## Accounting for variation in number agreement in Icelandic DAT-NOM constructions

Jacob Louis Hoover*<br>McGill University<br>jacob.hoover@mail.mcgill.ca

## 1 Introduction

Normally Icelandic verbs agree with their subjects, which show nominative case.

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(1) SUBJ.3PL.NOM VERB.3PL OBJ.3sG.ACC
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However, there are constructions in which the subject takes the dative case, and the object takes nominative. In these constructions, only the nominative object may control agreement.


Additionally, these dat-nom constructions demonstrate an effect called the Person Restriction: 1st/2nd person nominatives can't control agreement.

$$
\text { (3) SUBJ.3sG.DAT VERB.2PL } \stackrel{\text { OBJ.2PL.NOM }}{x-}
$$

## The puzzle: variation and intervention

With 3rd person nominatives, there is variation between speakers in whether or not there is number agreement. This variation has been described in terms of there being three varieties of Icelandic, ${ }^{1}$ breaking down in the following way:

With the dative in the canonical subject position (DAT-V-NOM), the following agreement:

[^0](4) SUBJ.DAT VERB. $\left\{\begin{array}{ll}\hline \text { 3PL } & \text { Icelandic A } \\ 3 \mathrm{SG} / 3 \mathrm{PL} & \text { Icelandic B } \\ 3 \mathrm{SG} & \text { Icelandic C }\end{array}\right)$
OBJ.3PL.nom

Optionality in Icelandic B disappears when the dative intervenes (EXPL-V-DAT-NOM):

$$
\text { (5) VERB. }\left\{\begin{array}{ll}
3 \mathrm{PL} & \text { Icelandic A } \\
3 \mathrm{SG} & \text { Icelandic B,C }
\end{array} \quad \text { SUBJ.DAT } \quad\right. \text { OBJ.3PL.nOM }
$$

The following table summarizes the variation in number-agreement with 3rd person nominatives:
(6)

|  | DAT-V-NOM.3PL | EXPL-V-DAT-NOM.3PL |
| :--- | :--- | :--- |
| Icelandic A num agree | yes | yes |
| Icelandic B num agree | optional | no |
| Icelandic C num agree | no | no |

## Proposal

Differences between varieties can be explained by two independent parameters:

1. the order of probing and movement operations, and
2. whether there is a [NUM] feature visible on dative DPs.

## Why care?

- Principled account of an interspeaker syntactic variation phenomenon.
- Explain the syncretism fix, wherein derivations expected to a crash due to competition become acceptable when competing agreement forms happen to be phonologically identical.


## 2 Data: agreement in DAT-NOM constructions

There is variation in whether or not the verb agrees for number with nом, but when there is agreement, it is with the nominative object, never with the dative subject. ${ }^{2}$
(7) Honum lika peir.
him.dat like.3pl they.nom
'He likes them'
(Icelandic A) Sigurðsson and Holmberg, 2008 ${ }^{3}$

The Person Restriction: no agree with 1st/2nd nom object (all varieties).
(8) *Honum líkum við. him.dAT like.1PL we.nOM intended: 'He likes us'
(9) * Honum likið pið. him.dat like.2pl you.nOM.PL intended: 'He likes you(pl)'

These constructions are reported to be simply ineffable with 1st/2nd person nominatives. They cannot be saved by resorting to a default 3sG form. ${ }^{a}$
(10) * Honum líkar við/pið.
him.dat like.3sg us/you.nom.PL
intended: 'He likes us/you(pl)'
${ }^{a}$ Sigurðsson (1996) reports that there exist speakers for whom default agreement may be available. Also note, a 3sG verb form is available in complex ECM constructions, when the verbal complement is an entire phrase (see §A.2). But this option is not available in simplex constructions like (10).

The Person Restriction is in effect for all three varieties, singular and plural, independent of word order. That is, whether the dative is high (DAT-V-nom) or low (Expl-$\mathbf{V}$-DAT-NOM), agreement with non-3rd person nominatives is unacceptable.

[^1]
### 2.1 Differences between the three varieties

With a 3rd person nominative object, the Person Restriction does not apply, and there is 3 rd person agreement on the verb. Number agreement differs by variety. ${ }^{4}$
(11) DAT-V-NOM constructions
a. Icelandic A: number-agree required
að henni likuðu peir
that her.dAt liked.3pl they.nom
b. Icelandic B: number-agree optional
að henni líkaði/likuðu peir
that her.DAT liked.3sG/liked.3pl they.nOM
c. Icelandic C : number-agree disallowed
að henni líkaði peir
that her.dat liked.3sG they.nom
'that she liked them'
When the dative subject remains low (with an expletive in the specifier position):
(12) EXPL-V-DAT-NOM constructions
a. Icelandic A: agree across DAT

Раð líkuðu einum málfræðingi pessar hugmyndir.
expl liked.3pl one linguist.dat these ideas.nom
b. Icelandic B, C: no agree across DAT

Раð líkaði/*likuðu einum málfræðingi pessar hugmyndir. EXPL liked.3sG/*liked.3PL one linguist.DAT these ideas.NOM
'One linguist liked these ideas.'
Icelandic A requires number agreement, Icelandic $\mathbf{C}$ disallows it (requiring sg form on the verb), and Icelandic B shows an intervention effect:

## Dative intervention effect In Icelandic B,

- agreement is optional when the dative subject has moved above the verb (as in 11b),
- but agreement is blocked if there is a dative intervening between the verb and the nominative (when the subject remains low, 12b).

[^2]|  | DAT-V-Nom.3PL | EXPL-V-DAT-NOM.3PL |
| :--- | :--- | :--- |
| Icelandic A num agree | yes | yes |
| Icelandic B num agree | optional | no |
| Icelandic C num agree | no | no |

## Syncretism exception to the Person Restriction

Whenever the 1 st or 2 nd person form is phonologically identical to the 3rd person form (due to syncretism in a particular verb's paradigm), the Person Restriction is lifted.

For example, in the paradigm for the verb leiðast, 1sG and 2sG forms happen to be syncretic with the 3sG form, and the sentence (13) instead of being ineffable, is fine.

|  | SG | PL |
| :---: | :---: | :---: |
| 1 |  | leiddumst |
| 2 | leiddist | leiddust |
| 3 |  |  |

Table 1: Agreement paradigm for leiðast 'find boring' (PAST)
(13)
$\checkmark$ Henni leiddist ég/pú
her.DAT bored. $1+2+3$ SG I.NOM/you.sG.NOM
'She found me/you boring.'

This behaviour in cases of syncretism was first described as a way for speakers to "both eat their cake and have it too" (Sigurðsson, 1996): not overtly disobeying the Person Restriction, while getting to use a 1st or 2nd person nominative.

## Preview: Parameters of variation

|  | DAT's visible $\varphi$-features | ordering at TP boundary |
| :--- | :--- | :--- |
| Icelandic A | [PERS] | $\pi \triangleright\{\#$, EPP mvmt $\}$ |
| Icelandic B | [PERS], [NUM] | $\pi \triangleright\{\#$, EPP mvmt $\}$ |
| Icelandic C | $[$ [PERS], [NUM] | $\pi \triangleright \# \triangleright$ EPP mvmt |

$\pi \equiv$ person probe, $\# \equiv$ number probe, $\triangleright \equiv$ 'precedes'

Sketch of an intuitive story: as datives evolve from $\mathrm{PP} \rightarrow \mathrm{KP} \rightarrow \mathrm{DP}$,

1. In Icelandic $\mathbf{A}$ (the oldest), a difference in ordering has no visible effect.
2. Icelandic B is like A, but has grown a [NUM] feature on datives, and structural ambiguity arises, resulting in optional agree.
3. Icelandic $\mathbf{C}$ (the newest variety) is like Icelandic $\mathbf{B}$, but an order has been settled on to resolve the ambiguity: \#-probe $\triangleright$ EPP

## 3 Ingredients

### 3.1 Probes and goals

- Previous work supports splitting $\varphi$-feature probing into two independent probes,
- a person probe $(\pi)$,
- a number probe (\#),
which probe separately, and in that order (Béjar and Rezac, 2009; Preminger, 2011; Preminger, 2014; Coon and Keine, 2019).

Icelandic agreement patterns in particular have been given as evidence in support of a split probe (originally proposed by Taraldsen (1995) ${ }^{5}$ ).

- I assume a hierarchical structure for features on probes and goals: Valued $\varphi$ features on a DP are hierarchically organized (cf. Harley and Ritter, 2002).


[^3] the presence of those of third person, and likewise for number: plural features are a superset of singular.

- Probes which have unvalued features, likewise hierarchically organized. The specification of these features is a parameter of variation between languages.


## For Icelandic:

person probe ( $\pi$ ): [uPERS [uPART]], number probe (\#): [uNUM],
Thus the general structure of within the TP in these constructions will look like:

$$
\text { (14) } \quad\left[\operatorname{TP} \ldots \#_{[u n \cup M]} \pi_{[u p \operatorname{ERS}[u \operatorname{PaRT}]]} \ldots \quad\left[\ldots \mathrm{DP}_{\text {DAT }} \ldots\left[\ldots \mathrm{DP}_{\text {NOM }} \ldots\right]\right]\right]
$$

### 3.1.1 Dative DPs and defective intervention

- Agreement with dative case nominals is often limited, crosslinguistically (Alexiadou, Anagnostopoulou, and Sevdali, 2014; Rezac, 2008).
- However, sometimes datives seem to be able to intercept person agree through their own [PERS] feature (Anagnostopoulou, 2003; Danon, 2006).
- In Icelandic, dative subject DPs seem to behave externally like 3rd person (and for $\mathbf{B}$ and $\mathbf{C}$, fully like 3 SG ), regardless of intrinsic person or number features.
- Roughly following Preminger (2014, §8.3.2) and Atlamaz and Baker (2018), I treat the dative DP as being wrapped in an shell, the head of which (K) may carry $\varphi$ feature(s), maybe inherited from $D$ :


I propose that for Icelandic, there is a [PERS] feature on this shell, and, for varieties B and C, a [NUM] feature too.


### 3.2 Agreement mechanism: Feature Gluttony

I adopt the feature gluttony mechanism for agreement proposed by Coon and Keine (2019), wherein probes are voracious (15). In this account, a probe may become overvalued, having entered into agreement with multiple goals.
(15) Agree:
(Coon and Keine, 2019, (14))
A probe segment $[u \mathrm{~F}]$ agrees with the closest accessible DP in its domain that bears [F]. If Agree is established, the hierarchy of segments containing $[\mathrm{F}]$ is copied over to the probe, valuing and thus removing $[u \mathrm{~F}]$.
(16) [ probe

$\Rightarrow$ Gluttony only occurs when the lower DP has something the upper doesn't.

- Mechanism used for spell out as defined by Atlamaz and Baker, after Halle and Marantz (1994):
(17) Subset Principle
(Atlamaz and Baker, 2018, (61))
A vocabulary item's identifying features must be a subset of the features present at the node where it is to be spelled out.
- Crash post-syntax: This account predicts a crash during spell-out only if there are competing possible phonological forms for the collected bundle of features.

A toy example, $3>1$ configuration:


$$
\Longrightarrow\{[\operatorname{PERS}],[\operatorname{PERS}[\operatorname{PART}[\operatorname{SPKR}]]]\} \text { copied back. }
$$

By the Subset Principle, two feature bundles are eligible for spellout:
a) [PERS]: 3rd person form
b) $[\operatorname{PERS}[\operatorname{PART}[\operatorname{SPKR}]]]: 1$ st person form

With no way to choose, there is a crash. However, if forms $a$ and $b$ are identical, then there is no competition, predicting the syncretism fix (13).

## 4 Proposal: Feature Gluttony can explain the data

### 4.1 Proposed parameters of variation

1. Variability in whether dative subjects have a visible number feature

- in Icelandic A, any dative DP has the feature [PERS], and is never specified with further person features, nor any number features.
- in Icelandic B and C: a number feature [NUM] has become visible on dative DPs, and therefore they should always act just as if they were singular third-person DPs.

2. Variability in the order of number-probing and movement of the subject

- Unspecified order in Icelandic A and B.
- Fixed order in Icelandic C: number probe before subject movement.

Proposed differences between varieties (repeated):

|  | DAT's visible $\varphi$-features | ordering at TP boundary |
| :--- | :--- | :--- |
| Icelandic A | $[\mathrm{PERS}]$ | $\pi$-probe $\triangleright\{\#$-probe, EPP mvmt $\}$ |
| Icelandic B | $[\mathrm{PERS}],[\mathrm{NUM}]$ | $\pi$-probe $\triangleright\{\#$-probe, EPP mvmt $\}$ |
| Icelandic C | $[\mathrm{PERS}],[\mathrm{NUM}]$ | $\pi$-probe $\triangleright \#$-probe $\triangleright$ EPP mvmt |

### 4.2 Deriving the Person Restriction

The $\pi$-probe as unvalued features [uPERS[uPART]], so in (19)(=9) it copies back features from both the dat and the nom. So, with two possible forms and no way to choose, there is a crash at spell-out. Unless there's syncretism! We'll return to this.
(19)

> * Honum likið pið
> him.DAT like.2pl you.nom.PL

Icelandic A


### 4.3 Deriving the Dative intervention effect

- expl-V-DAT-nom: With a 3pl nominative,
$\pi$ the $\pi$-probe will only ever agree with the dative;
\# dative will intervene if it is visible ( $\mathbf{B}, \mathrm{C}$ ).
(20) =(12a) Icelandic A, no intervention.

Pað likuðu einum málfræðingi pessar hugmyndir.
EXPL liked.3pl [one linguist].DAT [these ideas].nOM

(21) $=(12 b)$ Icelandic B/C, dative intervention

Pað líkaði einum málfræðingi pessar hugmyndir.
EXPL liked.3sG [one linguist].DAT [these ideas].NOM


|  | DAT-V-NOM.3PL | EXPL-V-DAT-NOM.3PL |
| :--- | :--- | :--- |
| Icelandic A num agree | yes | $\checkmark$ yes |
| Icelandic B num agree | optional | $\checkmark$ no |
| Icelandic C num agree | no | $\checkmark$ no |

Table 2: Number agreement accounted for so far

## Optionality in Icelandic B

- DAT-V-nom: When the dative moves to subject position (DAT-V-nom constructions), there is optional agreement in Icelandic B:
(22) $=(11 \mathrm{~b})$ optional agreement in Icelandic B að henni líkaði/likuðu peir that her.DAt liked.3sG/liked.3pL they.nom 'that she liked them'

This optionality is explained by the order ambiguity (\{\#-probe, EPP mvmt $\}$ ). That is, for Icelandic B there are two possible derivations:
i. With number greement = likuðu:

ii. Without number agreement = líkaði:


These two derivations are similar to what happens in Icelandic A, (EPP subject movement does not disrupt agreement, and the form will be spelled out 3pl $\Longrightarrow$ likuðu), and in Icelandic C (which will look precisely the same as the second option above).

|  | DAT-V-NOM.3PL | EXPL-V-DAT-NOM.3PL |
| :--- | :--- | :--- |
| Icelandic A num agree | $\checkmark$ yes | $\checkmark$ yes |
| Icelandic B num agree | $\checkmark$ optional | $\checkmark$ no |
| Icelandic C num agree | $\checkmark$ no | $\checkmark$ no |

### 4.4 Explaining the syncretism exception to the Person Restriction

- The syncretism exception: with a 1 st/2nd person form that is syncretic 3rd person (13, repeated in 23) the Person Restriction is lifted.


## (23) Henni leiddist ég/bú <br> her.dAT bored. $1+2+3$ sG I.NOM/you.sG.nOM

'She found me/you boring.'

- for Icelandic A:

- Icelandic B, the same possible when EPP before \#-probe:

- for \#-probe $\triangleright$ EPP (C and optionally B):



## 5 Predictions

## Syncretism in plural

(24) syncretism in the plural: judgments vary (reported in Sigurðsson, 1996, (70d)) Henni leiddust pið.
She.dat bored.2+3pl you.pl
Revisit the paradigm for leiðast, 'to find boring' (Table 1, p.3). There is syncretism in the singular, and also syncretism in the plural. This leads to an interesting prediction:

- Varieties should differ as follows, for 2pl nominative:
- for Icelandic A:
$\qquad$

- Icelandic B, the same possible when EPP before \#-probe:

- but, for \#-probe $\triangleright$ EPP (C and optionally B): choice between 2sG and 3sg (not 2 PL and 3 PL ). There is syncretism in the singular as well as the plural, so there is no clash, but the form is different:

- plural-agreeing form leiddust (2+3pl) should be available for Icelandic A and B speakers; non-agreeing form leiddist ( $1+2+3 \mathrm{sG}$ ) should be available for Icelandic B and C speakers;
Prediction: For Icelandic A
(25) Henni *leiddist/leiddust pið.

She.dAt bored. $1+2+3 \mathrm{sG} / 2+3$ pl you.pl
'She found you(pl) boring.'
Prediction: for Icelandic C
(26) Henni leiddist/*leiddust pið.

She.dAt bored. $1+2+3 \mathrm{sG} / 2+3$ pl you.pl
'She found you(pl) boring.'

- There may be evidence to support this in the data given by Sigurðsson, 1996, which shows a bimodal distribution of judgments, but these judgments have not been broken down by variety.
- Sigurðsson and Holmberg, 2008 discuss this very phenomenon, but don't use a simplex example, instead, their example is a complex ECM construction, where 3sg form is available as an alternative for all varieties (see §A.2).
$\Rightarrow$ This should be tested in future work. The general prediction: for Icelandic $\mathbf{C}$, the Person Restriction is lifted when there is syncretism between 3rd person and non-3rd person in the singular (even for plural nominatives).


## 6 Conclusions

- A feature gluttony approach to agreement can predict
- the person restriction
- the syncretism fix, speakers can "both eat their cake and have it too"
- reported variation in number agreement as being the result of variation in

1. the relative order of probing, subject movement
2. the visibility of a number feature on dative subjects

- This account makes a prediction about differences in the syncretism fix between varieties.
- Icelandic C will show syncretism fix only in the singular


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## A Appendix

## A. 1 Syncretism fix in other languages

A famous example is that of German free relatives, in which the wh-word must show the case selected for by the matrix verb, as well as the embedded verb. If the two cases being selected for differ, the sentence is ungrammatical, but can be saved by syncretism:
(27) Syncretism fix in German free relatives

Schütze, 2003, (300)
a. * Ich zerstöre ${ }_{A C C}$ [wer/wen mich ärgert ${ }_{\text {NOM }}$ ]
I destroy who.nOM/who.Acc me.Acc annoys
b. Ich zerstöre ${ }_{A C C}$ [was mich ärgert $_{\text {NOM }}$ ] I destroy what.nOM + ACC me.ACC annoys 'I destroy who(ever) annoys me.'

See also examples from Polish in Schütze, 2003, and discussion of German copular constructions in Coon and Keine, 2019.

## A. 2 Complex exceptional case marking constructions in Icelandic

Icelandic also has a complex ECM dat-nom construction, with raising verbs ${ }^{7}$
(28) Complex ECM construction, the Person Restriction
a. Honum mundu virðast[peir vera hæfir. him.DAT would.3pl seem they.NOM be competen 'They would seem competent to him’ (Icelandic A)
b. *Honum mundum virðast [við vera hæfir. ] him.dat would.1pl seem we.nom be competent
c. *Honum munduð virðast[pið vera hæfir.] him.dat would.2pl seem you.nom be competent

However, in complex ECM constructions, 3sG agreement is also possible (all varieties)
(29) Honum mundi virðast [ við/pið/peir vera hæfir. ] would.3sg
we/you/they.nom.PL

[^4]This has been explained as optional agreement of the verb with the infinitival complement (Sigurðsson and Holmberg, 2008). Preminger (2011) uses PLC that non-third person pronouns need to be licensed, but relativized, so that it only applies to a non3 rd person pronoun within a clause.

## Syncretism in the plural with complex ECM

- The examples given for syncretism in the plural by $\mathrm{S} \& H$ are given in a complex ECM setting:
(30) Henni virtist/virtust pið eitthvað einkennilegir her.DAT seemed. $1+2+3$ sG $/ 2+3$ PL you.nom.PL somewhat strange You seemed somewhat strange to her.
(31) Henni virtist/*virtumst við eitthvað einkennilegir. her.DAt seemed. $1+2+3 \mathrm{sG} / 1 \mathrm{PL}$ us.nom.pl somewhat strange 'We seemed somewhat strange to her.'

The current proposal's prediction of disagreement between varieties A and C is rather obscured in $(30,31)$ by the availability of the 3 sG form so, such multiclausal examples are not the most useful for the current proposal.

## A. 3 Long Distance Agreement via object shift

Holmberg and Hróarsdóttir, 2003 describe a phenomenon of long distance agreement that (with a plural nominative across a dative intervener) is possible if dative intervener is plural (as in 32a), in Icelandic B (which normally would disallow agreement across a dative intervener, as in 12b).

However, only certain dative interveners may be agreed across and not others (cf. 32b, (Kučerová, 2016)).
(32) a. Pað finnst/finnast mörgum stúdentum tölvurnar ljótar. EXPL find.3SG/.3PL many students.DAT computers.DEF.NOM ugly.NOM 'Many students find the computers ugly'
b. Pað finnst/*finnast fáum börnum tölvurnar ljótar. EXPL find.3sG/.3PL few children.DAT computers.DEF.NOM ugly.NOM 'Few children find the computers ugly'

Kučerová explains this apparent puzzle in detail, and resolves it as resulting from object shift: those datives which always block agreement are precisely those which can't undergo object shift.


[^0]:    *I would like to thank Jessica Coon for guidance and advice, and for her syntax course which launched this project. Thanks also to Stefan Keine, and the members of the McGill Syntax-Semantics reading group for helpful discussion and comments.
    ${ }^{1}$ as described in detail by Sigurðsson and Holmberg (2008). See also Taraldsen (1995), Holmberg and Hróarsdóttir (2003), and Ussery (2017).

[^1]:    ${ }^{2}$ There is significant evidence in the literature establishing that dative subjects are indeed subjects in these constructions and likewise that nominative objects are indeed objects (as discussed in Zaenen, Maling, and Thráinsson (1985) and others: See Bobaljik (2006) for a summary).
    ${ }^{3}$ Icelandic examples are from this source, unless otherwise stated.

[^2]:    ${ }^{4}$ These are examples from $\mathrm{S} \& \mathrm{H}$ are of embedded clauses, but this detail is not important: similar examples in matrix clauses are reported in the literature, for instance see Hartmann and Heycock, 2016.

[^3]:    ${ }^{5}$ The original description had number probing before person, but more recent work supports the other order.
    ${ }^{6}$ Either 1st or 2nd person may alternatively be unspecified beyond part. The details here are not important for the current analysis. All that's important here: first or second person features are a entail

[^4]:    ${ }^{7}$ Such verbs are: finnast 'think, feel, find, consider'; virðast 'seem'; heyrast '(seem to) hear', 'sound as if'; skiljast '(get to) understand'; sýnast 'seem (to see/look)'; pykja 'find, seem, think (that)'; reynast 'prove (to be ...)' (Sigurðsson and Holmberg, 2008).

