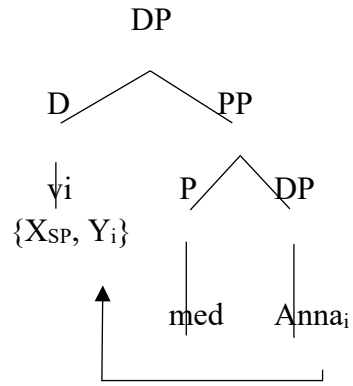
(38)



In the case of the IPPC, the value of the second variable can, however, be assigned by the DP in the comitative phrase, the annex. The Y-variable gets its value sentence-internally, in the syntactic derivation, rather than from the situational context. This makes it possible for *vi …med Anna* to denote 'me and Anna'. The variable set here is {speaker, Anna}.

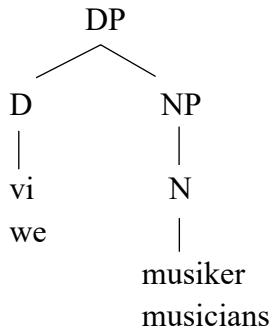
Adopting Vassilieva and Larson's (2005) analysis of the IPPC, the structure of 'we with Anna' would be (39): The PP is, and has to be, a complement of the plural pronominal D. As observed in the previous section, the structure (39) is not the typical composition of the IPPC in Fenno-Swedish, which will be discussed in this section.

(39)



As discussed earlier, this analysis is strongly supported by the observation that the pronoun of the IPPC cannot be expanded, if we assume that the structure of expanded pronouns like *we musicians* is (40), following Postal (1969) and Höhn (2017).

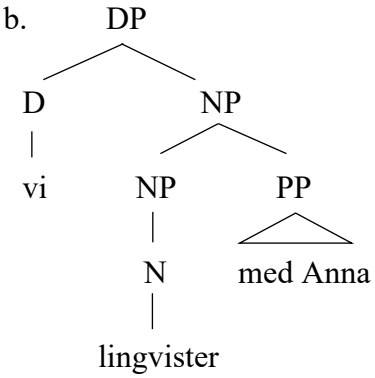
(40)



For example, *vi lingvister med Anna* in (41a) does not meet the required structural description in (39), and consequently cannot mean 'me and Anna, who are linguists'. It would have the structure (41b). There are no obvious semantic reasons explaining why the interpretation is unavailable here which suggests that the reason has to be a strictly syntactic matter.

(41) a. #Vi lingvister med Anna.
we linguists with Anna
'We who are linguists and Anna.'

b.



At this point, two crucial questions remain unresolved. The first one concerns the discontiguous occurrences of the IPPC. The question is recognised but not discussed further by Vassilieva and Larson (2005). The second question concerns the fact that there is at least one exceptional

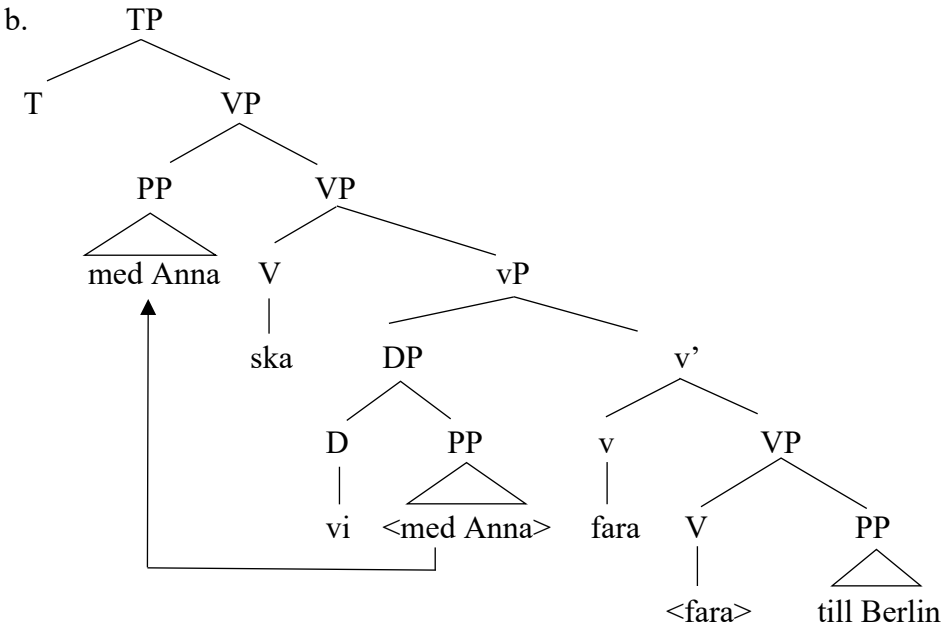
scenario where the we-DP can, in fact, be expanded as seen in (29), (30). The questions will be discussed in this order.

An important matter is to decide how discontiguous occurrences of the IPPC should be analysed. Vassilieva and Larson (2005) point out that the annex PP can be extraposed from the subject in Russian, as it can in Fenno-Swedish and Finnish. Plausibly the separation of the PP and the pronoun would be derived by movement from the complement position of the pronominal D. Wherever the inclusory PP is, when separate from the pronoun, the complement position of D has to be empty, explained if there is a copy (or trace) there. The discontiguous placement is common in Fenno-Swedish and Finnish as well as in many languages in the eastern parts of Europe, according to data from our contacts (see footnote 1).

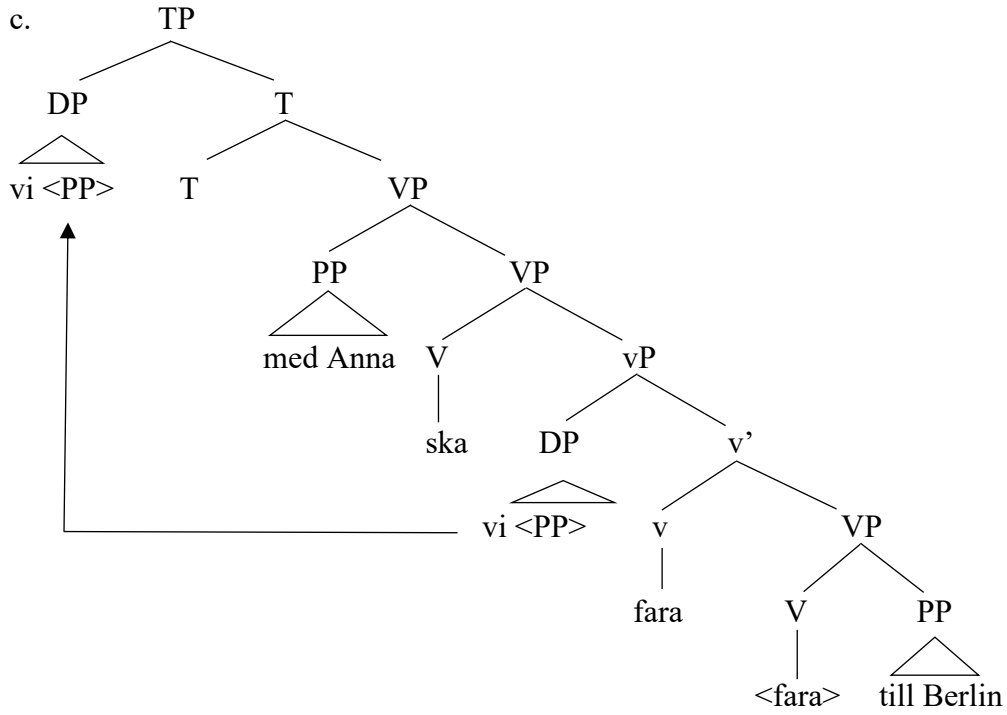
The following would be a movement analysis of a discontiguous IPPC in the case when the PP can be analysed as predicate-external (Holmberg & Kurki 2019):[14]

(42) a. **Vi** ska **med Anna** fara till Berlin.
we shall with Anna go to Berlin
'Anna and I are going to Berlin.'

b.



[14] Copies of moved constituents are represented within angle brackets.



The movements derive the most common word order of the IPPC by first extracting the PP from the DP, followed by remnant movement of the DP to spec-TP. The placement of the PP is free in relation to any adverbs in the clausal middle field (see 4a,b). A couple of additional movements will be necessary to derive the verb-second order in (42): The finite auxiliary verb *ska* 'will' moves (through T) to C, and the subject moves to spec-CP (according to a widely accepted analysis of V2 in Germanic; Holmberg 2015, Woods & Wolfe 2022: 2–4). The resulting structure is roughly (43).

(43) [$_{CP}$ vi [$_{C'}$ ska+C [$_{IP}$ <vi> ... [$_{VP}$ [$_{PP}$ med Anna] [$_{VP}$ <ska> [$_{vP}$ <vi med Anna> fara till Berlin]]]]]]

However, the analysis (42) includes movement out of DP, which is generally restricted (Davies & Dubinsky 2003). Another, and more damaging argument against this analysis is that it cannot derive the orders where the PP follows the main verb, as in (44) and (45).

(44) **Vi** ska fara på semester **med Anna**.
we shall go on holiday with Anna
'We will go on a holiday with Anna.'
'Anna and I will go on a holiday.'

(45) **Me** lähdetään lomamatkalle **Annan** **kanssa**.
we go holiday.trip.ALL Anna.GEN with
'We will go on a holiday with Anna.'
'Anna and I will go on a holiday.'

The Fenno-Swedish example in (44) was accepted by 84.5 % of the informants in the grammaticality judgment experiment and its singular reading was accepted by 58.3 %. The plural reading was slightly more popular as the acceptance rose due to the distance to the Pro. It was accepted by 78.5 %. Nevertheless, the singular reading was clearly available and this cannot be ignored.

The Finnish example in (45) was accepted by 92.2 % of the informants and its singular reading was accepted by 70.0 %. Again, the plural reading is slightly more popular. It was accepted by 79.5 %. Also here, the singular reading was clearly available.

This is significant in the following way: deriving the postverbal annex PP under the analysis (39), based on Vassilieva and Larson (2005), will require very complex movements. The movement would appear to be rightwards and downwards. While the possibility of rightwards movement is controversial (Kayne 1994, Abels & Neeleman 2012), downwards movement is rejected by virtually all versions of generative syntactic theory. Note that the postverbal annex PP can be followed by VP adverbs, ruling out the possibility that it would be a case of rightwards upwards movement, adjoining the PP to vP or higher.[15] This is shown in (46), where other possible placements of the annex PP are placed in parentheses.

(46) **Vi** har (med Anna) övat **med Anna** varje dag (med Anna).
we have (with Anna) trained with Anna every day (with Anna)
'Anna and I have trained every day.'
'We have trained every day with Anna.'

The relation between the PP and the pronoun in the IPPC is subject to locality, though. The IPPC crossing a CP or a DP boundary is out of the question.

(47) a. **Vi** trodde [att du skulle fara **med Anna** till Berlin].
we believed [that you would go with Anna to Berlin].
'We thought you would go to Berlin with Anna.'

b. **Vi** avbokade [resan **med Anna** till Berlin].
we cancelled [trip.DEF with Anna to Berlin].
'We cancelled the trip to Berlin with Anna.'

The last substantial problem is indicated by the exception introduced by the example in (29), (30), repeated here as (48), (49). The we-DP can be expanded by a number expression even though other expansions (50), (51) are out of the question, and adopting Vassilieva and Larson's (2005) analysis seems to exclude the whole idea of expanding the we-DP (see 3.3 for the discussion).

[15] It is thus different from the case of exception extraction, discussed by Vassilieva & Larson (2005), where ordinary VP-adverbials cannot be placed after the exception phrase.

(48) **Vi två** ska **med Anna** fara till Berlin.
we two shall with Anna go to Berlin
'The two of us, Anna and I, are going to Berlin.'
'The two of us are going to Berlin with Anna.'

(49) **Me kaksi** ollaan **Annan kanssa** menossa Berliiniin.
we two are Anna.GEN with going Berlin.ILL
'The two of us, Anna and I, are going to Berlin.'
'The two of us are going to Berlin with Anna.'

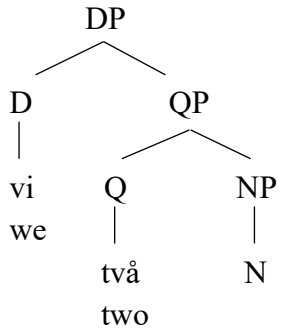
At the same time, examples expanded by NPs (50a) or adjectives (50b) fail to include the singular reading, (similarly to 22), (23), (24) and (25).

(50) a. **#Vi artister** ska **med Anna** fara till Berlin
we artists shall with Anna go to Berlin
'We, who are artists, will go to Berlin with Anna.'

b. **#Vi unga** ska **med Anna** fara till Berlin
we young.PL shall with Anna go to Berlin
'We, who are young, will go to Berlin with Anna.'

The difference between numeral expansions (48,49) and (50a,b) cannot be explained by movements. This leads to the conclusion that the singular reading of the plural pronoun is not blocked by the mere existence of any expansion. The observation suggests that the IPPC might not require the very structure in (39), predicted by Vassilieva and Larson (2005). The number expression in (48,49) is, most plausibly, a complement of the pronominal D, made up of a numeral quantifier head, itself having an NP complement with minimal content, as depicted in (51):

(51)



This analysis cannot be combined with Vassilieva and Larson's analysis of the IPPC where the PP is a complement of the pronoun. So, 'we two' seems to be different from 'we linguists'. However, if 'we two ...with DP' in (48) is expanded by an additional NP, the singular reading of the plural pronoun will become unavailable again (52).

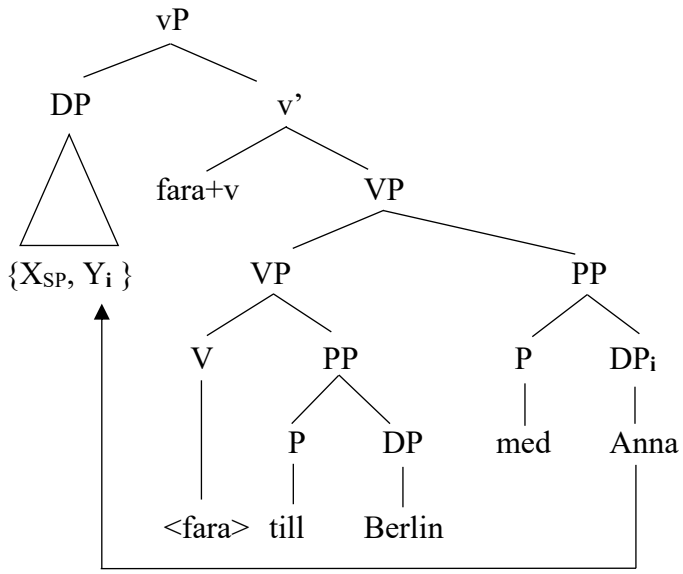
(52) **#Vi** **två** **lingvister** ska **med** **Anna** fara till Berlin.
we two linguists shall with Anna go to Berlin
'We two linguists are going to Berlin with Anna.'

The example in (52) cannot mean 'the two linguists, me and Anna, are going to Berlin'. The illustrated difference between different expansions does not support adopting Vassilieva and Larson's (2005) analysis here. In addition, in both Finnish and Fenno-Swedish the annex PP does not typically surface in the complement position of the pronoun (see 4.2), which is the assumed position of the PP in (39). Adopting Vassilieva and Larson's (2005) analysis seems to result in a paradox.

Thus, the viable approach is to assume an analysis in which the separation of the PP from the pronoun is not derived by movement. The we-DP in the discontiguous IPPC consists of the pronoun, an optional quantifier that defines the cardinality and a N with minimal content.

A semantic difference between 'we (two) linguists' and 'we two', is that the complement defines the quality of the entities represented by the X and Y-variables in the first case, restricting their value to linguists, but not in the second case. In (51), neither the quantifier nor the minimal N define the quality of entities represented by the variables X and Y. Under this condition, the Y-variable can be assigned a value 'at a distance', by an adjunct to the VP whose subject is the DP . But if the quality is defined/restricted by any expansion, this syntactic assignment cannot take place and the Y-variable will be defined by the context instead. When there are no obstacles for the variable Y to obtain its value assigned by the DP of the comitative phrase, the derivation is as follows:

(53)



Again, the Y-variable of the pronoun obtains its value sentence-internally, in the syntactic derivation, rather than from the situational context. The explanation provided in this paper concerns the parameter distinguishing the IPPC languages. It is discussed in the following section.

6 What is the parameter?

An important question is how languages with an IPPC differ from languages without an IPPC. Two alternatives will be discussed: One is that the IPPC languages have a special comitative marker, the other is that they have a special plural pronoun.

The first alternative concerns the similarities between the IPPC and with-coordination, that is, the use of a comitative adposition as a conjunction; these two phenomena result in similar semantic relations, utilising similar grammatical components (Stassen 2000). Vassilieva & Larson (2005) point out the differences between the IPPC and the with-coordination in Russian. In the IPPC, the annex PP can occur as disjoint from Pro while the with-coordination is contiguous, similar to true conjunctions (54).[16]

(54) Mal'čiki s devočkami tancevali.
boys.NOM with girls.INSTR danced
'The boys and the girls danced.'

At the same time, typological reviews (Stassen 2000, Haspelmath 2004) seem to present the IPPC as a nuance in the overall view of with-coordination, stating that 'with' is being used as a coordinator meaning 'and' in the IPPC. The similarity of the semantic outcome is true, but does it indicate that the special comitative marker is crucial for the IPPC?

As some well-known IPPC languages (e.g. Russian, Lithuanian) also have with-coordination, it makes sense that there would be a correlation. There are, however, relevant counterarguments. The Finno-Ugric language family includes examples of the IPPC and with-coordination occurring with no correlation. Hungarian (Dékány 2009) and Northern Sami have the IPPC while with-coordination is not available. Mari has with-coordination but the IPPC is not available (Sirkka Saarinen, personal communication).

No special comitative marker is necessary in the Icelandic construction either (Sigurðsson & Wood 2020). Fenno-Swedish has with-coordination only in very limited contexts. Interestingly, the rare Fenno-Swedish with-coordination only takes place in contiguous expressions,[17] which is the setting dispreferred by the IPPC. In Finnish, with-coordination is almost non-existent. This strongly suggests that the availability of the IPPC does not depend on the availability of with-coordination in general in the same language.

The second alternative is that languages with the IPPC have a special plural pronoun. Once again, it can be described with the variables X and Y. The value of Y is assigned as displayed in (53). Along the lines of Chomskyan feature theory, this can be formally expressed

[16] There are languages with discontiguous with-coordination, though: Stassen (2000) mentions Tera, Acholi, and Tolai.

[17] An example would be (i).

(i) **Jag med min fru** var glada att vara tillbaka.
I with my wife were happy.PL to be back
'My wife and I were happy to be back.'

Note the plural agreement on the predicative adjective, showing that this is indeed coordination.

as an unvalued feature which needs valuation from the local syntactic context (Chomsky 2001). The value it wants is a referential index. This can be formally expressed as follows: There are two pronouns ‘we’, ‘you.PL’ and ‘they’ in languages that have the IPPC. For example:

(55) we1: {X_{SP}, Y}
we2: {X_{SP},uD}

In the previous section, we stated that the IPPC is excluded when the reference of the Y-variable is restricted by a noun or adjective internally by the DP. We can now explain this. The reason is that this requires the presence of a variable to restrict. The pronoun *we2* has no Y-variable, but an unvalued feature. Once the pronominal DP contains a noun, adjective, or relative clause, this excludes the analysis of the pronoun as *we2*. The same holds true for the other plural pronouns.

The feature uD seeks a nominal argument in the local syntactic context. It probes the c-command domain of D, and finding a DP, copies its index. The result is the inclusory interpretation of ‘we’.[18]

This analysis also entails a specification of the parameter distinguishing languages that have the IPPC from languages that do not: The former languages have a variety of plural pronouns absent in the latter, the *we2* variety in (55).

How the variation regarding the contiguous occurrences of the IPPC should be explained within this theory is still a matter for discussion. Even though contiguous occurrences are dispreferred in general, especially by Fenno-Swedish informants, the singular reading is quite well accepted by those who would use the expression themselves.

This question seems to be relevant only for the case of Fenno-Swedish and Finnish as, according to informants contacted (see footnote 1), there is no observable dispreference with the IPPC concerning contiguous compositions in other European languages. However, no exhaustive research on the matter exists at the moment.

7 Concluding words

The present study provides a thorough analysis of the IPPC in Fenno-Swedish and Finnish. To our knowledge, this paper constitutes the first detailed investigation of the placement of the annex phrase of the inclusory constructions. We argue that the findings suggest an analysis that differs from prior work on similar constructions in other languages.

Adopting an analysis along the lines of Vassilieva & Larson (2005) seems appealing. Vassilieva & Larson argue that the syntactic structure of the IPPC is [D PP], where D is the plural pronoun. We present evidence of an extremely free placement of the annex PP in Fenno-Swedish and Finnish. Separate placement of D and PP is preferred in Finnish and almost compulsory in Fenno-Swedish. Explaining this property is problematic if Vassilieva & Larson’s analysis is the only one possible. While the Fenno-Swedish pattern displayed by this paper is

[18] See Tsoulas (2016) on referential indices in syntactic theory. Chomsky (2000, 2001) famously rejects the employment of indices as a syntactic device. See, however, Tsoulas (2016) for arguments that referential indices can be and need to be assumed as a syntactic device in minimalist theory. See also Arregi & Hanink (2022) for arguments that referential indices indeed are a grammatic category.

rather uniform, the case of contiguous constructions is more complex in Finnish (see 4.2) and further research is needed.

The fact that an expanded pronoun as in Fenno-Swedish *vi lingvister* 'we linguists' and *vi från Finland* 'we (who are) from Finland' is incompatible with an inclusory reading of a following comitative PP seems to support Vassilieva & Larson's (2005) analysis as the underlying syntactic structure of the IPPC. If this was the case, then the non-contiguous IPPC with a postverbal PP in Fenno-Swedish and Finnish would be the result of movement to the right of and lower than the putative first-merged copy which is incompatible with the standard restrictive theory of movement.

Additional observations indicate that Pro of the IPPC can have numeral complements as in *vi två* 'we two' without distracting the singular reading. This contradicts the underlying structure [D PP].

Due to these findings, we propose an alternative analysis that includes a special plural pronoun consisting of a variable being given the value of the speaker, addressee, or third person and an unvalued feature seeking a nominal argument in the syntactic context. A special comitative marker is also discussed briefly to demonstrate why it is not a serious alternative.

The findings of the present research contribute to the cross-linguistical understanding of inclusory constructions. Investigating the placement of the annex phrase in relevant languages is a matter of future work that may introduce additional questions with significance for Fenno-Swedish and Finnish.

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Mainland Scandinavian Stylistic Fronting

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Abstract
This paper reports on the existence of Stylistic Fronting in the modern Mainland Scandinavian languages, i.e. Danish, Norwegian and Swedish. Contrary to the claim that "SF is no longer part of the MSc languages" (Thráinsson 2007:376; see also Angantýsson 2011:183), it is shown that SF-like expressions can be found, not only in Swedish, as pointed out by Engdahl (2012), but also in Norwegian and Danish, although such constructions are heavily restricted. The central research questions regard (i) the extent to which SF still exists in Mainland Scandinavian, (ii) what kind of judgements it receives in different clause types, (iii) how it appears in written and spoken corpora, and (iv) how it compares to SF in Icelandic and Faroese. The overall data presented and discussed here suggest that the (limited) possibility of SF in the modern Mainland Scandinavian languages is partly conditioned by the clause type and the nature of the element fronted by SF, and partly by lexical/idiomatic, and socio-linguistic factors.

1 Introduction

Stylistic fronting (SF) is today found in the Insular Scandinavian languages, Icelandic and Faroese, most typically in embedded clauses in formal registers but also in main clauses, in which case it has an even more archaic or stylistic flavor (see Angantýsson 2017 and references there). Examples of SF are also known in early 20th century Norwegian dialects (Iversen 1957:233 ff.) and in Övdalian (Levander 1909:122), but recent studies indicate that it is heavily restricted in modern Övdalian (Garbacz 2010, Angantýsson 2015) and in modern Norwegian dialects (Garbacz 2014). As regards the standard modern Mainland Scandinavian languages, the general view in the literature has been that SF is absent (Falk 1993:178, Holmberg 2000, Thráinsson 2007:376).

However, Engdahl (2012) points out that Swedish actually exhibits some "more or less frozen SF expressions", and that "anaphoric temporal and locative adverbs are often fronted", as in (1). Citing Teleman, Hellberg & Andersson (1999), she claims that such adverbs "may be contrastively stressed, but not necessarily so".

(1) a. Om **så** sker, måste man dra i nödbromsen.
if so happens must one pull in emergency.break.DEF.
'If this happens, use must use the emergency break.'
b. Det beror på vad som **då** händer.
it depends on what that then happens
'It depends on what happens then.'

Engdahl (2012) also shows that PPs can be fronted "in order to prevent an unintended attachment", as in (2):

(2) Den tystnad som rörelsen satt sig i sinnet att bryta är
the silence that movement.the put REFL in mind.the to break is
den tystnad som **i Israel** omger ockupationen av palestinska områden.
the silence that in Israel surrounds occupation.the of Palestinian areas
'The silence that the movement is determined to break is the silence which in Israel surrounds the occupation of Palestine areas.'

According to Engdahl (2012), the fronting of *i Israel* "makes it clear that the writer is talking about 'the silence that prevails in Israel'. Furthermore, she says that "if 'in Israel' had appeared in the usual place for locative adjuncts at the end of the VP, then it would most naturally have been interpreted as modifying 'Palestinian areas'." Based on examples like this, we will explore the possibility of SF in Swedish in section 4.

There are also examples of what seems to be frozen SF expressions reported from a number of Norwegian dialects in dialect studies from the 20th century.[1] A century earlier, Aasen (1848:203) states that the finite verb can be placed after an adverb or a complement in relative clauses, providing examples as (3)-(5):

(3) Baa'den, som **ut** hade gjeve, aa den som **mot** hadde tekje.
both the-one that out had given and the-one that against had taken
'Both the one that has given and the one that has received.'

(4) Alt dæ, som **i** **Husom** kann finnast
everyting it that in houses.DAT can be
'Everything that could be found in the houses.'

(5) Dæ va dei, som **Magt'a** hadde
it was they that power.DEF had
'It was they who had the power.'

One can interpret the passage in Aasen (1848:203) as if SF was still productive in the beginning of 19th century in Norwegian dialects, although it was restricted to relative clauses. The fronted element could be both a head, as in (3), and a phrase, as in (4) and (5). Modern Norwegian is claimed to have "a marginal possibility of fronting similar to wedge fronting in Old Norwegian" (Laake 2017:196).[2]

Furthermore, some results from previous studies on modern Danish, indicate that certain SF-like constructions receive more positive reactions than one might expect. Thus, surprisingly many either accept or put a question mark on example (3c) in Tallai's (2022) survey on SF.

[1] The SF-like constructions were found at the following locations: Valdres, Nordland, Kleiven (Iversen 1957:234), Tromsø (Iversen 1918:81), Salten (Brekke 2000:152), Kristiansand (Johnson 1942:162-163), Stavanger (Svendsen 1931:138), and Oppdal (Haugen 1982:156). Those examples are all found in short relative clauses.

[2] Laake (2017:196) is basing her conclusion on Garbacz (2014): "in some present-day Norwegian dialects a predicative adjective can precede the finite verb in subordinate clauses. This is restricted to copula verbs in relative sentences and is by no means frequent (Garbacz 2014a:156)."

(3) a. Der er bevis på, at det er bedst at bo så langt mod nordøst
there is evidence for that it is best to live in the far northeast

i Danmark, hvis man gerne vil have så meget sol som muligt.
of Denmark if one would want have as much sun as possible

b. Der er bevis på, at __ er bedst at bo så langt mod nordøst
there is evidence for that is best to live in in the far northeast

i Danmark, hvis man gerne vil have så meget sol som muligt.
of Denmark if one would want have as much sun as possible

c. Der er bevis på, at **bedst** er at bo så langt mod nordøst
there is evidence for that best is to live in the far northeast

i Danmark, hvis man gerne vil have så meget sol som muligt.
of Denmark if one would want have as much sun as possible

The sentence in (3a) is fully accepted by 49 informants, while 14 put a question mark in front of it and one rejects it. (3b) is mostly rejected, as 52 informants mark it as unacceptable, 11 as doubtful and one accepts it. These results are expected. (3c) is however accepted by three informants and as many as 21 mark it as questionable, but do not reject it completely. Still, the same sentence is rejected by 40 informants.

Although 60–70% of the 63 participants fully rejected the SF construction in (3c), around 30% of them thought it was only an unusual sentence, and some 4 speakers fully accepted it. Similarly, some 3 out of 24 speakers of Western-Jutlandic, reported on in Angantýsson (2011: 178), fully accepted SF of an adverb in relative clause, and 3 others put a question mark. Despite the low acceptance rate, these results give rise to questions regarding the possibility of SF in modern Danish.

The main objective of this paper is to investigate the extent to which SF still exists in Mainland Scandinavian and how it compares to SF in Icelandic and Faroese. In section 2, we will review the basic properties of SF, based on the previous literature on the Insular Scandinavian languages. In section 3, we give a brief overview of the development and (alleged) disappearance of SF in the Mainland Scandinavian languages. Section 4 presents new data on SF-like orders in modern Danish, Norwegian and Swedish. The overall data presented and discussed here suggest that the limited possibility of SF in the modern Mainland Scandinavian languages is partly conditioned by the clause type and the nature of the element fronted by SF, and partly by lexical/idiomatic and socio-linguistic factors. We then conclude the paper in section 5, summarizing and discussing the results from these diverse sources of data.

2 The basic properties of Stylistic Fronting

2.1 SF and expletive insertion

Stylistic Fronting (SF) is "a phenomenon where a syntactic constituent is moved to what looks like the subject position in finite sentences with a subject gap, that is subject relatives, embedded subject questions, other embedded sentences with the subject extracted, and various types of impersonal sentences" (Holmberg 2006:532). Examples (4-6) show the interplay between clauses with empty subject positions, stylistically moved constituents and expletives in Icelandic.

(4) a. Þetta er mál sem __ hefur verið rætt um.
this is matter that has been discussed about
b. Þetta er mál sem **rætt** hefur verið __ um. SF
this is matter that discussed has been about
c. *Þetta er mál sem **það** hefur verið rætt um. Expl
this is matter that there has been discussed about
'This is a matter that has been discussed.'

(5) a. ?Ég held að __ hafi verið rætt um málið á fundinum.
I think that has been discussed about matter-the at meeting-the
b. Ég held að **rætt** hafi verið __ um málið á fundinum. SF
I think that discussed has been about matter-the at meeting-the
c. Ég held að **það** hafi verið rætt um málið á fundinum. Expl
I think that there has been discussed about matter-the at meeting-the
'I think that the matter has been discussed at the meeting.'

(6) a. Þeir sem __ hafa verið í Ósló segja að …
those that have been in Oslo say that
b. Þeir sem **í Ósló** hafa verið segja að … PP fronting
those that in Oslo have been say that
c. *Þeir sem **það** hafa verið í Ósló segja að … Expl
those that there have been in Oslo say that

A comparison of the (a) examples indicates that some subject gaps can be left empty while others preferably need to be filled. Sentences (4b) and (5b) are typical examples of SF. The (c) examples show that expletive insertion is not always an alternative to SF. Example (6b) features SF-like movement of an XP within an embedded clause which has a subject gap.

2.2 Locality issues

Maling (1980) observed that if there is more than one potential candidate for SF in a clause, it is typically only the leftmost one in the following accessibility hierarchy that can be stylistically fronted:

(7) sentential adverb > predicative adjective > past participle/verbal particle

This is illustrated in (8–10), also with examples from Icelandic (for a detailed and critical discussion see Franco 2009:22–29 and references there):

(8) a. Þetta er glæpamaðurinn sem__ hefur ekki verið dæmdur.
this is criminal-the that has not been convicted
b. Þetta er glæpamaðurinn sem **ekki** hefur __ verið dæmdur. Adv.
this is criminal-the that not has been convicted
c. *Þetta er glæpamaðurinn sem **dæmdur** hefur ekki verið .Past part.
this is criminal-the that convicted has not been
d. *Þetta er glæpamaðurinn sem **verið** hefur ekki__ dæmdur. Past part.
this is criminal-the that been has not convicted
'This is the criminal that has not been convicted.'

(9) a. Þetta er glæpamaðurinn sem __ hefur verið dæmdur.
this is criminal-the that has been convicted
b. Þetta er glæpamaðurinn sem **dæmdur** hefur verið. Past part.
this is criminal-the that convicted has been
'This is the criminal that has been convicted.'
c. *Þetta er glæpamaðurinn sem **verið** hefur dæmdur. Past part.
this is criminal-the that been has convicted

(10) a. Fundurinn sem __ hafði farið fram í Osló var skemmtilegur.
meeting-the that had gone forth in Oslo was fun
b. Fundurinn sem **fram** hafði farið í Osló var skemmtilegur. Particle
meeting-the that forth had gone in Oslo was fun
c. Fundurinn sem **farið** hafði fram í Osló var skemmtilegur. Past prt.
meeting-the that gone had forth in Oslo was fun
'The meeting that had taken place in Oslo was fun.'

In (8), only the negation can be fronted but not the other potential candidates for SF. The examples in (9) show that in a sentence with a predicative adjective and a verbal participle, only the adjective can be stylistically fronted. The examples in (10) show that if both a past participle and a verbal particle occur in the same clause, either one can be fronted.

2.3 Heads and maximal projections

If SF is an instance of head movement, one would expect it to obey the Head Movement Constraint (HMC) which can be stated informally as follows (see Travis 1984:131, Rizzi 2001):

(11) A moved head cannot skip an intervening head between its base position and its landing site.

Examples like the following seem to suggest that SF violates the HMC since the non-finite verb appears in front of the finite verb:

(12) Þetta er mál sem **rætt** hefur verið __ um
this is matter that discussed has been about
á mörgum fundum.
at many meetings

A possible way to avoid this problem is to say that the non-finite verb "first" moves and adjoins to the finite verb in V and "then" moves along with it to the I domain. In this way it has not really skipped the head occupied by the finite verb but adjoined to it (Jónsson 1991, Thráinsson 1993:194).

SF obeys the "clause-boundedness condition" (see Thráinsson 1993:193–194 and references there):

(13) a. Þetta er stelpan sem __ sagði að þú hefðir stolið bókinni.
this is girl-the that said that you had stolen book-the
b. *Þetta er stelpan sem **stolið** sagði að þú hefðir __ bókinni.
this is girl-the that stolen said that you had book-the

(14) a. Þetta er maðurinn sem __ spurði hvort ég hefði séð myndina.
this is man-the that asked whether I had seen movie-the
b. *Þetta er maðurinn sem **séð** spurði hvort ég hefði_ myndina.
this is man-the that seen asked whether I had movie-the

Assuming (some kind of) a head movement account, one can say that the non-finite verb has skipped the head positions occupied by the finite verbs *hefðir* 'had' and *hefði* 'had' in (13b) and (14b). Therefore, the derivation crashes.

The conditions on head movement and XP movement across negation differ, as shown below (based on examples from Thráinsson 2007:311):

(15) a. að það hafði ekki komið fram í umræðunum að ...
that it had not come forth in discussions-the that
b. að ekki hafði __ komið fram í umræðunum að...
that not had come forth in discussions-the that
c. ?*að fram hafði ekki komið __ í umræðunum að...
that forth had not come in discussions-the that
d. að í umræðunum hafði ekki komið fram __ að...
that in discussions-the had not come forth that

The comparison of (15b) and (15c) shows that the PP *í umræðunum* 'in the discussion' does not obey the same constraints as the particle fram 'forth', which suggests that stylistically fronted heads and SF-like maximal projections should be distinguished.

2.4 An overview of some previous accounts

Stylistic Fronting has been discussed extensively in the syntactic literature, but the kind of data which are taken to be representative of SF vary from paper to paper (for a recent overview, see Sigurðsson 2017). Consequently, there are various approaches to SF and its interaction with expletive insertion. SF has been analysed as:

(16) a. Movement to subject position (Maling 1980, Platzack 1987, Ottósson 1989, Rögnvaldsson and Thráinsson 1990, Holmberg 2000, Håkansson 2008, 2011).
b. IP-adjunction (Jónsson 1991, Poole 1992, Thráinsson 1993, Poole 1996).
c. PF-merger above IP (Bošković 2001, 2004).
d. Focus movement (Hrafnbjargarson 2004).
e. One way of satisfying "Fill the left edge requirement" (Sigurðsson 2010).
f. Remnant movement (Müller 2004, Franco 2009, Ott 2017).

The motivation for analyzing SF as movement to an empty subject position (Spec-IP) is to explain the subject gap that SF requires. In such analyses the movement is triggered by some kind of EPP-feature checking. The main problem for this theory is that it presupposes that heads can move to a specifier position, which at least within the GB framework used to be prohibited. A possible way to avoid this problem is to assume that 'heads' moved by SF are in fact phrases that have been emptied of all material except for the head (see Ott 2017 and references there).

Holmberg (2000) offers a unified account of SF and expletive insertion. According to his analysis, the I (of IP) has a nominal feature [D], which is checked by the verb if there is no subject in the sentence. There is also another feature [P], which can be checked by any phonologically visible category moved to or merged in Spec-IP. The idea is that "something" must precede the finite verb: an overt subject, an expletive, a trace, or a fronted element. However, the fact that the apparent subject position must sometimes be filled and sometimes needs not be makes this analysis, and in fact all phonological approaches, in our view quite problematic (Poole 1992, 1996, Bošković 2001, 2004, see also Sigurðsson 2010, Wood 2011). Moreover, it seems that while the [P] feature can sometimes be checked by an expletive, or an element that has undergone SF, occasionally the expletive is ungrammatical. For example, expletive insertion is optional in impersonal constructions and sentences with postposed subjects while it is very hard or impossible to apply it to constructions with extracted and relativized NPs. Nevertheless, the latter type of constructions allows SF. This contradicts the idea that any phonologically visible category can check the feature in question.

Hrafnbjargarson (2004) claims that SF moves both heads and XPs to FocP (Foc and Spec-Foc respectively) in a split CP-domain. While some SF-like constructions have focusing effects, as he shows, it is problematic that fronting of elements that are clearly no bigger than heads (verbal particles for instance) does not have any focusing effects (see discussion in Thráinsson 2007:387–389). It can even be argued that SF-like constructions that have focusing effects are in fact not SF but topicalization.

As discussed in 2.3, at least certain subsets of the data can be properly treated under a head movement approach (cf. Jónsson 1991, Thráinsson 1993). The motivation for analyzing SF as an adjunction to I rests on the prohibition of head movement to a specifier position. This

analysis also explains the absence of focus effects, and it accounts for the relation between verb movement and SF (Icelandic vs. Mainland Scandinavian), i.e. that V-to-I movement is a necessary condition for SF although it is presumably not a sufficient condition. Under Jónsson's (1991) analysis of SF, the subject gap condition is accounted for in terms of feature checking. The SF-element is head-adjoined to the finite verb and moves along with it to I. As a result, the finite verb is "too low" in the structure to check the relevant features with a lexical subject. Therefore, only "null subjects" can be in the subject position. There are two problems with this analysis, however: first, it does not account for the SF-like movements of XPs; second, there is no obvious trigger for the SF. Perhaps SF should be viewed as an optional, stylistic operation, although it is not obvious how, or even to what extent, such phenomena should be accounted for in the syntax. However, it is clear that SF has syntactic effects (e.g., it precludes the appearance of the expletive) and obeys syntactic principles (e.g., it depends on subject gaps). Angantýsson (2017) considers the possibility that SF is restricted to cases of head movement in operator environments and that "stylistically fronted" XPs should be accounted for as topicalization in clauses with a subject gap.

In the following discussion, we use the term SF in a broad sense and include "borderline cases" of SF and Topicalization as in (6b) above.

3 The (alleged) disappearance of SF in Mainland Scandinavian

Previous studies have shown that Stylistic Fronting existed in the older Mainland Scandinavian languages (see Falk 1993:178–187, Delsing 2001, Thráinsson 2007:376–377, and references there). Below we present examples from Old Swedish, Old Danish, and Old Icelandic.

(17) a. ...han som **thik** kastadhe __ aff himerike. (Swed., 1385)
he who you.ACC threw.out of heaven
'the one who had thrown you out of paradise.'

b. ...swo sum **førre** er melt __ . (Danish, around 1240)
so that earlier is said
'...as it was said earlier.'

c. …og sú sveit, er **honum** hafði fylgt __. (Old Ice., 1230)
and the retinue who him.DAT had followed
'...and the people who had followed him.'

Examples (17a–c) show instances of SF from Old Swedish (17a), Old Danish (17b), and Old Icelandic (17c). Similar examples are known in the history of Swedish, Danish and Norwegian (e.g. Platzack 1987, Pettersson 1988, Christoffersen 2000, 2002, Sundquist 2002, Faarlund 2004:236–238, Hrafnbjargarson 2004, Håkansson 2011). Classical Övdalian also exhibits SF (Levander 1909:122) but recent studies show that it is not productive in Övdalian any longer (Garbacz 2010, Angantýsson 2011).

There is an old thought that the main and embedded clause word order is the same in Old Norse, this is already articulated by Nygaard (1905:371) and later by Hanssen, Mundal &

Skadberg (1975:117). Christoffersen (2002) has examined *that*-clauses, conditional clauses and relative clauses in the Old Norwegian state law of Magnus Lagabøte (issued in 1270's) and concludes that there is no structural asymmetry between main and embedded clauses in the text.[3] Her examples of what other scholars divide into SF and embedded topicalization are taken from all the three clause types. This approach differs from those of Platzack (1987), Pettersson (1988), Sundquist (2002), and Hrafnbjargarson (2004), in which SF is understood more narrowly and is sharply distinguished from embedded topicalization. When investigating SF in the history of Swedish, Falk (1993:180) has only taken clauses with a subject gap and excluded examples with preverbal adverbials, examples with preverbal oblique noun phrases, examples with final verb(s), and examples with so called VP-raising (a structure where the object or an adverbial is placed between the finite and the infinite verb(s) in an embedded clause). These restrictions reduce the number of possible examples of SF/no SF and they draw a sharp line between SF and phenomena as verb in situ, embedded topicalization, OV word order and verb final structures. Christoffersen (2000, 2002), on the contrary, sees all these structures as proof of no structural asymmetry between main clause and embedded clause.

As for the loss of SF, the following has been shown. In the written Swedish sources, SF disappears at the end of the 17th and the beginning of the 18th century and onwards (Falk 1993:326).In Norwegian, both embedded topicalization and SF start to disappear in the 16th century, though it takes two centuries before they are lost completely. Christoffersen 2000:163). In Danish, SF is lost during the Early Modern Danish period (Sundquist 2002:309). Interesting data are given by Sundquist (2002), who charts the elements fronted by SF both in Old Swedish (2002:259) and in Early Modern Danish texts (2002:310). In Old Swedish, the most fronted category is sentential negation (32%) followed by NP-objects (23%), other adverbials (13%), past participles (11%), preposition phrases (9%), predicative adjectives (6%), and verbal particles (6%). These data correlate with those given by Pettersson (1988:169) from three Swedish law texts written in 1280, 1350, and 1440: negation is the most-frequently fronted element, followed by objects, predicative adjectives, other adverbials, and nonfinite verbs. In Early Modern Danish, a few centuries later, adverbials (29%) and negation (24%) are the most frequently fronted categories followed by noun phrases (15%), preposition phrases (12%), past participles (10%), and predicative adjectives (10%) (Sundquist 2002:310). As for Norwegian, Laake (2017: 194): shows that negation was the most frequently fronted element by SF in Old Norwegian (87%), but she does not give data on the other elements fronted by SF in her material.

The letters of princess Anna Vasa written between 1591 and 1612 (published in Dumanowski et al. 2002) give an interesting insight into which elements are fronted by SF during the period when SF is disappearing from Swedish: Negation aside, objects are the most frequently fronted elements(14 out of 27) followed by predicative adjectives (7 out of 27), predicate adverbs (5 out of 27) and a verb particle (1 out of 27). This pattern is reminiscent of the one found in Norwegian dialects in the 19th and the 20th century: both the objects and predicative adjectives seem to be the most prone to fronting (although one also finds instances

[3] "Setningsledd av alle typer kan spisstilles i leddsetninga så vel som i hovedsetninga, og et 'subject gap' er ikke noen nødvendig forutsetning for en slik spisstilling." [All types of clause elements can be fronted to the initial position in an embedded and in a main clause and a 'subject gap' is not a necessary prerequisite for such a fronting.] (Christoffersen 2002:153).

of adverbs, infinite verbs, preposition phrases, verb particles, and predicative nouns).[4] In the LIA Corpus, [5] SF-like constructions found are restricted to adjectival subject predicatives, adverbs (*her* 'here' and *der* 'there') followed by a copula verb and to infinitives in (medio)passive (*tenkjast* 'think', *gjerast* 'do') followed by modal verbs, all of them occurring in short relative clauses (complementizer - fronted element - finite verb). In the Nordic Dialect Corpus[6], the language of which represents the last stage, we only find fronting of adjectival subject predicatives followed by a copula verb in short relative clauses (complementizer - fronted element - finite verb).

The direction of the loss of SF in Mainland Scandinavian could in a way seem the reverse of Mailing's (1980) hierarchy: fronting of past participles/verbal particles is lost before fronting of predicative adjectives and the fronting of sentential adverbs has been grammaticalized in Mainland Scandinavian.[7] In the following section, we will examine both the occurrences of SF-like constructions and the judgements of SF in modern Mainland Scandinavian languages.

4 SF-like orders in Mainland Scandinavian

4.1 SF in Danish

4.1.1 The data

The questionnaire data presented in this subsection was collected online by Tallai (2022) in April 2022 (63 speakers of various ages). The questionnaire consisted of 67 sentences in total. The survey was completed online, and the link was distributed on a number of social platforms. Participation took approximately 10–15 minutes.

In preparing the questionnaire, 21 sentences with embedded clauses were chosen from the corpus database of KorpusDK (https://ordnet.dk/korpusdk) where stylistic fronting would theoretically be possible in line with the criteria put forward by Maling (1990). The sentences were to in most cases presented as found in the database, though some adjustments were made if they were deemed unsuitable. However, we aimed to preserve the syntactic structure and only substituted words when necessary. The questionnaire was constructed so that each sentence was given with slight modifications in their syntax; in one, the subject gap wass left open, in a second the expletive pronoun was inserted, and in a third an element was moved leftwards to the subject place. In some cases, a fourth option was given, either when the gap was filled by a

[4] Interestingly, both heads and phrases can be fronted. Besides of fronting of infinite verbs, perfect participles, prepositions, direct objects, one also finds fronting of prepositional phrases like *i veigje* 'in the way", *i brura-prydna'm* 'in the bride ornament' and nominal subject predicatives with omission of the complementizer in relative clause. *Hr. N. N., **professor** hev vore* 'Sir N. N. who has been professor', *Sigrid, **kona mi** skal verta* 'Sigrid, who is going to become my wife'. In Övdalian, fronting of phrases is also reported by Levander (1909:122): *Oller so **ogu og neveð** åvå* 'Everybody that has eyes and nose' [i.e. every human].

[5] A corpus of dialect recordings made between 1937 and the 1990's: https://tekstlab.uio.no/LIA/korpus.html

[6] A corpus of dialect recordings made between 1998 and 2015: http://www.tekstlab.uio.no/nota/scandiasyn/

[7] Two interesting examples of so-called pronominal SF are given by Iversen (1957:234): *Gjør som **best** du synes* 'Do what you think is best" and *…som **best** dei kan* '...what they can best." It shows that SF of adverbs in the presence of pronominal subject is recorded from Mainland Scandinavian quite late and that the hypothesis of SF being the cause of the development of embedded V3 (Pettersson 1988) may be strengthened by such examples.

postposed NP or when it was occupied by another constituent because of V3 word order in dependent clauses.

For each sentence there were three possible responses:

Ja = Sådan kan jeg sige det. (Yes, I could say it like that).
? = Tvivlsom formuleringsmåde. Jeg tror at jeg har hørt sætningen blive brugt af andre, men jeg ville ikke selv bruge den. (A doubtful way of expression. I think I have heard others use it, but I myself would not use it).
Nej= Nej sådan kan jeg ikke sige det. Sætningen er grammatisk forkert. (No, I cannot say that. The sentence is ungrammatical).

As the wording of the alternatives show, the questionnaire included a mixture of self-reporting and community-reporting questions (see discussions on the different nature of such questions in Dollinger 2015: 234-236). This should be kept in mind when the results are interpreted.

4.1.2 Different types of subject gaps and expletives

As we have seen for Icelandic, subject gaps naturally occur in embedded clauses when the subject of the sentence is preposed as in embedded subject questions, *wh*-extraction clauses, and other types of relative clauses. In addition, Icelandic and Faroese also allow for subject gaps in expletive constructions, extraposed clauses, and sentences introduced by a grammatical subject when another element, such as an adverbial, is fronted as in (18) below (Maling 1980, Holmberg 2005):

(18) a. Það rigndi í gær.
it rained yesterday
a. Í gær rigndi (*það).
yesterday rained
c. Í gjár regnaði (tað). (Faroese)
yesterday rained it

In Icelandic the use of the expletive *það* is only possible in the preverbal position. When preceded by the finite verb of the sentence, it is dropped in Icelandic, while this operation is facultative in Faroese (18c) (Platzack 1987).

Subject gaps in Mainland Scandinavian similarly occur in *wh*-extraction and embedded clauses when they are referencing a preposed subject. Expletive constructions are, however, generally introduced by the pronoun *der/det*[8] and either variety requires the use of an expletive, be it either before or after the finite verb:

[8] Here an explanation is due, as Danish differs from both Swedish and most varieties of Norwegian in the choice of expletive pronoun. In Danish, *der* is used with impersonal passives as well as sentences with a postposed indefinite-NP. The pronoun *det*, in contrast, appears in impersonal predicative sentences (cf. 12 – 13). The other Mainland Scandinavian varieties do not differentiate in the use of expletives in such way, thus while a sentence like *Það var dansað heila nóttina* in Icelandic translates to Swedish and Norwegian quite the same way (*Det blev dansat hela natten* / *Det ble danset hele natten*) the Danish version would use the expletive *der* instead (*Der blev danset hele natten*.). While constructing the survey we aimed at taking this into account, hence the two expletives in the example sentences.

(19) a. Det regnede i går.
it rained yesterday
b. ?*I går regnede *(det).

(20) a. Nu er *(det) helt klart at John har slået Maria.
now is (it) completely clear that John has hit Maria
b. Nú er (*það) augljóst að Jón hefur barið Maríu. (Platzack, 1987:387)
now is (it) clear that John has hit Maria

With regard to stylistic fronting, this means that subject gaps are not present in impersonal passives and lexically impersonal predicative clauses in Mainland Scandinavian, and they must be filled by either an expletive pronoun or a fronted element. This assumption checks out in light of the data collected.

***Table 1**: Subject gaps in different types of subordinate clauses*

			Ja	?	Nej
(21)	a.	Butiksassistenten ved ikke hvem __ havde lagt smykkerne i indkøbsvognen. shop assistant.the knows not who had put jewellery in trolley.the	1	25	**38**
	b.	Butiksassistenten ved ikke hvem **der** havde lagt smykkerne i indkøbsvognen. shop assistant.the knows not who that had put jewellery in trolley.the	**51**	9	4
(22)	a.	Ingen af de fire ved, hvem __ har smadret ruderne på deres skole. none of the four know who has broken window panes.the at their school	6	**29**	**29**
	b.	Ingen af de fire ved, hvem **der** har smadret ruderne på deres skole. none of the four know who that has broken window panes.the attheir school	**63**	1	0
(23)	a.	Indonesien er det land, hvor __ lever det største antal muslimer. Indonesia is the country where live the greatest number Muslims	0	11	**53**
	b.	Indonesien er det land, hvor **der** lever det største antal muslimer. Indonesia is the country where there live the greatest number Muslims	**57**	7	0

(24)	a.	Hvem tror du __ har stjålet cyklen? who think you has stolen bicycle	**45**	17	2
	b.	Hvem tror du **der** har stjålet cyklen? who think you that has stolen bicycle	**49**	13	2
(25)	a.	Alle vidste, at __ havde været stjålet smør. everyone knew that had been stolen butter	0	6	**58**
	b.	Alle vidste, at **der** havde været stjålet smør. everyone knew that there had been stolen butter	**58**	4	2
(26)	a.	World Wildlife Fund sørgede for, at __ blev oprettet et naturreservat i Coto Donana. World Wildlife Fund arranged for that was established a nature reserve in Coto Donona	0	9	**55**
	b.	World Wildlife Fund sørgede for, at **der** blev oprettet et naturreservat i Coto Donana. World Wildlife Fund arranged for that there was established a nature reserve in Coto Donona	**63**	0	1
(27)	a.	Hun har altid vidst at __ lå et langt arbejdsliv foran sig. she has always known that was a long career before her	0	8	**56**
	b.	Hun har altid vidst at **der** lå et langt arbejdsliv foran sig. she has always known that there was a long career before her	**30**	12	22

Table 1 contains different types of subject gaps in subordinate clauses with varying results of expletive inversion. In the relative clauses in (21)–(22) the examples with the subject gap left open are rejected by the majority of speakers, although 6 respondents consider (22a) a well formed sentence. (23a) is fully rejected by most respondents. The judgments are somewhat different with the *wh*-extraction clause in example (24); here, neither sentence is rejected by an overwhelming number of respondents, making it conceivable that there is syntactic variation between expletive insertion and open subject gaps in the case of subject relative clauses. Leaving the subject gap open in the *at*-clause with the postposed NP, however, is rejected by all informants in examples (25a–27a).

In some instances, experiments were made with fronting of an originally postposed NP into the place of the subject gap, substituting the expletive. These sentences received varying results from speakers.

Table 2: *Fronting of NPs*

		Ja	?	Nej
(28)	Indonesien er det land, hvor **det største** **antal muslimer** lever. Indonesia is the country where the greatest number Muslims live	**44**	18	2
(29)	World Wildlife Fund sørgede for, at **et** **naturreservat** blev oprettet i Coto Donana. World Wildlife Fund arranged for that a nature reserve was established in Coto Donana	**59**	5	0
(30)	Hun har altid vidst at **et langt arbejdsliv** lå foran sig. she has always known that a long career was before her	16	**26**	22

Example (28) receives mostly positive judgements. However, despite the similar syntactic environment in (29)–(30), the fronting of the NP is viewed differently; most informants accept (29) while (30) gets divided scores: only 16 respondents fully accept it.

4.1.3 Verb-adverb placement

Icelandic differs from Danish, Norwegian and Swedish in that adverbs and negation usually follow the finite verb, both in main clauses and embedded clauses, while the mainland languages are asymmetric in that the subject-initial V2 word order is inverted in embedded clauses where the sentence adverb precedes the finite verb.). In our discussion, we do not regard the preverbal position of sentence adverbials as evidence of stylistic fronting. Thus, an example like (31) would simply be analyzed as lack of V°-to-I° movement.

Table 3*: Verb-adverb placement in Danish*

			Ja	?	Nej
(31)	a.	Hun kunne se at her var en stor idé som **ikke blev** realiseret rigtigt. she could see that here was a great idea that not was implemented correctly	**55**	9	0
	b.	Hun kunne se at her var en stor idé som __ **blev ikke** realiseret rigtigt. she could see that here was a great idea that was not implemented correctly	4	10	**50**
	c.	Hun kunne se at her var en stor idé som **der ikke blev** realiseret rigtigt. she could see that here was a great idea that which not was implemented correctly	20	**24**	20

d.	Hun kunne se at her var en stor idé she could see that here was a great idea som **der blev ikke** realiseret rigtigt. that which was not implemented correctly	0	10	**54**

Table 3 shows four sentences in which the position between the complementizer and the finite verb is either filled in by the expletive *der* or the negation *ikke*. In line with the default V3 order in non-V2 subordinate clauses, only (31a) and (31c) would be acceptable. This is confirmed if we take into account that 55 of all respondents accept (31a) as correct and nobody fully rejects it. Example (31c), with expletive insertion, gets somewhat more negative judgements, but it is still more readily accepted than (31b) and (31d) where it is filled in by *der* and *ikke* appear to the right of the finite verb. Since an overwhelming number rejects these varieties, we may infer that fronting of negation and adverbs should not be viewed as evidence of stylistic fronting in Danish.

Adverbials, however, seem to satisfy the prerequisites for SF as they are usually found in a postverbal position in dependent clauses but may appear before the finite verb. As Engdahl (2012) argues, stylistic fronting of this kind is found in Swedish in a few instances (see example (2) above). In contrast, sentences of this type seem very scarce in DanishKorpusDK gives no equivalent examples.

4.1.4 Stylistic fronting of predicative adjectives

Let us now consider the possible fronting of next elements in Maling's hierarchy subject to SF, i.e., predicative adjectives, past participles and verbal particles.

Table 4*: Fronting of predicative adjectives in subordinate clauses*

			Ja	?	Nej
(32)	a.	Der er bevis på, at **det** er bedst at bo there is evidence for that it is best to live så langt mod nordøst i Danmark, hvis man gerne in the far northeast of Denmark if one would vil have så meget sol som muligt. want have as much sun as possible	**49**	14	1
	b.	Der er bevis på, at __ er bedst at bo there is evidence for that is best to live så langt mod nordøst i Danmark, hvis man gerne in the far northeast of Denmark if one would vil have så meget sol som muligt. want have as much sun as possible	1	11	**52**
	c.	Der er bevis på, at **bedst** er at bo there is evidence for that best is to live så langt mod nordøst i Danmark, hvis man gerne in the far northeast of Denmark if one would vil have så meget sol som muligt. want have as much sun as possible	3	21	**40**

(33)	a.	Han	er	en	mand	som **det**	er	muligt	at stole	på.	**58**	4	2
		he	is	a	man	that it	is	possible	to rely	on			
	b.	Han	er	en	mand	som __	er	muligt	at stole	på.	3	17	**44**
		he	is	a	man	that	is	possible	to rely	on			
	c.	Han	er	en	mand	som	**muligt**	er	at stole	på.	0	15	**49**
		he	is	a	man	that	possible	is	to rely	on			

Sentences (32c) and (33c) with the predicative adjectives fronted are mostly rejected although 21 of all speakers find (32c) doubtful and 3 consider it grammatical. The case of (33c) is also curious if we consider that the previous examples have shown that subject gaps may be left open in relative clauses introduced by the complementiser *som*. As pointed out by one of Tallai's (2022) informants, Gyimóthy Mørup-Petersen, the fact that (33a) most widely accepted may relate to semantics and what the adjective *muligt* 'possible' refers to; if it appears in the neuter form, it relates to the pronoun *det*, which is left out from the clause. The complementiser *som*, however, refers to the NP *mand* 'man' in the main clause, which therefore cannot occur in the neuter form, but only with the common gender *mulig*. Despite the subject relative clause, however, the dependent clause is an impersonal predicative sentence, hence the expletive insertion (personal communication, April 26, 2022).[9]

On the whole, the two sentences with a fronted predicate receive rather low scores; at best they are seen as questionable which indicates that SF-like fronting of predicative adjectives is heavily degraded in Danish.

4.1.4 Stylistic fronting of participles and particles

The last group of elements to look at is that of past participles and particles. Table 5 below presents the results regarding the last category in Maling's hierarchy (in Icelandic, stylistic fronting of either element would be equally acceptable):

Table 5: *Fronting of participles and particles*

									Ja	?	Nej
(34)	a.	I	samlingen	indgår	også de	næsten	300 år		**56**	6	2
		in	collection.the	included	also the	almost	300 year				
		gamle	myrter, som __ er		kommet	frem	i				
		old	myrtles that	have	come	forward	into				
		lyset	efter at	have levet	i de	kongelige	driverier.				
		light.the	after to	have lived	in the	royal	greenhouses				

[9] In light of this, whether (33) should be considered an instance of SF is questionable, as it arguably violates the subject gap condition. The Icelandic version would, however, display a subject gap which can be filled in by the fronting of the predicative adjective:

(1) a. Hann er maður sem __ er hægt að treysta á.
b. Hann er maður sem hægt er að treysta á.

	b.	I samlingen indgår også de næsten 300 år in collection.the included also the almost 300 year gamle myrter, som **frem** er kommet i old myrtles that forward have come into lyset efter at have levet i de kongelige driverier. light.the after to have lived in the royal greenhouses	1	21	**42**
	c.	I samlingen indgår også de næsten 300 år in collection.the included also the almost 300 year gamle myrter som **kommet** er frem i old myrtles that come have forward into lyset efter at have levet i de kongelige driverier. light.the after to have lived in the royal greenhouses	2	6	**56**
(35)	a.	Så var der høstgudstjeneste i kirken, hvor __ so was there harvest service in church.the where blev takket for høsten. was thanked for harvest.the	0	12	**52**
	b.	Så var der høstgudstjeneste i kirken, hvor so was there harvest service in church.the where **takket** blev for høsten. thanked was for harvest.the	1	18	**45**
	c.	Så var der høstgudstjeneste i kirken, hvor so was there harvest service in church.the where **der** blev takket for høsten. there was thanked for harvest.the	**64**	0	0

In (34b) and (34c) examples of a fronted particle and a verbal participle are given respectively. Among the Danish speakers, they receive negative judgements; only one participant accepts the fronting of the particle and some 21 speakers put a question mark while two speakers consider the sentence with the fronted participle grammatical. Example (35b), where the participle fills in the subject gap, similarly receives low scores, although one participant accepts it as a well-formed sentence.

Table 6 shows experiments with SF of participles in various other environments:

***Table 6**: Fronting of participles in wh-extraction clauses, relative clauses and at-clauses*

		Ja	?	Nej
(36)	Butiksassistenten ved ikke hvem **lagt** havde shop assistant.the knows not who put had smykkerne i indkøbsvognen. jewellery in trolley.the	0	8	**56**
(37)	Hvem tror du __ **stjålet** har cyklen? who think you stolen has bicycle	2	5	**57**

(38)	Ingen af de fire ved, hvem **smadret** har none of the four know who broken has ruderne på deres skole. window panes.the at their school	0	8	**56**
(39)	Det var i Assens, hvor **bygget** blev nyt hus it was in Assens where built was new house med udstilling og værksted. with exhibition hall and workshop	0	11	**53**
(40)	Engang i tresserne tog partiledelsen once in sixties.the took partyleadership.the initiativ til, at **dannet** blev retspolitiske initiative in to formed were legal policy udvalg i kredsorganisationerne. committees in local organisations.the	0	16	**48**
(41)	De ville vide hvad **drøftet** blev i they wanted know what discussed was at konferencen. conference.the	1	10	**53**
(42)	Alle vidste at **stjålet** havde blevet smør. everyone knew that stolen had been butter	0	7	**57**

As expected, the fronted participle is not well received in *at*-clauses, *wh*-extraction clauses, and subject relative clauses. The majority of the speakers fully reject all the examples or estimate them questionable at best.

4.1.4 Interim summary

The classical examples of fronted participles, particles and predicative adjectives corresponding to SF in Icelandic are fully rejected by most of the Danish participants. Occasional instances of fronted elements receiving higher acceptability rates can be found, but they are nonetheless quite sporadic, and no stringent patterns could be established as to why these elements could be subject to SF. While some speakers view them as possible alternatives in certain syntactic environments the same syntactic operations is rejected in others. In most cases, Danish seems to avoid leaving subject gaps open in relative clauses, while they are permitted in *wh*-extraction clauses (although expletive inversion is obviously preferred by all speakers).

4.2 SF in Norwegian

The Norwegian dialect material gathered in two corpora, LIA corpus[10] and the Nordic Dialect Corpus[11], provides some examples of SF-like orders in Norwegian dialects. As the LIA corpus includes older dialect recordings (made between 1937 and the 1990's), there are more such examples in the corpus, compared to the Nordic Dialect Corpus (containing recordings made between 1998 – 2015). The pattern is however quite clear: in both corpora the SF-like

[10] https://tekstlab.uio.no/LIA/korpus.html

[11] https://www.hf.uio.no/iln/tjenester/kunnskap/sprak/korpus/talespraksk orpus/nordisk-dialekt/index.html

constructions imply fronting of a predicative adjective or an infinite verb in mediopassive in a short relative clause, like *som **sant** er* (lit. which true is), *som **sant** var* (lit. which true was), *som **sagt** er* (lit. which said is), *som **laust** var* (lit. which loose was), *som **betre** er* (lit. which better is), *som **oftast** er* (lit. which most-often is), *som **naturleg** var* (lit. which natural was), *som **vanleg** var* (lit. which usual was), *som **gjerast** kan* (lit. which be-done can), *som **tenkjast** kunne* (lit. which be-thought could), *som **verre** er* (lit. which worse is). One interesting case is the fronting of an adverb uttered by a male informant from Åsnes (the county of Innlandet in Eastern Norway) born in 1897, recorded in 1971, see the example in (43) below:

(43) fe denn somm **messt** er __ i bruk ennå, de er
for that which most is in use still it is
dænn såkallte kasstemassjin
that so-called throwing-machine
'Beacuse the one that is mostly still in use, it is the so called throwing machine.'

In other Norwegian corpora, as the TAUS corpus including Oslo speech from the 1970's, one will find two examples of the phrase *som **verre** er* (lit. which worse is) uttered by two younger informants, one by a 22 year old male from eastern Oslo and one by a 24 year old female from western Oslo. The same phrase is found in the quite big (700 M tokens) NOWAC corpus giving 692 hits for "som verre er" (lit. which worse is) and 93 hits for "som verre var" (lit. which worse was). On Google, the phrase *som verre er* gives 172 000 hits and the phrase *som er verre* 801 000 hits.

In order to obtain elicited data on Stylistic Fronting in Norwegian, we replicated the survey made by Tallai (2022) for Danish on 24 Norwegian informants aged between 19 and over 60. The majority of the informants were aged 19-49 (18 respondents between 19-29 and 5 respondents between 30-49) and one was over 60. The test sentences used were the translations of the Danish sentences in Tallai's (2022) survey. For each sentence, there were three possible responses: (Ja) *Sånn kan jeg si det.* (Yes. I could say like that), (?) *Tvilsom formuleringsmåte* (A doubtful way of expression), and (Nei) *Setninga er grammatisk feil.* (No. The sentence is ungrammatical). The results are divided in the following parts: (1) acceptance of Stylistic Fronting of predicative adjectives, past participles and verbal particles, (2) acceptance of different types of subject gaps in subordinate clauses vs. expletive inversion, (3) acceptance of fronted NP's, and (4) acceptance of postverbal adverb placement in relative clauses.

4.2.1 Fronting of predicative adjectives, past participles and verbal particles

Since the older dialect examples mentioned above (and in section 1) most often consist of predicative adjectives and nonfinite verbs in relative clauses, we have tested such examples as well as an example of verb particle fronting. The results are shown below.

***Table 7**: Fronting of predicative adjectives in subordinate clauses in Norwegian*

			Ja	?	Nej
(44)	a.	Det er bevis på at **det** er best å bo så langt there is evidence for that it is best to live in the mot nordøst i Norge, hvis man helst vil far northeast of Norway if one rather wants ha så mye snø som mulig. have as much snow as possible	**12**	10	2
	b.	Det er bevis på at __ er best å bo så langt there is evidence for that is best to live in the mot nordøst i Norge, hvis man helst vil far northeast of Norway if one rather wants ha så mye snø som mulig. have as much snow as possible	2	2	**20**
	c.	Det er bevis på at **best** er å bo så langt there is evidence for that best is to live in the mot nordøst i Norge, hvis man helst vil far northeast of Norway if one rather wants ha så mye snø som mulig. have as much snow as possible	1	2	**21**
(45)	a.	Han er en mann som **det** er mulig å stole på. he is a man that it is possible to rely on	**23**	1	0
	b.	Han er en mann som __ er mulig å stole på. he is a man that is possible to rely on	**12**	7	5
	c.	Han er en mann som **mulig** er å stole på. he is a man that possible is to rely on	2	4	**18**

***Table 8**: Fronting of participles and verb particles in subordinate clauses in Norwegian*

(46)	a.	I samlinga inngår også de nesten 300 år in collection.the included also the almost 300 year gamle myrtene som __ er kommet fram old myrtles.the that have come forward i lyset etter å ha levd i de kongelige into light.the after to have lived in the royal drivhusa. greenhouses.the	**24**	0	0

	b.	I samlinga inngår også de nesten 300 år in collection.the included also the almost 300 year gamle myrtene som **fram** er kommet old myrtles.the that forward have come i lyset etter å ha levd i de kongelige into light.the after to have lived in the royal drivhusa. greenhouses.the	0	8	**16**
	c.	I samlinga inngår også de nesten 300 år in collection.the included also the almost 300 year gamle myrtene som **kommet** er fram old myrtles.the that come have forward i lyset etter å ha levd i de kongelige into light.the after to have lived in the royal drivhusa. greenhouses.the	0	0	**24**
(47)	a.	Så var det høstgudstjeneste i kirka, so was there autumn servie in church.the hvor __ ble takka for høsten. where was thanked for harvest.the	0	1	**23**
	b.	Så var det høstgudstjeneste i kirka, so was there autumn service in church.the hvor **takka** ble for høsten. where thanked was for harvest.the	0	2	**22**
	c.	Så var det høstgudstjeneste i kirka, so was there autumn servie in church.the hvor **det** ble takka for høsten. where there was thanked for harvest.the	**24**	0	0
(48)		Butikkmedarbeideren vet ikke hvem **lagt** hadde shop assistant.the knows not who put had smykkene i handlekurven. jewellery.the in trolley.he	0	2	**22**
(49)		Hvem tror du **stjålet** har sykkelen? who think you stolen has bicycle	0	0	**24**
(50)		Ingen av de fire vet hvem **smadra** har none of the four know who broken has rutene på skolen deres. window panes.the at school.the their	0	0	**24**
(51)		Det var i Assens hvor **bygd** ble nytt hus it was in Assens where built was new house med utstilling og verksted. with exhibition hall and workshop	0	0	**24**

(52)	En gang på 1960-tallet tok partiledelsen once in sixties.the took party leadership.the initiativ til at **danna** ble rettspolitiske initiative in to formed were legal policy utvalg i kretsorganisasjonene. committees in local organisations.the	0	2	**22**
(53)	De ville vite hva **drøfta** ble på they wanted know what discussed was at konferansen. conference.the	0	2	**22**
(54)	Alle visste at **stjålet** hadde vært smør. everyone knew that stolen had been butter	0	1	**23**

As one can see, the SF of the predicative "best" is mostly rejected, although two informants judge it as marginally possible, and one informant even accepts it. Also a subject gap in the same sentence is accepted by two informants and not fully rejected by another two, but we think this may depend on the fact that the expletive *det* is phonetically reduced in this environment, being realized as a single dental, which is difficult to separate from the /t/ in *at*: *at det er* [at: t e(:)] > [at: e(:)]. Fronting of the verb particle *fram* is judged as marginally possible by 8 out of 24 informants, a surprisingly high number, while fronting on nonfinite verbs are almost completely rejected. Subject gap with the predicative *mulig* is judged as fully possible, but as Norwegian does not display any morphological difference between masculine, feminine and neutral singular form of the adjective *mulig* 'possible', the reading of the sentence is 'who is possible.MASC to rely on' and hence the sentence is judged as grammatical. In sum, there is no evidence for SF in the above-mentioned contexts being productive; at best it is not fully rejected.

4.2.2 Subject gaps in subordinate clauses vs. expletive insertion

Subject gaps have been tested in embedded *wh*-questions and in *that*-clauses together with corresponding sentences without subject gap. The results are shown in Table 9 below.

***Table 9**: Subject gaps in different types of subordinate clauses*

			Ja	?	Nej
(55)	a.	Butikkmedarbeideren vet ikke hvem __ hadde shop assistant.the knows not who had lagt smykkene i handlekurven. put jewellery.the in trolley.the	1	5	**18**
	b.	Butikkmedarbeideren vet ikke hvem **som** hadde shop assistant.the knows not who that had lagt smykkene i handlekurven. put jewellery.the in trolley.the	**23**	1	0

(56)	a.	Ingen av de fire vet hvem __ har smadra none of the four know who has broken rutene på skolen deres. window panes.the at school.the their	1	5	**17**
	b.	Ingen av de fire vet hvem **som** har smadra none of the four know who that has broken rutene på skolen deres. window panes.the at school.the their	**24**	0	0
(57)	a.	Indonesia er det landet hvor __ lever det største Indonesia is the country where live the greatest antallet muslimer. number Muslims	0	0	**24**
	b.	Indonesia er det landet hvor **det** lever det Indonesia is the country where there live the største antallet muslimer. greatest number Muslims	**16**	6	2
(58)	a.	Alle visste at __ hadde vært stjålet smør. everyone knew that had been stolen butter	0	1	**23**
	b.	Alle visste at **det** hadde vært stjålet smør. everyone knew that there had been stolen butter	**24**	0	0
(59)	a.	World Wildlife Fund sørga for at __ ble World Wildlife Fund arranged for that was oppretta et naturreservat i Coto Donana. established a nature reserve in Coto Donana	1	0	**23**
	b.	World Wildlife Fund sørga for at **det** ble World Wildlife Fund arranged for that there was oppretta et naturreservat i Coto Donana. established a nature reserve in Coto Donana	**23**	1	0
(60)	a.	Hun har alltid visst at __ lå et langt she has always known that was a long arbeidsliv foran henne. career before her	0	1	**23**
	b.	Hun har alltid visst at **det** lå et langt she has always known that there was a long arbeidsliv foran henne. career before her	**22**	1	1

Subject gaps in both embedded *wh*-questions and *that*-clauses are generally rejected by the informants, although some of them do not completely reject subject gaps in one of the embedded questions, see the example (*Ingen av de fire vet hvem __ har smadra rutene på skolen deres*) above and one even accepts the subject gap there.

4.2.3 Fronting of NPs

Fronting of NPs has been tested in one embedded *wh*-question and two *that*-clauses, see Table 10 below.

Table 10: *Fronting of NPs*

		Ja	?	Nej
(61)	Indonesia er det landet hvor **det største** Indonesia is the country where the greatest **antallet muslimer** lever. number Muslims live	**20**	3	1
(62)	World Wildlife Fund sørga for at World Wildlife Fund arranged for that **et naturreservat** ble oppretta i Coto Donana. a nature reserve was established in Coto Donana	**22**	1	1
(63)	Hun har alltid visst at **et langt arbeidsliv** she has always known that a long career lå foran henne. was before her	**22**	1	1

Both definite and indefinite NPs can be placed between the complementizer and the finite verb in Norwegian, according to our informants. The scores are very similar, although the first example, fronting of an definite NP in an embedded wh-question, is judged as questionable by a few more informants, compared to the rest.

4.2.4 Placement of finite verb and adverb in embedded context

Finally, we tested the placement of adverbs in embedded clauses in non-V2 contexts, in order to see if the subject gap can be empty and if the sentential adverb can be placed post verbally (such postverbal placement in embedded non-V2 contexts is known from Norwegian dialects of the 20th century, cf. Garbacz 2013:75).

Table 11*: Verb-adverb placement in Norwegian*

		Ja	?	Nej
(64) a.	Han kunne se at her var det en stor idé he could see that here was there a great idea som **ikke var** blitt realisert riktig. that not had been implemented correctly	**21**	2	1
b.	Han kunne se at her var det en stor idé he could see that here was there a great idea som __ **ble ikke** realisert riktig. that was not implemented correctly	3	2	**19**

c.	Han kunne se at her var det en stor idé he could see that here was there a great idea som **det ikke ble** realisert riktig. that which not was implemented correctly	1	7	**16**
d.	Han kunne se at her var det en stor idé he could see that here was there a great idea som **det ble ikke** realisert riktig. that which was not implemented correctly	1	0	**23**

The results show that both the postverbal placement of the adverb and the unfilled subject gap are ungrammatical for the majority of informants, although the sentence in (*Han kunne se at her var det en stor idé som __ **ble ikke** realisert riktig.*) gets a surprisingly high number of accepts (three out of 24) and two (out of 24) judgements as marginally possible.

4.2.5 Summary of the Norwegian judgment data

The results above clearly show that Stylistic Fronting of non-finite verbs is not grammatical for our Norwegian informants, all but one aged between 19 and 49. Fronting of a predicative (tested on only one example) has the highest number of accepts (that is one) and fronting of a verb particle is judged by as many as one third of the informants as marginally possible. The corpus data show on the other hand, that fronted predicatives are to some extent present in today's dialects and the spoken language, although they seem to be mostly frozen expressions. As for the embedded Vfin-ADV word order, these are not accepted in non-V2 contexts, neither are subject gaps in embedded *wh*-questions and *that*-clauses. The picture that emerges from the judgment data is coherent with the broadly accepted picture on Norwegian syntax with respect to SF, embedded word order and omission of non-referential subjects and the possibility of omitting the resumptive *som* in an embedded *wh*-clause.

4.3 SF in Swedish

In line with the data presented in Engdahl (2012) the phrase "om så sker" and similar phrases with the subjunction *om*, the adverb *så* 'so' and a finite verb in absence of an overt subject are numerous (more than 570 examples in a corpus collection containing 243 M tokens[12]). Otherwise, the same corpus gives no examples of fronted non-finite verbs or verb particles, with the exception of the psalm citation "som liten är" "who small am" (Psalm 493).[13] Fronting of prepositional phrases is common, but these function mostly as time and manner adverbs and can as such be placed preverbally in Swedish embedded clauses. No instances of fronting of a prepositional phrase denoting a location, like "in Israel, in Sweden, in Stockholm" and alike was found either. The Swedish part of the Nordic Dialect Corpus is quite small (370 000) tokens, and it does not render any examples of frozen SF-expressions.

[12] https://spraakbanken.gu.se/korp/

[13] The first verse of the rhymed psalm says: *Gud som haver barnen kär, se till mig som liten är. Vart jag mig i världen vänder, står min lycka i Guds händer. Lyckan kommer, lyckan går, du förbliver, Fader vår.*

Interestingly, the very small (34 000 tokens) corpus of Estonian Swedish[14] has some examples of (the rests of) Stylistic Fronting.

(65) a. he var båra GaL-Marri såmm **ässenda** sto itti grinndi
it was only Old-Mari who alone stood in gate.DEF
'It was only Old Mary who stood alone in the gate.'

b. drikkstunnan somm **fårr** var kLargjord
drinking.barrel that before was prepared
'the drinking barrel that had been prepared before'

c. å no skulld ja gjant ha vela vara mä tåmm båna
and surely should I happily have wished be with the kids
somm **neafärre** **TaLLma** hålt teLte pLassk e vattne
who below Talma hold on to splash in water.DEF
'And now I had wished to be together with these kids, who lived close to Talma, to splash with them in the water.'

We have not been able to conduct a survey on the acceptance of Stylistic Fronting in Swedish, but the data from Swedish corpora show clearly that the SF-like constructions are restricted to the phrase "om så sker" (lit. if so happens) and its variants. Peripheral varities of East Scandinavian, like Estonian Swedish and Övdalian, seem on the other hand to have had the possibility of fronting, both of phrases and of heads until the 20th century. The possibility no longer exists in Övdalian, while Estonian Swedish is virtually extinct by now.

5 Conclusion

The sharp border between Icelandic and the Mainland Scandinavian languages when it comes to SF seems to be less sharp in the light of our results. We have not only found a number of SF-like constructions in the Mainland Scandinavian languages (or found out that these can be judged as marginally possible), but we also have found instances of Stylistic Fronting of different elements, both heads and phrases in older Norwegian dialect material and in a corpus of Estonian Swedish.

The existence of Stylistic Fronting has been indirectly attributed to verbal morphology (e.g. Holmberg 2010 traces the possibility of SF back on φ-features in T). Hence, the loss of Stylistic Fronting has been attributed to changes in verbal morphology, explicitly by Falk (1993: 184 f.) and indirectly by Holmberg (2010:35). Under these approaches, SF should not be possible in Scandinavian languages that do not have rich verbal morphology, i.e. verb agreement in person and number. Still, we find instances of Stylistic Fronting in Norwegian dialects from the 19th and early 20th century and in Estonian Swedish.[15] Neither of the

[14] https://www.hf.uio.no/iln/om/organisasjon/tekstlab/prosjekter/estlandssvenska/

[15] A number of examples of SF-like constructions from Norwegian dialects of the 20th century is also given by Sandøy & Nesse (2016:362 f.).

languages had at this time rich verb agreement (Sandøy & Nesse 2016:262 ff. on Norwegian and Rosenkvist 2018:25 on Estonian Swedish). The diachronic link between SF and verbal agreement has been criticized by Sundquist (2002) and the data presented above are yet another counterevidence to this assumed connection.

The parametric approach to Scandinavian syntax has resulted in drawing a sharp line between Insular Scandinavian and Mainland Scandinavian (Holmberg & Plaztack 1995). The number of syntactic differences between the two language groups has been discussed since then and claims have been made that some of the assumed differences are not as clear as one would like them to be. Angantýsson (2001 and subsequent works) has shown that Icelandic does display the Mainland Scandinavian word order under certain circumstances, Garbacz (2013) has given examples from Norwegian, Swedish and Danish dialects of embedded Vfin-ADV word order in non V2-contexts, whereas Håkansson (2017:279) has pointed out that "factors such as verb movement and verbal agreement (...) appear to be completely irrelevant to the presence of transitive expletives in Swedish, and it thus seems doubtful whether these constructions can be included in a morphology-driven parametric approach to language variation and change." It has also been shown that changes in syntax between Old Scandinavian and modern Mainland Scandinavian are difficult to attribute directly to morphology, one of the clearest examples being Sundquist (2002).

Some other scholars have pointed out the importance of language external factors in syntactic change. One of the most interesting recent examples is van der Feest Viðarsson (2019) who showed that the embedded V3 word order (ADV-Vfin) was gaining ground in Icelandic from the 17th century until the mid-19th century, when the Vfin-ADV word order became the written norm in Icelandic (2019:58). An opposite development has taken place in Mainland Scandinavian (ibid. and therein cited works). In other words, the embedded V3 word order disappeared from Icelandic in the process of standardization. The situation with SF is to some extent similar: the instances of SF seem also to have been put outside of the written norm in Mainland Scandinavian, at the same time as SF seems to have been chosen as a part of the written norm in Icelandic.

There are a few other similar examples of external factors playing a role: transitive expletives in Swedish have been considered to be instances of German influence, as Håkansson (2017:279) points out, the spread of ADV-Vfin embedded word order in Swedish started in the spoken language within the upper class to later on become a marker of the written language (Håkansson 2011:131-134) and the omission of finite auxiliary *ha* 'have' in Swedish embedded clauses has started as a spoken language phenomenon in the end of the 17th century to become a marker of written formal language (Håkansson 2011:134, Bäckström 2020: 153 f.).

It may seem that many of the syntactic differences between Icelandic and Mainland Scandinavian have been strengthened during the process of standardization in the 19th century and that the syntactic structures of Mainland Scandinavian and Icelandic in the period between the 17th and the 19th century were much more similar to each other than they are today. The syntactic differences may have emerged due to a conscious process of differentiating the languages from each other rather than to language-internal factors such as e.g. verbal agreement (or morphology in general). If this line of reasoning is correct, it would also explain why the attempts to connect syntax and morphology in Scandinavian languages, e.g. Falk (1993), Platzack & Holmberg (1995), Rohrbacher (1999), Holmberg (2010), Koeneman & Zeijlstra

(2014) and many others have turned out to be difficult to defend in the light of new data: the syntactic differences are also reflexes of more or less conscious language policy and planning, not only of pure language-internal processes.

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The *Complementizer-Trace* Effect from a Statistical Perspective*

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Abstract

This paper sheds a new light on the *Complementizer-Trace* (C-t) effect based on statistic data from English, Swedish and Finnish. We show that a smooth pitch lowering is disturbed in the presence of an overt complementizer for speakers who do not accept the C-t construction, which is shown with insufficient ratio of downstep. This observation applies to an individual speaker, not to an individual language. The more speakers whose pitch is difficult to lower in the presence of an overt complementizer a language contains, that language is more likely to show the C-t effect, which provides a unified account not only for why the C-t effect occurs in languages but also for why the acceptability of the C-t construction differs between the native speakers of a language. We claim that the C-t effect does not arise from syntactic ill-formedness: *wh*-subject extraction should be derived by the same syntactic operations for all languages, with the difference in the acceptability of *wh*-subject extraction attributed to whether the complementizer has phonological features or not.

1. Introduction

The *Complementizer-trace* (C-t) effect (Perlmutter 1971) illustrates one of the differences in the acceptability between the extraction of a subject and that of other sentential elements from embedded clauses. The extraction, e.g. of a *wh*-object, from an embedded clause is acceptable, regardless of whether the complementizer *that* is present or not; see (1a-b). In contrast, the extraction of a *wh*-subject from an embedded clause is not acceptable when the complementizer *that* appears as illustrated in (2a), but it is acceptable when the complementizer is not overt as illustrated in (2b).

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(1) a. What do you think [that Bill wrote __]?
b. What do you think [Ø Bill wrote __]?
(from Kandybowicz 2006: 220, (1b))

(2) a. *Who do you think [that __ wrote the book]?
b. Who do you think [Ø __ wrote the book]?
(from Kandybowicz 2006: 220, (1c))

In generative syntax, the unacceptability of *wh*-subject extraction has long been attributed to a syntactic ill-formedness. Chomsky (1981, 1986) proposed a representational account of the C-t effect, claiming that the trace of a *wh*-subject is illicit due to the violation of the *Empty Category Principle* (ECP). Since Chomsky (1995), an extraordinary amount of derivational accounts of the C-t effect has been proposed. According to Chomsky's (2015) latest account within the framework of *Labeling Algorithm*, when the overt complementizer appears as illustrated in (2a), the boundary of the embedded CP phase is present, which prevents movement of a *wh*-subject; see (3a). When the overt complementizer is deleted, as illustrated in (2b), the phase boundary disappears, which enables a *wh*-subject to be involved in further syntactic operations; see (3b).[1]

(3) a. * … who … **[$_{CP}$ that** [~~who~~ [T [$_{v*P}$ who [wrote [the book]]]]]]

b. ^{OK} … who … [$_{CP}$ that [~~who~~ [T [$_{v*P}$ who [wrote [the book]]]]]]

It has been assumed that not only the semantic component but also the syntactic component are uniform for all languages with the surface difference confined to phonology (the *Uniformity Principle*, Chomsky 2001). If the C-t effect occurred from syntactic ill-formedness, (2a) – which I refer to the C-t construction – should be unacceptable in all languages, contrary to fact. In some languages, the overt complementizer can be optional in *wh*-(subject) extraction; in others it is even obligatory. Even within the same language, the C-t construction may be accepted by some speakers but not accepted by others; see the references given in Kandybowicz (2006). As long as the C-t construction is accepted, it is plausible, contrary to the traditional claim, that the C-t effect is caused by a factor that is outside the syntactic component.

In this paper, I argue that the C-t effect does not arise from syntactic ill-formedness. This

[1] Chomsky claims that after the overt complementizer is deleted, T, instead of C, acts as a phase head. See his paper for the details of his argument. So many other syntactic accounts of the C-t effect have been proposed that I do not review them here. See Pesetsky (2017) for a good summary of the theoretical accounts of the C-t effect in the history of Chomskyan generative syntax, and the references therein.

claim is based on statistic data from English, Swedish and Finnish, involving speakers who accept, and those who do not accept, the C-t construction. The results show that a smooth pitch lowering is disturbed in the presence of an overt complementizer for speakers who do not accept the C-t construction, which is shown with insufficient ratio of downstep. The paper is organized as follows. Section 2 discusses the validity of investigating sound properties of ungrammatical sentences. Section 3 introduces the details of the experimental methods. Section 4 shows the results, and Section 5 analyzes and discusses them. Section 6 discusses how to derive the C-t construction. Section 7 concludes this paper.

2. On investigating sound properties of ungrammatical sentences

Some non-syntactic accounts of the C-t effect have been proposed (Cowart 1997, 2003; Kandybowicz 2006; Sato and Dobashi 2016, among others).[2] Ritchart et al. (2016) conduct a perception study of the C-t effect, concluding that the prosodic approach to the C-t effect is not given any support. They take the following sentence patterns in which, according to Kandybowicz (2006), the C-t effect is ameliorated:

(4) a. ?Who do you think that __ WROTE Barriers?

b. ?Who do you suppose that'll leave early?

In (4a), the embedded verb *wrote* is focused; in (4b), the complementizer *that* is contracted with the Aux(iliary verb) *will*. They claim that since the syntactic structure is the same as the patterns that are judged ungrammatical, i.e. *who do you think that __ wrote Barriers?* (without the focus on the embedded verb) for (4a) and *who do you suppose that __ will leave early?* (without the contraction of the complementizer with the Aux) for (4b), the prosodic approach could be supported if (4a-b) were actually ameliorated. Their stimuli consisted of four patterns, both those with and those without *that*, and the informants were asked to judge the acceptability of them. Their statistic data shows, firstly, that (4a) is judged better than its counterpart without the focus on the embedded verb, regardless of whether the complementizer is overt or not, and secondly, that (4b) and its counterpart without the contraction of the complementizer with the

[2] Cowart (1997, 2003) is the first who conducts an extensive native judgments survey on the C-t effect. Kandybowicz (2006) proposes a phonological account based on Nupe, which shows the C-t effect in the conditions similar to English. Sato and Dobashi (2016) argue that the C-t effect occurs as the overt complementizer cannot make a prosodic phrase with the *wh*-subject trace adjacent to it. See also Bošković (2011) for another PF-based account of the C-t effect and Sato and Dobashi's (2016: 342, ft.3) argument against his claim. McFadden and Sundaresan (2018) attempt to provide an account of the C-t effect in terms of prosodic phrasing, but crucially, their alignment of the English complementizer, i.e. … *that*][… , is wrong.

Aux are both judged worse than the construction without *that*. With these results, they conclude that the prosodic approach is not supported.

There are several methodogical problems in Ritchart et al.'s (2016) experiment. They compare the judgments of sentences that do not have the same meaning. (4a) expresses not only focus on the sentence-initial *wh*-phrase but also contrastive focus on the embedded verb, whereas its counterpart expresses focus on the sentence-initial *wh*-phrase only. Hearing two sentences that have different meanings, the informants could react to them differently to begin with, regardless of whether the complementizer is overt or not. The sound property on the embedded verb, in association with the meaning imposed on it, affects the judgment of the acceptability. They recorded their stimuli by putting a L+H* pitch on the focused embedded verb (Ritchart et al. 2016:322), which could further induce the informants to judge (4a) better than its counterpart.

Crucially, Ritchart et al. (2016) ignore the fact that the complementizer is a function word which is reduced under various phonological/phonetic conditions (cf. Selkirk 1996b). They state that '*[t]hat'll* and *that will* were consistently pronounced as [ðæɾl] and [ðæʔwɪl], respectively' (Ritchart et al. 2016: 324). It is obvious that the complementizer *that* was pronounced as a full form as indicated by the presence of the vowel [æ], which could lead their informants to judge the stimuli with the complementizer *that* as odd and even ungrammatical. The judgment of whether and to what extent it is reduced depends on each speaker. It is highly likely that a complementizer form that a speaker uttered in the certainty that it is reduced may not be accepted as reduced by another speaker. The perception study in which a speaker judges the acceptability by listening to the stimuli that were produced by another speaker thus does not clarify the facts on the C-t effect.

The C-t effect is a particular property of languages that have speech sound. According to Lillo-Martin (1991), American Sign Language does not have an overt marking of the complementizer; it lacks the C-t effect, along with strict constraints on *wh*-extraction. Imagine how we do native judgments: we read test sentences silently to ourselves. To judge whether (2a-b) are grammatical, we silently read both (2a) *who do you think wrote the book?* and (2b) *who do you think that wrote the book?* to ourselves. We are likely to subvocalize both sentences; we may actually utter them in a very small voice. The credibility of native judgments on (the sentences relevant to) the C-t construction is thus owed to our (external or internal) speech sound with which we read test sentences. To clarify the facts on the C-t effect, it is promising to investigate sound properties of the sentences relevant to the C-t construction that are actually produced by speakers.

This means, however, that sound properties not only of grammatical but also of ungrammatical sentences are investigated. In the tradition of phonology and experimental

phonetics (cf. Ladd 2008, Féry 2017), researchers try to describe phonological/phonetic rules and seek principles that will govern all rule systems by studying sound properties of grammatical sentences. A good case is the *wh*-question. It has a general intonation pattern: the focal accent and the pitch peak occur on the *wh*-phrase, whether it is located in sentence-initial position as in English or in a sentence-medial position as in Japanese; after the pitch peak on the *wh*-phrase, the pitch successively lowers. These sound properties have been extensively studied in association with the syntactic and semantic properties of the *wh*-question (cf. Bolinger 1978, Bartels 1999, Ishihara 2007, Richards 2010, Gordon 2016, among others).

In investigating sound properties of ungrammatical sentences, some concerns might occur at the psychological and performance levels. At the psychological level, ungrammatical sentences are negative data and do not exist in a speaker's grammar. It might be questioned whether such sentences can explain their own ungrammaticality. At the performance level, a speaker may read out ungrammatical sentences which she has never uttered before with some disfluency such as pauses and a stammer. Alternatively, a speaker may produce ungrammatical sentences with an intonational contour that is grammatical for her native language, adjusting with her native phonology. Either way, it might be questioned how the production of ungrammatical sentences can be evaluated.

When a sentence is judged odd and even ungrammatical, there are two ways to account for its oddity. One way is that it is not constructed in the syntactic component in a licit way, and it is ungrammatical in a literal sense. The other way is that it is licitly constructed in the syntactic component, but some problem occurs on it during the process of *externalization* (Chomsky 2015) or after it is sent to the morphophonological component (*Distributed Morphology*; cf. Embick and Noyer 2007). As stated in section 1, if the C-t effect occurred from syntactic ill-formedness, the C-t construction should be unacceptable in all languages. But as long as it is accepted by some speakers, it is plausible to think that the C-t construction is built in syntax in a licit way and exists in the grammar. The oddity comes from factors outside the syntactic component, possibly from some morphophonological/sound properties.

In reading out the C-t construction, speakers are likely to adjust its intonational contour with their native phonology, since most of them accept *wh*-object extraction with the overt complementizer. It is predicted that regardless of whether the complementizer is overt or not, *wh*-subject extraction will be produced with the general intonation pattern of *wh*-questions in which the focal accent and the pitch peak occur on the *wh*-phrase, after which the pitch successively lowers. Since the *wh*-subject extraction with the overt complementizer is judged odd, however, it is expected that there will be some difference in sound properties between the *wh*-subject extraction with the overt complementizer that is judged odd and the other extraction sentences that are judged grammatical. Note that our aim is neither to find a specific intonation

pattern of the C-t construction nor to evaluate which is right and wrong between the intonation pattern of the *wh*-subject extraction with an overt complementizer and that of the *wh*-subject extraction without an overt complementizer. We aim to show, with statistic data, whether and to what extent the sound properties of an "ungrammatical" C-t construction differ from other grammatical *wh*-extraction sentences.

3. Methods

3.1. Languages and informants

The study involved 20 informants in total. 11 informants were native speakers of English (7 female, 4 male), 6 native speakers of Swedish (2 female, 4 male) and 3 native speakers of Finnish (3 male). The age ranged from 22 to 65 years old. The interviews and recordings were conducted twice at Newcastle University, UK, once at the University of Turku, Finland, once at Lund University, Sweden, and once at Leiden University, The Netherlands. The informants were staff and students who belonged to one of the four universities.

3.2.Test sentences

The test sentences are given in Appendix I, with the numbering of (i-vi). The sentence types are (i) *wh*-object extraction without an overt complementizer, (ii) *wh*-object extraction with an overt complementizer, (iii) *wh*-subject extraction without an overt complementizer, and (iv) *wh*-subject extraction with an overt complementizer. In addition, there were two other types of extraction tested: (v) *wh*-subject extraction with a reduced complementizer (, which is shown by a subscript, e.g. $_{that}$) and (vi) *wh*-subject extraction with an overt complementizer and a following adverbial phrase. The last two structures were included as it has been reported that the C-t effect is mitigated in those patterns (cf. Bresnan 1977, Kandybowicz 2006).[3] Sentence type (v) was not presented to the Finnish informants. The test sentences used in the first survey at Newcastle University were made with words different from the ones given in Appendix I, but the sentence types were the same as those given there.

3.3. Procedures

The interviews and recordings were carried out by the author in quiet places, such as a small lecture room. Before the recordings, the informants were asked to do native judgments of the test sentences. This study aimed to investigate whether an overt complementizer is accepted

[3] In the traditional Finnish grammar, *kirjoittaneen* in (i) and (iii) is a past participle form, and *kirjoitti* in (ii) and (iv) is a past tense form. Following Huhmarniemi (2012: 202), who claims that the participial form has tense, I assume that the *että* 'that' -clauses in the test sentences are all finite.

when the meaning of relevant *wh*-extraction sentences does not differ, i.e. between (i-ii) and between (iii-v). No additional contexts were provided for the judgments of (i-v). No contexts were provided for the judgment of (vi) either, since it is already known that the overt complementizer can be accepted in this sentence type, as stated above. The results of the native judgments are presented in section 4.

After doing the native judgments, the informants were asked to read out each of the test sentences three times in an appropriately rapid speech. When they stopped with disfluencies such as pauses and stammers, they read out the same sentence again. The informants who accepted neither (iv) nor (v) were asked to read out all the test sentences except (v). The informants who accepted (iv) were also asked to read out all the test sentences except (v). The informants who did not accept (iv) but accepted (v) were asked to read out all the test sentences.[4] The voice of the informants was directly recorded into the author's laptop (LENOVO S21e), into which PRAAT speech processing software (Boersma and Weenink 1996) had been downloaded. 315 tokens were recorded.

3.4. Statistic analyses

The statistic data is shown by computing the ratio of *downstep* (cf. Pierrehumbert 1980, Pierrehumbert and Beckman 1988, Gussenhoven 2004, among others). In this paper, the term *downstep* is used to refer to the pitch lowering between two specified pitch points in a spoken utterance, with the first point taken early and the second point taken somewhere that follows the first point. Downstep is defined as the pitch difference between the first and the second points. The pitch difference is referred to as the downstep size.

First, two pitch points are taken from a) the highest pitch point and b) the lowest pitch point. As stated previously, *wh*-questions have a general intonation pattern in which the focal accent and the pitch peak occur on the *wh*-phrase, after which the pitch successively lowers. The highest peak occurs on the *wh*-phrase (or quite near to it), and it was taken as the highest pitch point. The pitch falls at the end of a *wh*-question in the unmarked case, but depending on speakers, the pitch sightly rises sentence-finally. In the former, the sentence-final position was taken as the lowest pitch point. In the latter, the lowest point before the pitch begins to rise was taken. The downstep ratio from a) to b) was computed.

Secondly, two pitch points are taken from c) the first accentable word preceding the complementizer and d) the first accentable word following the complementizer. In English, the first accentable word preceding the complementizer is the main verb *think* in all the sentence types, and the first accentable word(/phrase) following the complementizer is either the

[4] The Finnish informants, to whom Sentence type (v) was not presented, read out all the test sentences, (i-iv) and (vi).

embedded subject *Bill* in (i-ii), the embedded verb *painted* in (iii-v), or the adverbial phrase located in the embedded subject position *under no circumstances* in (vi). In Swedish, c) corresponds to the main verb *tror* in all the sentence types; d) corresponds to either the embedded subject *Benno* (i-ii), the embedded verb *målade* (iii-v), or the adverbial phrase *under inga omständigheter* (vi). In Finnish, c) corresponds to the main verb *luulet* in all the sentence types; d) corresponds to either the embedded subject *Bill(in)* (i-ii), the embedded verb *kirjoittaneen/kirjoitti* (iii-iv), or the adverbial phrase *ei missään olosuhteissa* (vi); see Appendix I. The downstep ratio from c) to d) was computed. One word of caution, however: the pitch properties of the overt complementizer itself are different in different languages and speakers. Being a function word, it is produced with a high tone in some cases and with a low tone in others. In my recordings, it can also be produced with a creaky voice, and its pitch contour often does not appear.

The fundamental frequency (F0) was extracted and computed for each utterance by using the autocorrelation method implemented in the PRAAT software, with reasonable upper and lower frequency bounds set depending on the gender and vocal characteristics of the speaker. The F0 values extracted at four pitch points a-d), which the PRAAT software measures in hertz (Hz), were converted to *semitones* (st).[5] The interval between any two pitch points measured in Hz can be converted to semitones by the following formula (P1 stands for the first point and P2 for the second point):

(5) 12 * [log(P1/P2) / log(2)]

When the pitch falls in a spoken utterance, the value of the downstep size is positive. The higher the value is, the larger the downstep size is.[6] In my recordings, the time interval between a) and b) is shorter than 3 seconds in most cases, and the time interval between c) and d) does not normally exceed the duration of one second. It can be estimated that the pitch lowering in the sentence types here should be roughly 2 semitones.[7] Thus, a proper instance of downstep in my materials is defined as a pitch decrement between two points larger than 2 semitones: the difference in semitones between two points must be larger than 2 to confirm that downstep actually occurs.

[5] For traditional works, see, e.g. Liberman and Pierrehumbert (1984), who propose to compute the downstep size by exponential decay.

[6] The negative value indicates that downstep does not occur – in fact, upstep occurs.

[7] The estimate here is based on the formula, $D = -11 / t + 1.5$, to compute the *declination* (cf. Gussenhoven 2004) in semitones per second (= D) for utterances shorter than 5 seconds, where t is the duration of the utterance (t' Hart et al. 1990:128; Rietveld and Van Heuven, 2009:311).

4. Results

The result of the native judgments is presented on the next page. The first column shows the information of the speakers, which includes the language, i.e. Eng(lish)., Swe(dish)., and Fin(nish)., the sex, i.e. F(emale) and M(ale), and the informant number, i.e. 1, 2, etc. The second column shows the information of their birthplace, which includes the city name, e.g. Hartlepool, and the country name, e.g. UK. The judgment grade is evaluated as follows: *OK* – grammatical; *?* – acceptable, but slightly degraded; * – ungrammatical. The number codes (i)-(vi) above the judgment grades correspond to the test sentence types, which was introduced in section 3.2: (i) *wh*-object extraction without an overt complementizer, (ii) *wh*-object extraction with an overt complementizer, (iii) *wh*-subject extraction without an overt complementizer, (iv) *wh*-subject extraction with an overt complementizer, (v) *wh*-subject extraction with a reduced complementizer (, which is shown by a subscript, e.g. $_{that}$), and (vi) *wh*-subject extraction with an overt complementizer and a following adverbial phrase. A few cells are blank due to some accidental missing of judgment.

It is shown that *wh*-subject/-object extraction is acceptable for all the speakers when the complementizer does not appear overtly; see columns (i) and (iii). Not all the speakers accept the overt complementizer in *wh*-object extraction. Especially, the British English speakers tend to reject it; see column (ii). For all the languages investigated, there are speakers who reject the C-t construction and those who accept it; see column (iv). Among the speakers who reject the C-t construction, the C-t effect can be mitigated in English when the complementizer is reduced, though such a mitigating effect does not occur in Swedish; see columns (iv) and (v). As reported by the literature given in section 3.2, the C-t effect can be mitigated among the speakers who reject the C-t construction when an adverbial phrase follows the complementizer; see columns (iv) and (vi).

Table 1: Native judgment data

Speakers	Birthplace	(i)	(ii)	(iii)	(iv)	(v)	(vi)
Eng. F1	Hartlepool, UK	OK	*	OK	*	*	OK
Eng. F2	Bolton, UK	OK	*	OK	*	OK	OK
Eng. F3	Frimley-Hampshire, UK	OK	*	OK	OK	*	OK
Eng. F4	Manchester, UK	OK	OK/?	OK	*	OK/?	OK
Eng. F5	Cambridge, UK	OK	*	OK	*	*	?
Eng. F6	Seattle, USA	OK	OK	OK	?	OK	OK
Eng. F7	New Hampshire, USA	OK	OK/?	OK	OK		OK
Eng. M1	Hertfordshire, UK	OK	*	OK	*	OK	*
Eng. M2	Ashington, UK	OK	*	OK	*	OK	*
Eng. M3	Washington DC, USA	OK	OK	OK	*	*	OK/?
Eng. M4	Essex, UK	OK	OK	OK	*	*	OK

Swe. F1	Göteborg, Sweden	OK	OK	OK	*	*	?
Swe. F2	Stockholm, Sweden	OK	OK	OK	*	*	*
Swe. M1	Lund, Sweden	OK	OK	OK	*	*	?
Swe. M2	Ystad, Sweden	OK	OK	OK	*	*	OK
Swe. M3	Göteborg, Sweden	OK	OK	OK	*	*	OK
Swe. M4	Turku, Finland	OK	OK	OK	OK		OK
Fin. M1	Jyväskylä, Finland	OK	*	OK	*		*
Fin. M2	Jämijärvi, Finland	OK	OK	OK	?/*		?
Fin. M3	Turku, Finland	OK	OK	OK	OK		?

Among the informants investigated, though composing a small data set, whether the C-t effect arises or not depends neither on the speakers' language nor on the countries and dialectal areas where they were born.[8]

Figures 1-2 illustrate the pitch properties of the C-t construction.[9] Figure 1 shows the F0 contour of speaker Eng. M4 (Essex, the UK), who does not accept the C-t construction. Figure 2 shows the F0 contour of speaker Eng. F7 (New Hampshire, the USA), who accepts it.[10]

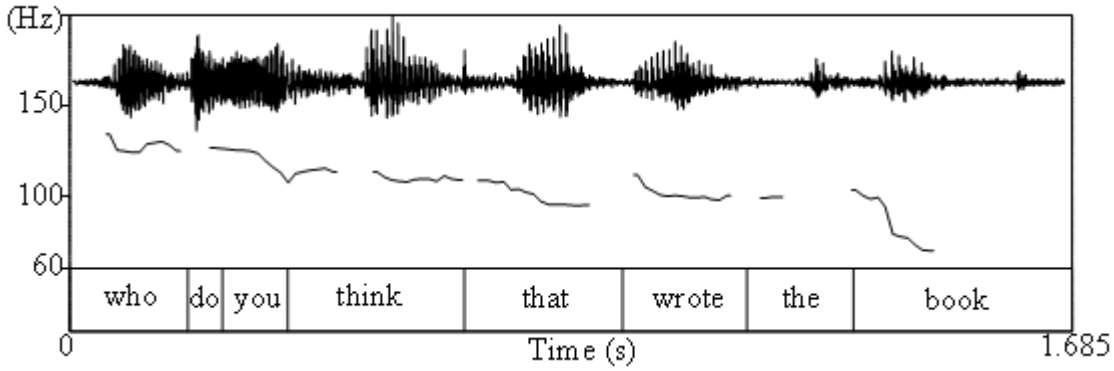


Fig. 1. The F0 contour of Eng. M4 (Essex, the UK), who does not accept the C-t construction.

[8] Unless far more data is collected, no definite conclusion can be drawn on this point, as pointed out by Johan Brandtler (p.c.).

[9] For the English intonational system, see Pierrehumbert (1980), Selkirk (1984, 1996a), Bolinger (1998), Hirst (1998), Gussenhoven (2004), Ladd (2008) and Féry (2017), among others. For the Swedish intonational system, see Bruce (1977, 2005, 2007), Gårding (1998), Gussenhoven (2004), Riad (2014) and Féry (2017), among others. For the Finnish intonational system, see Iivonen (1998), Suomi et al. (2008) and Nakai et al. (2009).

[10] Eng. M4 and Eng. F7 participated in the first survey at Newcastle University. The test sentences were made with words different from the ones given in Appendix I, as stated in section 3.2.

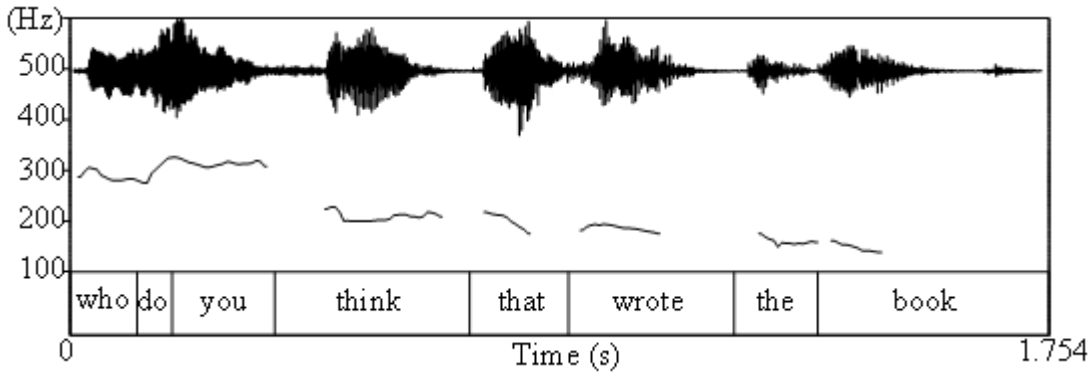


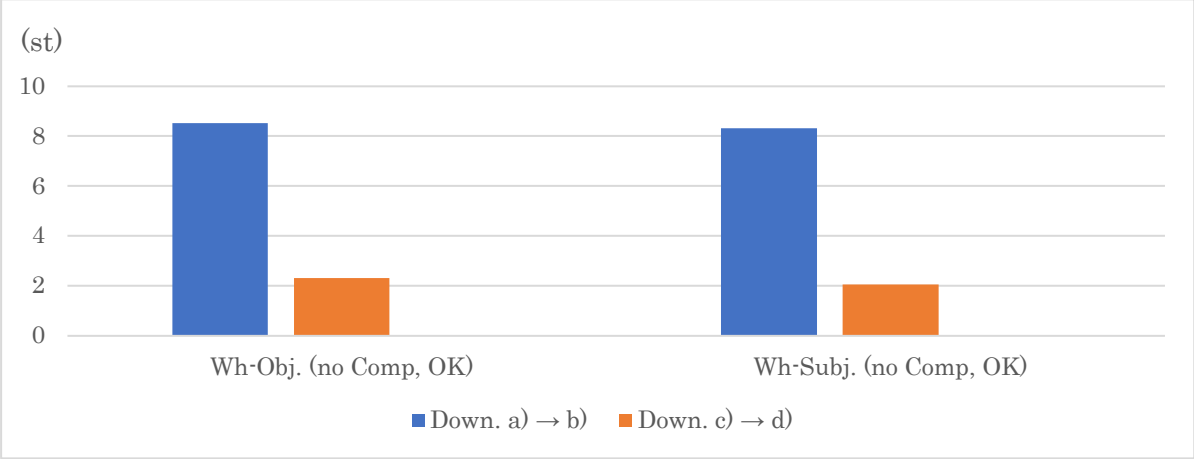
Fig. 2 The F0 contour of Eng. F7 (New Hampshire, the USA), who accepts the C-t construction.

As predicted in section 2, the C-t construction is produced with the general intonation pattern of a *wh*-question, regardless of whether it is judged ungrammatical or not. That is, in both cases above, the focal accent and pitch peak occur on the *wh*-subject *who* in sentence-initial position (or quite near to it); the pitch successively lowers and finally falls at the end of the sentence. This indicates that the speaker who does not accept the C-t construction actually adjusts the intonational contour with the native phonology in its production.

Below, Table 2 shows the mean values of the downstep size (which is abbreviated as Down.) from a) to b) and from c) to d); Graphs visually illustrate the difference in the mean values. In Tables, the data of *wh*-object extraction is firstly presented, since many speakers accept both the presence and absence of an overt complementizer in it. The data of *wh*-subject extraction, in which many speakers reject the presence of an overt complementizer, is then presented to make comparison easier. Table 2 and Graph 1 show the mean downstep size of (i) and that of (iii), both of which were judged grammatical by all the informants. The mean values are computed by taking the values of all the informants interviewed. The result of (i) is shown in *Wh-Obj. (no Comp, OK)*, and that of (iii) is shown in *Wh-Subj. (no Comp, OK)*.

	Down. a) → b) (st)	Down. c) → d) (st)
Wh-Obj. (no Comp, OK)	8.52	2.32
Wh-Subj. (no Comp, OK)	8.32	2.07

Table 2: The mean downstep size of *wh*-object extraction without an overt complementizer, (i), and that of *wh*-subject extraction without an overt complementizer, (iii).



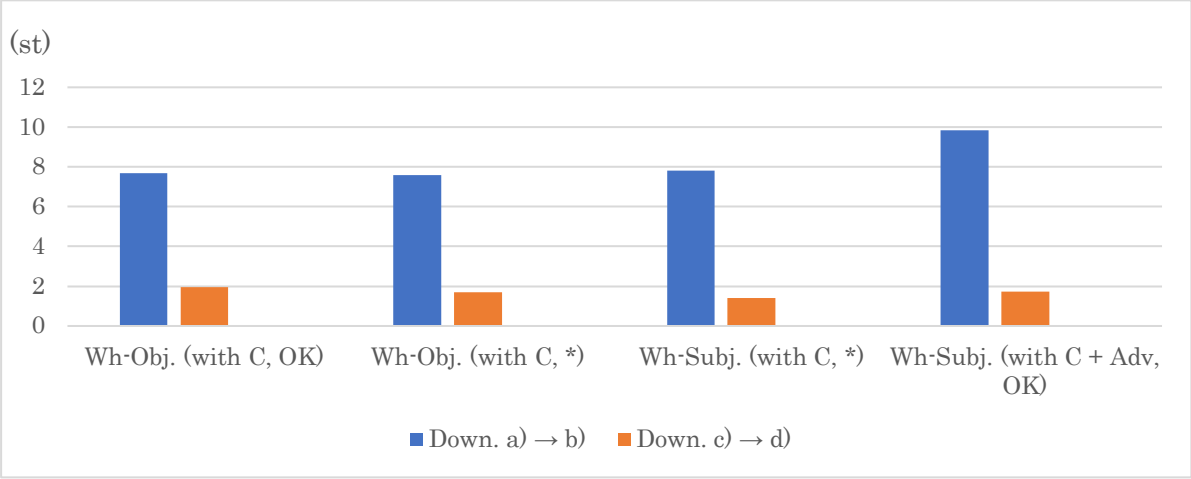
Graph 1: The mean downstep size of *wh*-object extraction without an overt complementizer, (i), and that of *wh*-subject extraction without an overt complementizer, (iii).

The mean value from a) to b) is 8.52 in *wh*-object extraction and 8.32 in *wh*-subject extraction, both of which exceed 2st; see column *Down. a) → b)*. The mean value from c) to d) is 2.32 in *wh*-object extraction and 2.07 in *wh*-subject extraction, both of which exceed 2st; see column *Down. c) → d)*.

Table 3 and Graph 2 show the mean downstep size which is computed by taking the values of the speakers who did not accept (iv), the C-t construction. The values of the speakers who accepted (iv), i.e. Eng. F3, F7, Swe. M4, and Fin. M3, are not included. The mean value of (ii) of those who accepted it is shown in *Wh-Obj. (with Comp, OK)*. The mean value of (ii) of those who rejected it is shown in *Wh-Obj. (with Comp, *)*. The mean value of (iv) is computed by taking the values of all the speakers who did not accept it, the result of which is shown in *Wh-Subj. (with Comp, *)*. The mean value of (vi) is computed by taking those who accepted it, result of which is shown in *Wh-Subj. (with Comp + Adv, OK)*. In all the cases, the mean value from a) to b) exceeds 2st; see *Down. a) → b)*. The mean value from c) to d) does not exceed 2st in any of the cases, however: the mean value of (ii) of those who accepted it is 1.95, the mean value of (ii) of those who did not accept it is 1.71, the mean value of (iv) is 1.41, and the mean value of (vi) is 1.73; see *Down. c) → d)*. The pitch of those who do not accept the C-t construction is difficult to lower in the presence of the overt complementizer.

	Down. a) → b) (st)	Down. c) → d) (st)
Wh-Obj. (with C, OK)	7.69	1.95
Wh-Obj. (with C, *)	7.59	1.71
Wh-Subj. (with C, *)	7.82	1.41
Wh-Subj. (with C + Adv, OK)	9.84	1.73

Table 3: The mean downstep size which is computed by taking the values of the speakers who did not accept (iv).

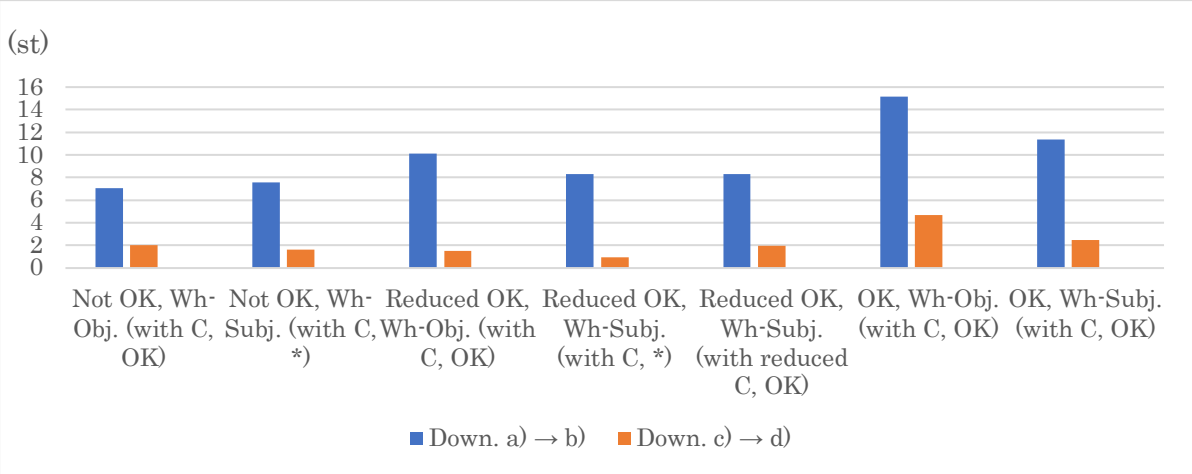


Graph 2: The mean downstep size which is computed by taking the values of the speakers who did not accept (iv).

Table 4 and Graph 3 show the difference in the mean downstep size between the speakers who reject the C-t construction, those who accept a reduced complementizer and those who accept the C-t construction. *Not OK* stands for the speakers who accepted neither (iv) nor (v): Eng. F1, F5, M3, M4, Swe. F1, F2, M1, M2, M3, including Fin. M1 and M2. *Not OK, Wh-Obj. (with Comp, OK)* shows the mean value of (ii) which is computed by taking the values of the speakers who accepted it among the eleven speakers. *Not OK, Wh-Subj. (with Comp, *)* shows the mean value of (iv) which is computed by taking the values of all the eleven speakers. *Reduced OK* stands for the speakers who did not accept (iv) but accepted (v): Eng. F2, F4, M6, M1, M2. *Reduced OK, Wh-Obj. (with Comp, OK)* shows the mean value of (ii) which is computed by taking the values of the speakers who accepted it among the five speakers. *Reduced OK, Wh-Subj. (with Comp, *)* shows the mean value of (iv) which is computed by taking the values of all the five speakers. *Reduced OK, Wh-Subj. (with* $_{Comp}$*, OK)* shows the mean value of (v) which is computed by taking the values of all the five speakers. *OK* stands for the speakers who accepted (iv): Eng. F3, F7, Swe. M4, and Fin. M3. *OK, Wh-Obj. (with Comp, OK)* and *OK, Wh-Subj. (with Comp, OK)* show the mean value of (ii) and that of (iv) respectively, which are computed by taking the values of all the four speakers.

	Down. a) → b) (st)	Down. c) → d) (st)
Not OK, *Wh*-Obj. (with Comp, OK)	7.09	2.05
Not OK, *Wh*-Subj. (with Comp, *)	7.59	1.62
Reduced OK, *Wh*-Obj. (with Comp, OK)	10.11	1.53[11]
Reduced OK, *Wh*-Subj. (with Comp, *)	8.30	0.93
Reduced OK, *Wh*-Subj. (with $_{\text{Comp}}$, OK)	8.29	1.96
OK, *Wh*-Obj. (with Comp, OK)	15.17	4.68
OK, *Wh*-Subj. (with Comp, OK)	11.35	2.50

Table 4: The mean downstep size which is computed on the basis of the difference in the acceptability of the overt complementizer between the informants.



Graph 3: The mean downstep size which is computed on the basis of the difference in the acceptability of the overt complementizer between the informants.

In all the cases above, the mean value from a) to b) exceeds 2st; see *Down. a) → b)*. The mean value from c) to d) of the speakers who accepted neither (iv) nor (v) is 2.05 in *wh*-object extraction and 1.62 in *wh*-subject extraction; the former barely reaches, and the latter does not exceed, 2st. For the speakers who did not accept a full complementizer but accepted a reduced complementizer, the mean value of (iv) is 0.93, which is far smaller than 2st. But the mean value of (v) is 1.96, which is quite closer to 2st. On the contrary, the mean value from c) to d) of the speakers who accepted the C-t construction is 4.68 in *wh*-object extraction and 2.50 in *wh*-subject extraction, both of which exceed 2st; see *Down. c) → d)*.

In sum, as shown in Tables 2-4/Graphs 1-3, the mean value from a) to b) exceeds 2st in all the cases. The pitch lowers throughout the entire sentence, conforming to the general intonation pattern of a *wh*-question, whether *wh*-extraction is judged acceptable or not and whether a complementizer appears overtly or not. Table 2/Graph 1 shows that the mean value

[11] As we saw in Table 2, the mean downstep size of all the grammatical sentences of *wh*-object extraction is 2.07; the mean downstep size of *wh*-object extraction of the speakers who did not accept the C-t construction is 1.95, as shown in Table 3. The computation here is done by taking the values of only two informants. With more informants, this value would be expected to be larger.

from c) to d) exceeds 2st both in *wh*-object extraction and in *wh*-subject extraction when the complementizer does not appear overtly. The pitch of all the speakers lowers smoothly from the main to the complementizer clause in the absence of an overt complementizer. Table 3/Graph 2 shows that the mean value from c) to d) of the speakers who do not accept (iv), the C-t construction, does not exceed 2st in any of the *wh*-extraction sentences with an overt complementizer. The pitch of those speakers does not lower smoothly in the presence of an overt complementizer. Table 4/Graph 3 shows that contrary to the speakers who did not accept (iv), the mean value from c) to d) of the speakers who accepted (iv) exceeds 2st in the presence of an overt complementizer. The pitch of those speakers lowers smoothly even when the complementizer appears overtly.

5. Analyses and discussion

An overall observation from the results above is that while downstep occurs in the entire *wh*-extraction sentence, a smooth pitch lowering is, in the presence of the overt complementizer, disturbed in the pitch contour of the speakers who do not accept (iv), the C-t construction, but is not disturbed in the pitch contour of those who accept it. Some of the speakers who do not accept (iv) do not accept the overt complementizer in *wh*-object extraction either; see the native judgment data given in the previous section.[12] As shown in Table 3/Graph 2, the mean value of (ii), *wh*-object extraction with an overt complementizer, of those who did not accept it is 1.71, contrary to 1.95 of those who accepted it. The pitch is more difficult to lower in the pitch contour of those who reject (ii) than in the pitch contour of those who accept it. For the speakers who did not accept an overt complementizer but accepted a reduced complementizer, the mean value from c) to d) of (iv) is 0.93, but that of (v), *wh*-subject extraction with a reduced complementizer, is 1.96, the latter of which is quite closer to 2st; see Table 4/Graph 3. The pitch of those speakers is difficult to lower when the complementizer is fully pronounced but can lower when it is reduced. These data even suggest that the overt complementizer (of a full form) can actually disturb a smooth pitch lowering in the pitch contour of the speakers who do not accept (iv).[13]

[12] Eng. F3 accepted the overt complementizer in *wh*-subject extraction but not in *wh*-object extraction, and she rejected a reduced complementizer in *wh*-subject extraction. Some individual differences should be taken into consideration to account for individual data.

[13] Whether and to what extent a smooth pitch lowering is disturbed in the presence of the overt complementizer is a physical matter that is not under the control of individual speakers. The speakers who feel the overt complementizer disturbs a smooth pitch lowering will always judge (iv) odd, whereas the speakers who do not feel so will always accept it. The judgments of speakers cannot be changed by their preference or intension. For this physical problem, we cannot answer the question why it is so, which is obviously a significant issue but beyond this paper.

The speakers who do not accept (iv) do accept the overt complementizer in *wh*-object extraction as well as in *wh*-subject extraction when an adverbial phrase follows it; see again the judgement data given in section 4. As shown in Table 3/Graph 2, the mean value of (ii) is 1.95 and that of (vi), *wh*-subject extraction with an overt complementizer and a following adverbial phrase, is 1.73. The downstep size does not exceed 2st, but these constructions are accepted. Recall that d) corresponds to the embedded subject in (ii) and an adverbial phrase located in the embedded subject position in (vi). The final pitch peak is likely to occur on them, and it is expected that the pitch will not lower before and on those sentential elements. But d) corresponds to the embedded verb in (iv). The verb is less prominent than the argument in the unmarked case (cf. Gundel 1988, Cinque 1993, Lambrecht 1994, Selkirk 1996a). It is expected that the pitch should lower on the embedded verb, but it does not in the presence of the overt complementizer, as shown by the mean value of (iv), 1.41; see Table 3/Graph 2. Therefore, the C-t effect arises not only from the difficulty in a smooth pitch lowering in the presence of the overt complementizer but also from an information-structural factor.[14]

The observation here applies to an individual speaker, not to an individual language. The language in which the pitch is difficult to lower in the presence of an overt complementizer for most of the speakers shows the C-t effect, but it can contain some exceptional speakers for whom such difficulty in the pitch lowering does not occur and who accept the C-t construction. The higher number of speakers whose pitch is difficult to lower in the presence of an overt complementizer a language contains, the more likely that language is to show the C-t effect. Thus here, a unified account is provided not only for why the C-t effect occurs in languages but also for why the acceptability of the C-t construction differs between the native speakers of a language.

6. Theoretical analysis

Based on the data of English, Swedish and Finnish, we have shown that some speakers have difficulty in the pitch lowering in sentences with an overt complementizer, due to which they judge such sentences ungrammatical. Our data thus indicate that the C-t effect does not arise from a syntactic ill-formedness. That is, the factor that distinguishes the difference in the acceptability between the *wh*-subject extraction with an overt complementizer and the *wh*-

[14] Sato and Dobashi (2016: 338) report that the construction *who do you think that according to the latest rumors is quitting politics?* sounds like parenthetical intonation of the adverbial phrase with a comma intonation inserted before and after the adverbial phrase and with an L-H% rising boundary tone on the final accentable syllable, i.e. *-mors* of *rumors*. None of my informants, whether he/she accepts the C-t construction or not, showed such intonational properties for (vi) as they describe. Depending on an inserted adverbial phrase, the parenthetical intonation may arise as they claim. But whether the parenthetical intonation arises or not is not crucial to account for (the avoidance of) the C-t effect from the intonational/phonological perspective.

subject extraction without an overt complementizer does not lie in the syntactic operations that derive them. *Wh*-subject extraction should be derived by the same syntactic operations for all languages, whether the *phase* theory (Chomsky 2001, 2004, 2008), *Labeling Algorithm* (Chomsky 2013, 2015), or the *workspace* framework (Chomsky 2019, 2020, 2021), is assumed. The difference in the acceptability of *wh*-subject extraction is attributed to whether the complementizer has phonological features or not.

Let us assume that a syntactic derivation proceeds only by (external and internal) *Merge*, which applies freely (Chomsky 2015), aside from theoretical issues such as Case/φ-feature agreement, feature inheritance (Richards 2007), labeling, etc.[15] A possible way to derive the C-t construction, e.g. *who do you think that built the house?*, is illustrated in (6). Below, verbs are written with a root form: e.g. *build(=R)*. The projections are represented with traditional notation, i.e. with VP, v*P, TP and CP. No functional features are represented, for the sake of simplicity.

(6) [$_{\text{CP}}$ who [do(=C) [$_{\text{TP}}$ you [T [$_{\text{v*P}}$ ~~who~~ [$_{\text{v*P}}$ ~~you~~ [think(=R)+v* [$_{\text{VP}}$ ~~think(=R)~~ [$_{\text{CP}}$ ~~who~~ [that(=C) [$_{\text{TP}}$ ~~who~~ [T [$_{\text{v*P}}$ ~~who~~ [build(=R)+v* [$_{\text{VP}}$ ~~build(=R)~~ [the house]]]]]]]]]]]]]]]

The Merge operation proceeds step by step in a bottom-up manner, starting with merging *the* and *house*. The embedded verbal root *build(=R)* merges, and moves to the functional verbal head v*.[16] The *wh*-subject *who* merges, which completes the embedded v*P. The embedded T merges, and *who* moves to its Spec. The complementizer *that* merges as the embedded C head, and *who* moves to its Spec. The matrix verbal root *think(=R)* merges to the embedded CP and moves to the functional verbal head v*. The matrix subject *you* merges, which completes the matrix v*P. The *wh*-subject *who* moves from the embedded [Spec,CP] to the outer Spec of the matrix v*P. After the matrix T merges, *you* moves to its Spec. The Aux *do* merges as the matrix C head;[17] *who* moves to its Spec.[18] Due to the *Phase Impenetrability Condition* (Chomsky 2000), which defends the locality of derivation, syntactic units such as VP, v*P, TP, CP are transferred at various points of derivation, depending on the definition of the timing of *Transfer*

[15] In External Merge, a new item merges to another new item or to an existing structure. In Internal Merge, an item merges several times and appears in different positions at the same time, which corresponds to a movement operation.

[16] After which v* is deleted due to its affixal nature, according to Chomsky (2015). Here, I represent v* without a deletion line.

[17] Alternatively, the Aux *do* will merge in a lower head position and move to C, which details I leave aside here.

[18] This is the traditional way of raising a *wh*-subject. Chomsky (2008) claims that a *wh*-subject moves from [Spec,v*P] to [Spec,TP] on one hand, and it also moves from [Spec,v*P] directly to [Spec,CP] on the other, in a parallel manner.

(Chomsky 2015).

A transferred syntactic object cannot be involved in further syntactic operations, but it is not the case that it is immediately sent to phonology (cf. Chomsky 2015). In the derivation illustrated in (6), the complementizer is not assigned phonological features immediately after the embedded CP is transferred. After the structure built by the syntactic operations illustrated in (6) is sent to phonology, it is determined whether the complementizer appears overtly or not. The pitch gesture of the speakers whose pitch always lowers smoothly does not yield any problems in phonology. The complementizer inserted in syntax can appear overtly, as illustrated in (7a). But the speakers whose pitch is difficult to lower in the presence of the overt complementizer do not pronounce it; the phonological features of the complementizer are eliminated in phonology, as illustrated by *that* in (7b).

(7) a. The C-t construction acceptable:
[$_{CP}$ who [do+C [$_{TP}$ you … [think(=R)+v* … [$_{CP}$ ~~who~~ [**that(=C)** [$_{TP}$ ~~who~~ … [build(=R)+v* …

b. The C-t construction unacceptable:
[$_{CP}$ who [do+C [$_{TP}$ you … [think(=R)+v* … [$_{CP}$ ~~who~~ [**that(=C)** [$_{TP}$ ~~who~~ … [build(=R)+v* …

In *Distributed Morphology* (Embick and Noyer 2007, Bobaljik 2017), syntactic operations proceed with syntactic and semantic features only; in the morphophonological component, phonological features that correspond to each of the syntactic and semantic features are inserted. Assuming this framework, the C-t construction will be built in syntax as illustrated in (6), but only with syntactic and semantic features; the phonological features that correspond to each of the sentential elements are inserted in morphophonology. For the speakers who accept the C-t construction, the phonological features which correspond to the complementizer are optionally inserted, but for those who do not accept the C-t construction, the phonological features corresponding to the complementizer are not inserted.

Richards (2016) claims that many syntactic operations occur to satisfy some phonological requirement; sound properties can thus affect the process of syntactic operations. Following his claim, the derivation of the C-t construction will proceed as illustrated in (6), but a condition like below applies in the course of the derivation:

(8) Do not merge an overt complementizer when it prevents a smooth pitch lowering.

(8) does not apply to the speakers who accept the C-t construction. After the embedded TP is built, either the overt complementizer *that* or the phonologically null complementizer C is optionally merged; see (9a). (8) applies to the speakers who do not accept the C-t construction. After the embedded TP is built, only the phonologically null complementizer C can merge; see (9b).

(9) a. The C-t construction acceptable:
[$_{CP}$ who [do+C [$_{TP}$ you … [think(=R)+v* … [$_{CP}$ ~~who~~ [**that/C** [$_{TP}$ ~~who~~ …
[build(=R)+v* …

b. The C-t construction unacceptable:
[$_{CP}$ who [do+C [$_{TP}$ you … [think(=R)+v* … [$_{CP}$ ~~who~~ [**C** [$_{TP}$ ~~who~~ …
[build(=R)+v* …

In the Merge-based derivations illustrated above, neither the trace of the *wh*-subject in the embedded [Spec,TP] nor the complementizer in the embedded C violates any principles or constraints. There is no reason to assume that the operation of merging the complementizer *that*, instead of the null C head, to the embedded TP is problematic. There is no reason either to assume that any problems arise in the entire derivation illustrated above. The syntactic uniformity is maintained, with the difference in the appearance of the overt complementizer confined to morphophonology.[19]

7. Conclusion

Based on the data of English, Swedish and Finnish, all of which contain both speakers who accept, and those who do not accept, the C-t construction, we have shown that in the pitch gesture of the speakers who do not accept the C-t construction, a smooth pitch lowering is disturbed in the presence of the overt complementizer, which has been shown with insufficient ratio of downstep. We have argued that the C-t effect arises not only from the difficulty in a smooth pitch lowering in the presence of the overt complementizer but also from an

[19] The derivation illustrated in (6) cannot avoid the problem of the 'look-ahead' in phonology: the assumption that an overt complementizer merges in syntax and can be eliminated in phonology indicates that the decision to eliminate it depends on the phonological component. The Distributed Morphology-based account avoids the look-ahead problem, but the insertion of an overt complementizer is arbitrarily decided. The phonological constraint-based account avoids the look-ahead problem and decides the condition on the insertion of an overt complementizer, but the proposed constraint is not universal; in addition, phonology would have to know that the overt complementizer will prevent a smooth pitch lowering even before the complementizer merges, as suggested by Johan Brandtler (p.c.). No perfect derivational mechanism exists, actually.

information-structural factor: in *wh*-subject extraction, the pitch should lower on an (embedded) verb which is non-prominent in the unmarked case compared with arguments, but it does not when an overt complementizer appears. The observation here applies to an individual speaker, not to an individual language. The higher number of speakers whose pitch is difficult to lower in the presence of an overt complementizer a language contains, the more likely that language is to show the C-t effect. We have thus provided a unified account not only for why the C-t effect occurs in languages but also for why the acceptability of the C-t construction differs between the native speakers of a language. Our data indicate that the C-t effect does not arise from a syntactic ill-formedness: *wh*-subject extraction should be derived by the same syntactic operations for all languages, regardless of which derivational theory is assumed. With the demonstration of the Merge-based derivation, the difference in the acceptability of *wh*-subject extraction is, we have claimed, attributed to whether the complementizer has phonological features or not.

This paper has dealt with a small data set of 20 informants from English, Swedish and Finnish; more data is necessary to make a definite conclusion on whether the C-t effect is a matter of syntax or phonology. There are also many questions to be solved. An interesting, and important, question is whether the pitch of the speakers who do not accept the C-t construction is difficult to lower in the presence of the overt complementizer in all languages which show the C-t effect, the answer to which is beyond this paper. [20] Another question is how to account for the difference in the acceptability of the overt complementizer between languages. Contrary to the languages discussed here that show the C-t effect, the presence of the overt complementizer is optional, e.g. in Italian (Rizzi 1982); its presence is obligatory, e.g. in Dutch (Perlmutter 1971, Maling and Zaenen 1978). To answer these questions, more detailed study is required, which is left for future research. Despite these problems, it seems to be clear that phonological/phonetic factors are involved in the C-t effect to a significant extent.

[20] I would like to thank Anders Holmberg (p.c.) for letting me notice the importance of this question. Among languages that are reported to show the C-t effect are, for instance, Russian (Pesetsky 1982, 2017), Nupe (Kandybowicz 2006) and French (Rizzi and Shlonsky 2007).

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Appendix I: Test sentences

English:

(i) What do you think Bill painted?
(ii) What do you think that Bill painted?
(iii) Who do you think painted the wall?
(iv) Who do you think that painted the wall?
(v) Who do you think $_{\text{that}}$ painted the wall?
(vi) Who do you think that under no circumstances would betray you?

Swedish:

(i) Vad tror du Benno målade?
what think you Benno painted (‘what do you think Benno painted?’)
(ii) Vad tror du att Benno målade?
what think you that Benno painted (‘what do you think that Benno painted?’)
(iii) Vem tror du målade väggen?
who think you painted the-wall (‘who do you think painted the wall?’)
(iv) Vem tror du att målade väggen?
who think you that painted the-wall (‘who do you think that painted the wall?)
(v) Vem tror du $_{\text{att}}$ målade väggen?
who think you that painted the-wall (‘who do you think $_{\text{that}}$ painted the wall?’)
(vi) Vem tror du att under inga omständigheter skulle förråda dig?
who think you that under no circumstances would betray you
(‘who do you think that under no circumstances would betray you?’)

Finnish:

(i) Mitä luulet Billin kirjoittaneen?
what think-you Bill wrote (‘what do you think Bill wrote?’)
(ii) Mitä luulet että Bill kirjoitti?
what think-you that Bill wrote (‘what do you think that Bill wrote?’)
(iii) Kenen luulet kirjoittaneen kirjan?
who think-you wrote the-book (‘who do you think wrote the book?’)
(iv) Ketä sä luulet että kirjoitti kirjan?
who think-you that wrote the-book (‘who do you think that wrote the book?)
(vi) Kenen luulet, että ei missään olosuhteissa petä sinua?
who think-you that under no circumstances betray you
(‘who do you think that under no circumstances would betray you?’)

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