

2 Icelandic passives and phase-based case assignment

We outline our approach to Icelandic passives and case, and show the unique problem for case assignment that arises in the passive of ditransitives.

2.1 Canonical passive

- Icelandic has four cases: **nominative**, **accusative**, **dative** and **genitive**.
- These cases are decomposed into smaller features (Müller 2005)

(4)	$[-n, -v, -obl]$	(NOM)	Structural/non-oblique cases
	$[-n, +v, -obl]$	(ACC)	
	$[-n, +v, +obl]$	(DAT)	Lexical/oblique cases
	$[+n, +v, -obl]$	(GEN)	

- **Structural cases** are both $[-n, -obl]$
- Nominative is $[-v]$, Accusative is $[+v]$

- The canonical passive promotes the object to subject position.

(5) Canonical active-passive pair (single object) Nom-Acc

- a. Ég las **þessa bók** um jólin.
I read **this.ACC book.F.SG.ACC** during Christmas
'I read this book over Christmas.'
- b. **Þessi bók** var **lesin** um jólin.
this.NOM book.F.SG.NOM was **read.F.SG.NOM** during Christmas
'This book was read over Christmas.'

- The accusative object becomes nominative.
- The verb and participle agree with the derived nominative.
- Following (the spirit of) E.F. Sigurðsson 2017, structural case assignment involves two steps:
 - ➊ Agree (determines either NOM or ACC)
 - ➋ Dependent case (chooses between NOM and ACC)

2.1.1 Agree

- We follow Harbour's (2008b, 2011) conception of valuation in Agree.
 - All features are present at the start of a derivation.
 - Agree *removes features* (rather than adding them).

(6) Unvalued features

$$H_{[uF]} = H_{[+F, -F]}$$

'A feature F on a head H is unvalued if that head contains both $[+F]$ and $[-F]$.'

(7) Valuation under Agree

$$X_{[+E, -F]} \dots Y_{[+F]} \rightarrow X_{[+F]} \dots Y_{[+F]}$$

↑
Agree

'When $X_{[+E, -F]}$ enters into Agree with $Y_{[+F]}$, the result is $X_{[+F]}$ and $Y_{[+F]}$.'

- **Important:** Valuation under Agree amounts to the intersection of features.
 - If valuation does not occur, all features are retained.
 - This is in principle independent of directionality, probe vs. goal, and other aspects of Agree. It is just an account of how *valuation* works.

2.1.2 Case

- We propose that part of case-feature valuation is done in the syntax by Agree.
 - DPs start out with unvalued case features in syntax: $[+n, -n][+v, -v][+obl, -obl]$
- (8) **Case Assignment by Agree**
 - A head that assigns case has the case features it assigns.
 - Case assignment in the syntax is Valuation under Agree.

- For example, **v** assigns the features shared by NOM/ACC, namely $[-o, -n]$.
 - Therefore, $v = v_{[-o, -n]}$.
 - When $v_{[-o, -n]}$ enters into Agree with a DP, it values just the features it has.
 - It doesn't have a $[+v, -v]$ feature, so it leaves $[+v, -v]$ unspecified.^{2,3}

(9) **v** assigns “structural case”

- a. $[_{VP} v_{[-o, -n]} \dots DP_{[+v, -v][+n, -n][+o, -o]}] \rightarrow$

 b. $[_{VP} v_{[-o, -n]} \dots DP_{[+v, -v][-n][-o]}]$

2.1.3 Dependent Case

- Traditionally, according to Dependent Case Theory (DCT), the distinction between NOM and ACC is determined post-syntactically by a disjunctive hierarchy.
 - In our analysis, the distinction is encoded by $[+v]$ (=ACC) and $[-v]$ (=NOM).
 - Therefore, we formulate the dependent case algorithm as follows:

Dependent Case Algorithm

For a non-oblique DP_2 which is $[+v, -v] \dots$

(10) $DP_{2[+v, -v]} \rightarrow DP_{2[+v]} / [_{XP} DP_{1[-n, -obl]} [\dots _]]$ =**Dependent accusative**

Assign $[+v]$ (=ACC) in the context of a non-oblique DP_1 that c-commands DP_2 '

(11) $DP_{2[+v, -v]} \rightarrow DP_{2[-v]} / [_{TP} T [\dots _]]$ =**Environment-sensitive nominative**

Assign $[-v]$ (=NOM) in the context of T '

→ These rules are ordered and disjunctive: (10) applies before (11).

² We remain for present purposes agnostic as to whether v or DP is the probe for this Agree relation, as well as whether this is parasitic on a distinct Agree relation (e.g. in phi-features). For this proposal, what matters is that v and DP enter into Agree for the features indicated.

³ Of course, v has categorial v features, but we assume this is distinct from the case feature $[\pm v]$ (sometimes instead called $[\pm inferior]$).

→ Returning to our active/passive pair:

(12) Canonical active-passive pair (single object) Nom-Acc

a. Ég las þessa bók um jólin.
 I read this.ACC book.FSG.ACC during Christmas
 ‘I read this book over Christmas.’

b. Þessi bók var lesin um jólin.
 this.NOM book.FSG.NOM was read.FSG.NOM during Christmas
 ‘This book was read over Christmas.’

(13) **Active:** the object meets the structural description for $[+v]$ (ACC) in (10)

$[_{CP} C [_{TP} T [_{VoiceP} DP_{[-v][-n][-o]} [_{VP} v_{[-o, -n]} \dots DP_{[+v][-n][-o]}]]]]$

 Context for Dependent Case

(14) **Passive:** the object meets the structural description for $[-v]$ (NOM) in (11)

$[_{CP} C [_{TP} T [_{VoiceP} [_{VP} v_{[-o, -n]} \dots DP_{[-v][-n][-o]}]]]]$

 Context for Environment-Sensitive Nominative

- **One crucial difference** between our proposal and traditional DCT arises when neither (10) nor (11) applies.
 - In traditional DCT, the DP would get an “elsewhere” default case.
 - In our proposal, this is not available because two of the three case features have already been valued.

Key points

- 1 At spell-out, DPs with structural case have the features $[+v, -v, -n, -obl]$.
- 2 PF interprets structural case as **nominative** ($[-v, -n, -obl]$) or **accusative** ($[+v, -n, -obl]$) based on the structural context.
 - This takes place prior to operations like Linearization and Vocabulary Insertion.
- **Next** we turn to ditransitives to show how a structure can “cut off” the object DP so that it can't get nominative or accusative.

2.2 Passive of ditransitives

- Canonical ditransitive passives allow promotion of either dative indirect object or accusative direct object.
- The structural-case argument is realized in the nominative in the passive, but the dative argument is the same in the active and passive (15).

(15) *Standard active-passive triplet (double object)*

- Hún** gaf börnunum **spilastokk** í jólagjöf.
she gave children.the.DAT **cardbox.MASC.SG.ACC** in Christmas.gift
'She gave the children playing cards for Christmas.'
- Spilastokkurinn** var **gefinn** börnunum í jólagjöf.
cardbox.the.M.SG.NOM was **given.MASC.SG** children.the.DAT in Christmas.gift
'Playing cards were given to the children for Christmas.'
- Börnunum** var **gefinn** **spilastokkur** í jólagjöf.
children.the.DAT was **given.FEM.SG** **cardbox.MASC.SG.NOM** in Christmas.gift
'The children were given playing cards for Christmas.'

Proposal

- Case domains are derived from phases.
- Phase extension can play a crucial role in whether a DP is visible for case assignment.

(16) **Ditransitive structure:**

$[_{CP} C [_{TP} T [_{VoiceP} DP_1 Voice [_{VP} v [_{AppIP} DATIVE Appl DP_2]]]]]$

(17) **Key assumptions about phases**

- 1 **C, Voice** and **low Appl** are generally **phase heads** (Φ) in Icelandic.⁴
- 2 A phase is spelled out when next phase is merged (**PIC2**; Chomsky 2001).
- 3 **Low Appl** can **extend the phase** by head-moving to Voice (den Dikken 2006, 2007; Wood and H.Á. Sigurðsson 2014).

- In *active ditransitives*, Appl extends phase by moving to v, then to Voice (18)–(19).

⁴ Pyllkkänen (2008) argues for two varieties of Appl heads: High and Low. Wood (2015) argues that Icelandic has no high Appl head.

- (18) **Hún** gaf börnunum **spilastokk** í jólagjöf.
she gave children.the.DAT **cardbox.MASC.SG.ACC** in Christmas.gift
'She gave the children playing cards for Christmas.'

(19) **Active ditransitive**

$[_{CP} C_{\Phi 3} [_{TP} T [_{VoiceP} DP_1 Voice_{\Phi 2} [_{VP} v [_{AppIP} DATIVE Appl_{\Phi 1} DP_2]]]]]]$

→ **Phase extension**

$[_{CP} C_{\Phi 3} [_{TP} T [_{VoiceP} DP_1 Appl+v+Voice_{\Phi 1=\Phi 2} [_{VP} \langle v \rangle [_{AppIP} DATIVE \langle Appl_{\Phi 1} \rangle DP_2]]]]]]$

→ In (19), DP₂ is potentially sensitive to DP₁ or T (due to PIC2).

→ Since dependent **accusative** applies first, DP₂ is assigned [+v].

- **Canonical passive ditransitives** also have phase extension to Voice.

(20) **Passive ditransitive**

$[_{CP} C_{\Phi 3} [_{TP} T [_{VoiceP} Voice_{\Phi 2} [_{VP} v [_{AppIP} DATIVE Appl_{\Phi 1} DP_2]]]]]]$

→ **Phase extension**

$[_{CP} C_{\Phi 3} [_{TP} T [_{VoiceP} DP_1 Appl+v+Voice_{\Phi 1=\Phi 2} [_{VP} \langle v \rangle [_{AppIP} DATIVE \langle Appl_{\Phi 1} \rangle DP_2]]]]]]$

- However, *the theme is the only unmarked DP*, so it can't be accusative. It receives **nominative** ([−v]) since it is local to T.

Key points

- 1 Phase extension of Appl makes T visible to the its complement.
- 2 This allows the object DP in passives of to be assigned nominative case ([−v]).

3 Reflexive passive as an inaccessible phase

- When the dative of a ditransitive is a simplex reflexive, there is no single, standardized way to passivize it.

(21) Þau fengu sér **öllara**.
they got REFL.DAT beer.M.SG.ACC
'They got themselves a beer.'

- Some speakers allow accusative, while others allow nominative.

(22) a. %^A Það var { *fengið* / **fenginn* } sér **öllari**.
EXPL was got.DFLT / *got.M.SG oneself.DAT beer.M.SG.NOM
'People got themselves a beer.'

b. %^B Það var *fengið* sér **öllara**.
EXPL was got.DFLT oneself.DAT beer.M.SG.ACC
'People got themselves a beer.'

→ No matter what the case a speaker prefers, no speaker allows the normal participial agreement, not even with the nominative.

- Even more puzzling, some speakers only accept it if the object is syncretic for NOM/ACC.

(23) %^C Það var *fengið* sér **bjór**.
it.EXPL was got.DFLT oneself.DAT beer.MASC.SG.NOM/ACC
'People got themselves a beer.'

- The key to the syncretism puzzle lies in the answer to the question:

Why is there case variation in the passive of reflexive ditransitives to begin with?

- Reflexive ditransitives are built by special kind of Appl head (see Wood and Zanuttini 2018; Wood 2023).
- This Appl head *cannot undergo head-movement*, and thus cannot extend the ApplP phase (24).⁵

⁵ In the passive, head-movement creates problems for the reflexive interpretation due to the lack of a syntactic antecedent, and movement of the DP object past the reflexive is impossible for similar reasons. See Schäfer (2012) for discussion of how passives of reflexives are interpreted.

(24) Passive of reflexive ditransitive

$$[_{CP} C_{\Phi 3} [_{TP} T [_{VoicePassP} Voice_{\Phi 2} [_{VP} v [_{AppIP} REFL.DAT Appl_{\Phi 1} DP_2]]]]]]$$

→ *No phase extension*

- Direct object DP₂ in (24) *neither qualifies for [+v]*—no local, unvalued DP—*nor [-v]* as DP₂ is not local to T.

⇒ **This is the central characteristic of this construction:**

DP₂ is spelled out as [+v, -v][−n][−obl].

- But Icelandic DPs *must have non-contradictory case features* in order to be pronounced.

Support from the New Impersonal Passive

- The account correctly predicts that the syncretism repair found in Grammar C only works in the presence of an Appl head.
 - We can illustrate this point with the so-called *New Impersonal Passive* (NIP) (Maling and Sigurjónsdóttir 2002; Eythórsson 2008; Jónsson 2009; Legate 2014).
 - The NIP is non-standard and unacceptable for many speakers.
 - It is characterized by default agreement and an in-situ direct object which is accusative and can be definite (25).

(25) % Það var *bedið* **mig** að vaska upp.
it.EXPL was asked.DFLT me.ACC to wash up
'I was asked to do the dishes.' (Maling and Sigurjónsdóttir 2002:112)

- However, we assume that this is a different construction. It has been argued that there is either...
 - a silent external argument DP (Maling and Sigurjónsdóttir 2002),
 - a silent external argument ϕ P (E.F. Sigurðsson 2017; Legate 2014), or
 - a ϕ -feature bundle involved with accusative-case assignment (Schäfer 2012).⁶

⁶ See also H.Á. Sigurðsson (2011), where the connection to case is indirect, but ϕ -features are still present.

(26) **New Impersonal Passive**

[VoiceP ϕ P_{NOM} Voice [_{vP} v DP_{ACC} ...]]

→ Essentially, we would assume that accusative case comes from the “hidden transitive” structure of the New Impersonal Passive.

- That is to say, the structure is never spelled out with [+v, -v].
- Given the speaker variation, and that case is part of what makes the construction stand out, we might have imagined that some speakers would accept it only when the object is syncretic for NOM/ACC.

⇒ In fact, however, **we do not find such speakers.**⁷ People either:

- accept the construction with accusative, or
- reject it altogether.

• Our account correctly predicts this:

- In (26), there is no ApplP that “cuts off” the DP from the higher structure.
- As a result, the DP always gets a specification for [+v].
- Repair is never an issue (there is nothing to repair), so syncretism repair is not among the options for “saving” the structure (there is nothing to save).

• Returning reflexive ditransitives, we propose that some of the speaker variation is accounted for by deleting one of the two contradictory features, see (27).

(27) Input: DP _[+v, -v, -n, -obl]		
	Delete	Result
A	[+v]	[-n, -v, -obl] (NOM)
B	[-v]	[-n, +v, -obl] (ACC)

- Grammar A deletes [+v], resulting in NOM.
- Grammar B deletes [-v], resulting in ACC.
- But what about Grammar C?

⇒ For this, we must turn to ameliorative syncretism effects more broadly.

⁷ We also do not find speakers who accept it with NOM, and still have other features of the construction, including non-movement and non-agreement.

Key points

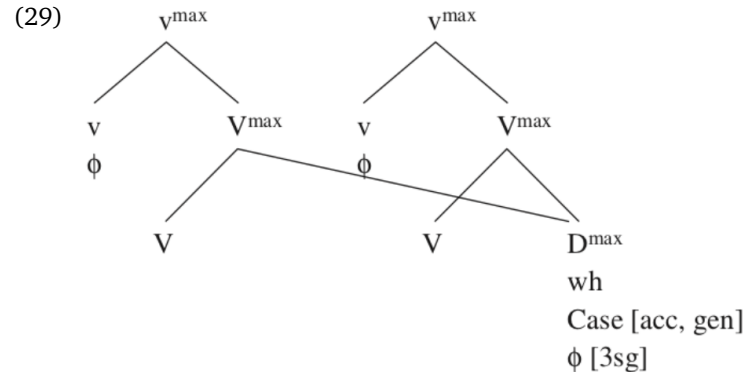
- ❶ “Reflexive” Appl does not undergo phase extension.
- ❷ As a result, the DP object is not visible to T, so it cannot get nominative case.
- ❸ Some speakers can delete [+v] or [-v], but we still need an account of the syncretism effects.

4 Ameliorative Syncretism

• It has long been observed that morphological syncretism can sometimes seem to make a construction possible that would otherwise not be possible.

- (28) a. * {Czego / Co } Jan nienawidzi __ a Maria lubi __?
 {whom.GEN / whom.ACC } Jan hates GEN and Maria likes ACC
 INTENDED: ‘Who does Jan hate and Maria like?’
- b. Kogo Jan nienawidzi __ a Maria lubi __?
 whom.ACC/GEN Jan hates GEN and Maria likes ACC
 ‘Who does Jan hate and Maria like?’ (Citko 2005:487)

• Most work that touches on ameliorative syncretism has been vague about exactly how it works, even when the intuition is clear.

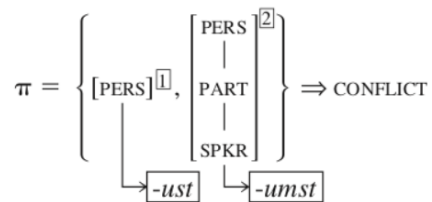


(Citko 2005:488)

“I assume that lexical items are inserted postsyntactically during Spell-Out, following the Distributed Morphology framework [...] Since the lexicon contains a single form that is compatible with both accusative and genitive case features by virtue of underspecification, vocabulary insertion can proceed without any problems.”
(Citko 2005:487–488)

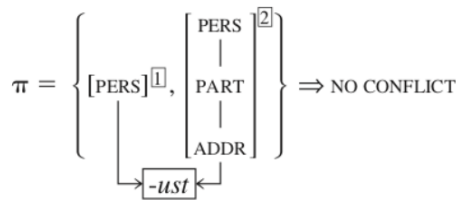
- Coon and Keine (2021) say something similar, with respect to agreement effects with nominative objects in Icelandic.

(30) *Gluttonous π-probe in (80) (in context of plural number agreement)*



“Because only a single VI can be inserted into a syntactic head, these conflicting demands lead to ineffability and hence ungrammaticality [...]”
(Coon and Keine 2021:697)

(31) *Gluttonous π-probe in (84a) (in context of plural number agreement)*



“Due to the syncretism pattern of the verb, both 3rd person and 2nd person agreement demand the same VI [...] There is hence no conflict between the morphological requirements of the two values, and it is possible to simultaneously satisfy both by inserting a single VI.”
(Coon and Keine 2021:698–699)

- Bjorkman (2021) points out that it is actually a problem for most theories, including post-syntactic theories like DM (but a bigger problem for at least some lexicalist theories).

- To show why it is a problem, and what our solution is, we first must present our general system for spellout.

5 The System in a Nutshell

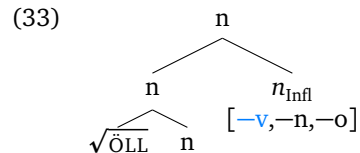
- We follow a fairly standard set of DM assumptions about spellout, but there are a few details worth emphasizing, and at least one crucial innovation that we adopt from Soares (2023).
- Moreover, we follow the analysis of Icelandic noun inflection in Müller (2005) as closely as possible, although we simplify things quite a lot for presentational purposes.⁸
- We assume a model of Spellout with several stages:

(32) Spellout Mechanisms

- Build Syntax Tree
- Manipulate Tree
- Map to Linearization Statements
- Manipulate Linearization Statements
- Vocabulary Insertion

- We illustrate with the Weak Masculine Noun *öll-ar-i* ‘beer’ in the nominative.

- First, we assume that *öllari* ‘beer’ has the following syntactic structure:



- In this example, there is no necessary manipulation of the syntax tree, but this could include Lowering, M-Merger, Fission, etc. (Anything that manipulates the nodes of the tree.)

- The next step would be to map the tree onto a set of linearization statements.

⁸ Some details will differ, for example the way that we treat Fission. However, the analysis, in terms of what the VIs are and what features they realize, will be the same.

- (34) List of Linearization Statements:
 $\{\langle \sqrt{\text{ÖLL}}, [n] \rangle, \langle [n], n_{\text{infl}}[-v, -n, -o] \rangle\}$

→ Some important assumptions we make about these statements:

(35) **Assumptions about Linearization Statements**

- The order pair corresponds to *Immediate Precedence*
- These are a **set of formal objects** that can be manipulated.
- They constitute a set of instructions to PF. $\langle A, B \rangle$ can be read as “Linearize the phonological features of A to the immediate left of the phonological features of B.”

– For our purposes, we could, instead of using order pairs, place each terminal in an unordered set, and add formal features to specify how it should be linearized.

(36) Feature-based list of linearization statements

$$\left\{ \begin{array}{l} [\sqrt{\text{ÖLL}}, \text{iPRECEDE: } n] \\ [[n], \text{iPRECEDE: } n_{\text{infl}}] \\ [n_{\text{infl}}[-v, -n, -o], \text{iPRECEDE: } \#] \end{array} \right\}$$

– At this point, operations that manipulate Linearization Statements could apply, which could include Linearization itself or other aspects of the feature structure (e.g. Impoverishment).

- We then do Vocabulary Insertion, where phonological features are added.

(37) **Three Options for the output of Vocabulary Insertion**

- Retain no formal features (Bobaljik 2000):
 $n_{\text{infl}}[-v, -n, -o] \rightarrow /i/$
- Retain all formal features (Embick 2015):
 $n_{\text{infl}}[-v, -n, -o, Q] \rightarrow n_{\text{infl}}[-v, -n, -o, /i/]$
- Retain features that specified insertion (Soares 2023):
 $n_{\text{infl}}[-v, -n, -o] \rightarrow n_{\text{infl}}[-v, -n, /i/]$

- Here we adopt a crucial assumption from Soares (2023): the output of VI retains all and only the features that specified insertion.

– What is nice about Soares’s proposal is that it allows us to think of a Vocabulary Item as a pair of formal features and phonological features; Vocabulary Insertion then simply substitutes or replaces one feature set (without phonological features) with another one (with phonological features).

(38) VIs for Singular Weak Masculine Nouns

- $/ar/ \leftrightarrow [n] / \{ \sqrt{\text{ÖLL}}, \dots \} _$
- $/i/ \leftrightarrow n_{\text{infl}}[-pl, -n, -v]$
- $/a/ \leftrightarrow n_{\text{infl}}[-pl]$

(39) Vocabulary Insertion

$$\left\{ \begin{array}{l} \langle [\sqrt{\text{ÖLL}}, /öl/], [n, /ar/] \rangle, \\ \langle [n, /ar/], n_{\text{infl}}[-v, -n, /i/] \rangle \end{array} \right\}$$

- Finally, the phonological features added in the Vocabulary Insertion process are strung together into a phonological string (to be manipulated by phonology). Embick (2010) calls this “Chaining”, and we assume that the immediate precedence instructions are followed at this point.
- In this case, $/öl/$ precedes $/ar/$, forming $/öl-ar/$ and $/ar/$ precedes $/i/$, forming $/öl-ar-i/$.

Key points

- Linearization Statements are a set of formal objects with information about immediate precedence.
- Vocabulary Insertion retains the features specified by the Vocabulary Item.

6 Why we can’t keep or delete both

- We now return to why getting syncretism effects from a feature bundle like $[+v, -v, -n, -o]$ is not straightforward.
- First we show why we can’t simply keep all the features and realize the bundle in the normal way.
- We then show why we cannot simply delete all the contradictory features.

6.1 Why we can’t keep both

- As Bjorkman (2021) correctly points out, simply keeping both features, in this case $[+v]$ and $[-v]$, won’t get the right results.

– DM is set up to realize feature bundles with underspecified Vocabulary Items.

→ So “out of the box”, a feature bundle like $[+v, -v][-n][-o]$ is likely to find some realization, at least most of the time.

• For example, consider the VIs for weak singular nouns:

(40) VIs for Weak Nouns⁹

- a. $/i/ \leftrightarrow n_{\text{infl}}[-pl, +\text{masc}, -n, -v]$
- b. $/u/ \leftrightarrow n_{\text{infl}}[-pl, +\text{fem}, +v]$
- c. $/a/ \leftrightarrow n_{\text{infl}}[-pl]$

– A weak feminine noun with $[+v, -v][-n][-o]$ would have no trouble being realized as (56b), a weak masculine as (56a), etc.

→ The point is that getting extra features isn’t normally going to cause a problem VI in DM, and it certainly won’t get syncretism effects.¹⁰

• So in our own previous work, drawing connections with Hein and Murphy (2020), we proposed as a first pass that both features would be deleted, leading to syncretism effects, because only nouns that are unspecified for $[\pm v]$ would be allowed.

6.2 Why we can’t delete both

• However, if we delete both $[+v]$ and $[-v]$, we make some odd predictions. Consider once again the VIs for weak nouns.

(41) VIs for Weak Nouns

- a. $/i/ \leftrightarrow n_{\text{infl}}[-pl, +\text{masc}, -n, -v]$
- b. $/u/ \leftrightarrow n_{\text{infl}}[-pl, +\text{fem}, +v]$
- c. $/a/ \leftrightarrow n_{\text{infl}}[-pl]$

– The VI in (56c) is effectively an Elsewhere VI for singulars.

– If $[-v]$ and $[+v]$ are both deleted, the prediction is that (56c) will show up for both masculine and feminine nouns.

⁹ Here and elsewhere, we omit the $[+weak]$ feature for exposition.

¹⁰ The only way it could be a problem would be if it made two VIs equally specified for insertion, which is normally resolved with extrinsic ordering statements or ordering based on markedness. See Kratzer (2009) for one proposal where this leads to an ineffable spellout dilemma.

• Descriptively, it would look like the nominative form would be chosen for feminine nouns, and the accusative form would be chosen for masculine nouns.

(42)

	Masculine ‘beer’	Feminine ‘cucumber’	Neuter ‘eye’
NOM	öllar-i	gúrk-a	aug-a
ACC	öllar-a	gúrk-u	aug-a
DAT	öllar-a	gúrk-u	aug-a
GEN	öllar-a	gúrk-u	aug-a

(43) Hypothetical (Nonexistent) Speaker

- a. Það var fengið sér { *öllar-i / öllar-a }
EXPL was gotten REFL.DAT { *beer-M.NOM / beer-M.ACC }
- b. Það var fengið sér { gúrk-a / *gúrk-u }
EXPL was gotten REFL.DAT { cucumber-F.NOM / *cucumber-F.ACC }

• In principle some third form could come popping out, if VIs specify both nominative $[-v]$ and accusative $[+v]$ are specified, and there is some other elsewhere morpheme for case.

– For NOM/ACC in particular, there are no cases of this in Icelandic that we are aware of, but something like this could arise for other case syncretisms.¹¹

Key points

- ❶ We can’t keep all the conflicting features. This would cause no problems for Vocabulary Insertion and create no syncretism effects.
- ❷ We can’t delete all the conflicting features. This would lead to overuse of elsewhere VIs and create no syncretism effects.

7 The Syncretism Effect

• To address these kinds of problems, Asarina (2011, 2013) and Bjorkman (2016) have proposed that ameliorative syncretism can arise when two separate feature bundles occupy one head.

¹¹ In Müller’s (2005) system, adopted here, if dative and genitive occurred on the same head, and the conflicting features were deleted, the result would be nominative in the plural of two inflection classes.

- We illustrate this below with the *go get* construction in Marsalese.

- (44) a. Vaju a pigghiu u pani.
 go.1SG to fetch.1SG the bread
 'I go and fetch the bread.'
 b. *Emu a pigghiamu u pani.
 go.1PL to fetch.1PL the bread
 'We go and fetch the bread.'

– Bjorkman proposes that in these constructions, the verb has two feature bundles, with distinct inflectional features: [INFL:DIR] and [INFL:PRES].

– Each feature bundle undergoes its own round of Vocabulary Insertion. The result is only grammatical if both “rounds” choose the same Vocabulary Item.

(45)

	GO [INFL:DIR] [φ:1,SG]	GO [INFL:PRES] [φ:1,SG]	
...			
<i>e-</i> ↔ [PAST]	–	–	
<i>e-</i> ↔ [PRES]/[1,PL]	–	–	
<i>i-</i> ↔ [PRES]/[2,PL]	–	–	
<i>va-</i> ↔ elsewhere	<i>va-</i>	<i>va-</i>	
...			
<i>-u</i> ↔ [1SG]	<i>vaju</i>	<i>vaju</i>	← identical realization
...			

(Bjorkman 2016:84)

(46)

	GO [INFL:DIR] [φ:1,PL]	GO [INFL:PRES] [φ:1,PL]	
...			
<i>e-</i> ↔ [PAST]	–	–	
<i>e-</i> ↔ [PRES] [1,PL]	–	<i>e-</i>	
<i>i-</i> ↔ [PRES] [2,PL]	–	–	
<i>va-</i> ↔ elsewhere	<i>va-</i>	–	
...			
<i>-mu</i> ↔ [1PL]	<i>vamu</i>	<i>emu</i>	← conflicting realization
...			

(Bjorkman 2016:84)

Where does the second feature bundle come from?

- Bjorkman stipulates the creation of a second feature bundle as a consequence of a second Agree relation.

(47) “If a head enters Agree relations that give it conflicting values for any node in a feature geometry, the result is the creation of a second geometry.”
 (Bjorkman 2021)

- Notice that when a second geometry is created, all the other irrelevant features must be copied.

→ However, in the present case, there is no Agree relation that creates the conflict.

- Bjorkman’s analysis is an important step forward, but it leaves open the questions:

Why do we get two feature bundles?
 → **Our answer:** Conflicting features are subject to a kind of Fission which applies after linearization.

What enforces the ‘same Vocabulary Item’ requirement?
 → **Our answer** (from Soares 2023): Linearization will be impossible unless the same Vocabulary Item is used on both feature bundles.

- Soares (2023) proposes two feature bundles result from a process that she refers to as **Individuation**.
- Just like with Bjorkman’s proposal, in order for Individuation to have the desired effect, in her system, it is necessary that the non-conflicting features are copied onto the second feature bundle. In the present case:

(48) [+v, -v, -n, -o] → [-v, -n, -o] [+v, -n, -o].

- Then we say the same thing that Bjorkman and Soares say: If Vocabulary Insertion picks out the same VIs for both bundles, the result is grammatical.

→ The question remains: *Why?*

Why do Individuation in the first place? Why not just keep the “bag of features” and do the normal DM thing (with underspecifications, elsewheres, etc.)?

→ *Clearly this happens with portmanteau morphology.*

Why does Individuation lead to syncretism effects? Why wouldn't it lead to insertion of multiple VIs?

→ *This is what usually happens with Fission.*

- We will now try to address these questions by proposing a kind of unification of Individuation and Fission.

8 Individuation and Fission

- The DM literature has proposed distinct kinds of Fission.
 - There is a pre-VI kind that operates on feature bundles in tree structures, and creates new nodes (Halle and Marantz 1993; Arregi and Nevins 2012; Hewett 2023a,b).
 - There is another kind that operates at VI, and “splits off” features that aren't realized (Noyer 1992; Halle 1997; Harbour 2008a).
- Individuation as proposed by Soares (2023) most resembles the pre-VI kind, so we will focus on that.
- Hewett (2023b:133) proposes the following general schema for “Fission-triggering constraints”:

(49) **Fission-triggering morphotactic constraints**

* α, β , where α and β are variables over nonempty (sub-)sets of features (indicated by square brackets ‘[...]’) in the feature set \mathcal{M} of a given morpheme.

→ The intuition is that Fission applies in the context of marked feature combinations—i.e., combinations of features that don't “want” to occur on the same node (at least in the grammar of a particular language).

- For example, he proposes the following constraint ϕ -feature exponence in Semitic:¹²

(50) **Semitic morphotactic constraint on joint ϕ -feature exponence**
*[-author][\pm singular]

- Hewett (2023b) then defines Fission as follows:

(51) **Fission**

Given an input node with feature set \mathcal{M} bearing two antagonistic sets of features α and β targeted by the Fission rule, Fission will split up α and β into two distinct output nodes m_1 and m_2 and copy all other non-targeted sets of features ϕ into both m_1 and m_2 .

- In Semitic, a single node containing [-author] and [\pm singular] will be split into two nodes. Remaining ϕ -features (e.g. [\pm part] are copied. For example:

(52) [-auth,+sg,+part] →

```

graph TD
    A["[-auth,+sg,+part]"] --> B["[-auth,+part]"]
    A --> C["[+sg,+part]"]
    
```

→ *It is striking that in Fission, Bjorkman's additional feature bundle and Soares's Individuation, the same thing happens with the “extra” features: they are copied to the new bundle.*

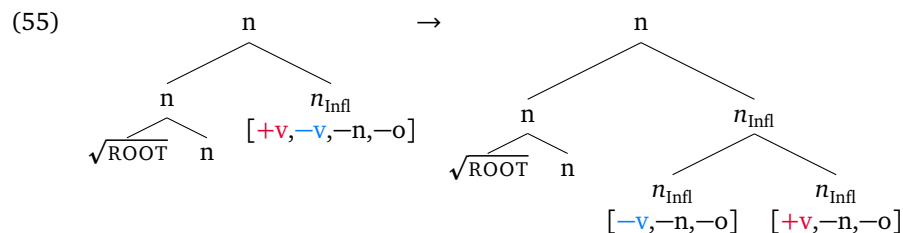
(53)

	Fission	Individuation
Creates two feature bundles	Yes	Yes
Creates two loci for Vocabulary Insertion	Yes	Yes
Creates two slots for realizing VIs	Yes	No

¹²He actually writes [α singular] where we write \pm , but we take this difference to be immaterial.

- If our instances of case were a simple example of Fission, it would look like this:¹³

(54) **Icelandic morphotactic constraint on case-feature exponence**
 $*[-v][+v]$

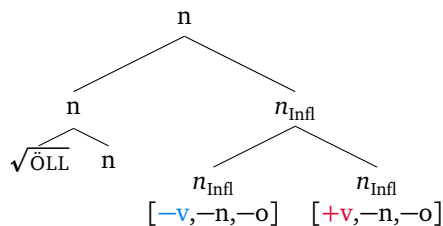


– But then, we would expect the structure to feed linearization, and perhaps the two case-morphemes would appear next to each other.

– For example, if we did this with a Weak Masculine Noun like *öll-ar-i* ‘beer’:

(56) VIs for Weak Masculine Nouns

- $/i/ \leftrightarrow n_{Infl}[-pl, +masc, -n, -v]$
- $/a/ \leftrightarrow n_{Infl}[-pl]$



a. **List of Linearization Statements**

$$\left\{ \langle \sqrt{\text{öll}}, n \rangle, \langle n, n_{Infl}[-v, -n, -o] \rangle, \langle n_{Infl}[-v, -n, -o], n_{Infl}[+v, -n, -o] \rangle \right\}$$

b. **Vocabulary Insertion**

$$\left\{ \langle \sqrt{\text{öll}}, [n, /ar/] \rangle, \langle [n, /ar/], n_{Infl}[-v, -n, /i/] \rangle, \langle n_{Infl}[-v, -n, /i/], n_{Infl}[+v, -n, /a/] \rangle \right\}$$

c. **Chaining**

$/\text{öll-ar-i-a}/ \rightarrow$ **Wrong Result!**

¹³We assume that the output nodes will be split into a binary branching daughter of the original node. Note that Halle and Marantz (1993) assumed that the Fissioned node creates a ternary branching node of the original root node. The distinction doesn't make a difference here.

- Suppose instead that the relevant morphosyntactic constraint goes into effect after linearization statements are generated.

(57) **Icelandic morphotactic constraint on case-feature exponence**

$$* \langle \alpha, [-v][+v] \rangle$$

$$* \langle [-v][+v], \alpha \rangle$$

(58) a. **List of Linearization Statements**

$$\left\{ \langle \sqrt{\text{ROOT}}, [n] \rangle, \langle [n], n_{Infl}[+v, -v, -n, -o] \rangle \right\}$$

b. **Fission/Individuation of Conflicting Features**

$$\left\{ \langle \sqrt{\text{ROOT}}, [n] \rangle, \langle [n], n_{Infl}[-v, -n, -o] \rangle, \langle [n], n_{Infl}[+v, -n, -o] \rangle \right\}$$

→ The “Fission” in this case copies the entire ordered pair.

- This creates the potential for a conflict: when these statements are mapped to phonological strings, **[n] has to immediately precede two distinct formal objects.**

(59) a. **List of Linearization Statements**

$$\left\{ \langle \sqrt{\text{öll}}, [n] \rangle, \langle [n], n_{Infl}[-v, +v, -n, -o] \rangle \right\}$$

b. **Fission/Individuation of Conflicting Features**

$$\left\{ \langle \sqrt{\text{öll}}, [n] \rangle, \langle [n], n_{Infl}[-v, -n, -o] \rangle, \langle [n], n_{Infl}[+v, -n, -o] \rangle \right\}$$

c. **Vocabulary Insertion**

$$\left\{ \langle \sqrt{\text{öll}}, [n, /ar/] \rangle, \langle [n, /ar/], n_{Infl}[-v, -n, /i/] \rangle, \langle [n, /ar/], n_{Infl}[+v, -n, /a/] \rangle \right\}$$

d. **Chaining: Ineffable**

→ The linearization statements say two incompatible things, so the result is ungrammatical/ineffable.

- If VI replaces both of them with the same exponent, however, as is the case with the neuter *auga* ‘eye’:

(60) a. **List of Linearization Statements**

$\{\langle \sqrt{\text{AUG}}, [n] \rangle, \langle [n], n_{\text{Infl}}[-v, +v, -n, -o] \rangle\}$

b. **Fission/Individuation of Conflicting Features**

$\left\{ \begin{array}{l} \langle \sqrt{\text{AUG}}, [n] \rangle, \langle [n], n_{\text{Infl}}[-v, -n, -o] \rangle \\ \langle [n], n_{\text{Infl}}[+v, -n, -o] \rangle \end{array} \right\}$

c. **Vocabulary Insertion**

$\left\{ \begin{array}{l} \langle \sqrt{\text{AUG}}, [n] \rangle, \langle [n], n_{\text{Infl}}[/a/] \rangle \\ \langle [n], n_{\text{Infl}}[/a/] \rangle \end{array} \right\}$

d. **Set Reduction**

$\{\langle \sqrt{\text{AUG}}, [n] \rangle, \langle [n], n_{\text{Infl}}[/a/] \rangle\}$

e. **Chaining**

$/\text{aug}-a/$

→ The linearization statements are fully compatible, so the result is grammatical.

- The key here is that Vocabulary Insertion removes all the conflicting features, because only the features contained in the VI are retained.
- Therefore, by the set-theoretic Principle of Extensionality, the potential linearization conflict is resolved.
- Essentially, then, the proposal is that the mechanism of Fission can apply in two different stages of spellout:

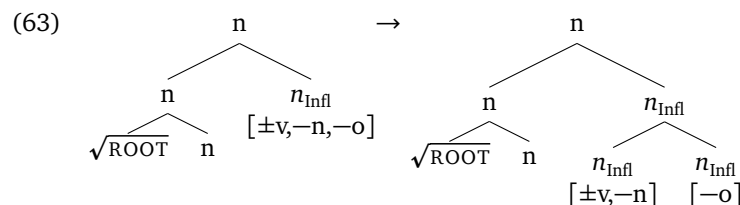
(61) **Spellout Mechanisms**

- Build Syntax Tree
- Manipulate Tree (includes Fission)
- Map to Linearization Statements
- Manipulate Linearization Statements (includes Fission)
- Vocabulary Insertion

9 Both Kinds of Fission Together (and Impoverishment)

- Masculine and Feminine Plurals are subject to a Pre-VI Fission that splits the $[-o]$ feature from the rest in the context of $[-n]$.¹⁴

(62) **Icelandic morphotactic constraint on case-feature exponence**
 $*[\pm v, -n][-o]$



(64) **Vis for Plural Masculine/Feminine Nouns**¹⁵

- $/r/ \leftrightarrow n_{\text{Infl}}[+pl, -o]$
- $/a/ \leftrightarrow n_{\text{Infl}}[+pl, -n]$

- Feminine Plurals—but not Masculine Plurals—end up being syncretic for nominative and accusative.

(65)

	Masculine 'cars'	Feminine 'machines'
NOM	bíl-a-r	vél-a-r
ACC	bíl-a	vél-a-r

- Masculine plurals are not syncretic because they are subject to an Impoverishment rule that deletes the $[-o]$ feature in the accusative only.

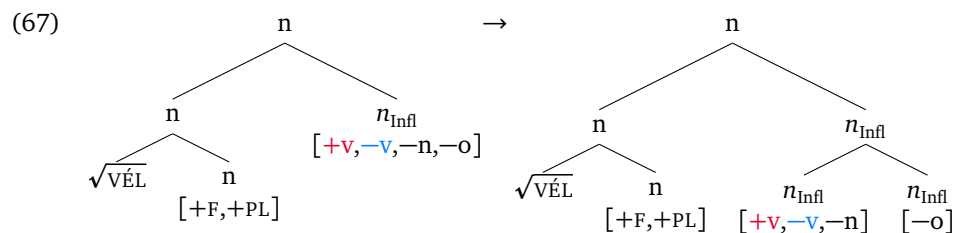
(66) **Masculine Plural Impoverishment of $[-o]$**
 $[-o] \rightarrow \emptyset / \{ [+pl], [+masc], [-n, +v] \} _$

- To have the desired effect, we must assume that it applies after Individuation (but of course, before Vocabulary Insertion).

¹⁴The rule is actually more general, but it often not applicable to the singular due to independent Impoverishment rules that are not discussed here.

¹⁵For space reasons, we often omit features like $[+pl]$ from the derivations below, but we assume of course that they are present.

- Consider first the derivation of feminine plurals.



a. List of Linearization Statements

$$\left\{ \begin{array}{l} \langle \sqrt{VÉL}, [n] \rangle, \langle [n], n_{Infl}[-v, +v, -n] \rangle, \\ \langle n_{Infl}[-v, +v, -n], n_{Infl}[-o] \rangle \end{array} \right\}$$

b. Fission/Individuation of Conflicting Features

$$\left\{ \begin{array}{l} \langle \sqrt{VÉL}, [n] \rangle, \langle [n], n_{Infl}[-v, -n] \rangle, \\ \langle [n], n_{Infl}[+v, -n] \rangle, \\ \langle n_{Infl}[-v, -n], n_{Infl}[-o] \rangle, \\ \langle n_{Infl}[+v, -n], n_{Infl}[-o] \rangle \end{array} \right\}$$

c. Vocabulary Insertion

$$\left\{ \begin{array}{l} \langle \sqrt{VÉL}, [n] \rangle, \langle [n], n_{Infl}[-n, /a/] \rangle, \\ \langle [n], n_{Infl}[-n, /a/] \rangle, \\ \langle n_{Infl}[-n, /a/], n_{Infl}[-o, /r/] \rangle, \\ \langle n_{Infl}[-n, /a/], n_{Infl}[-o, /r/] \rangle \end{array} \right\}$$

d. Set Reduction

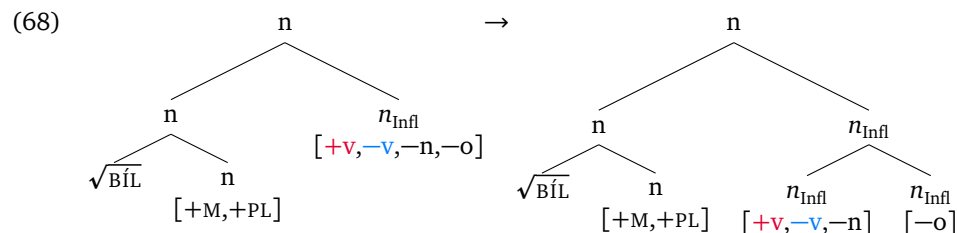
$$\left\{ \begin{array}{l} \langle \sqrt{VÉL}, [n] \rangle, \langle [n], n_{Infl}[-n, /a/] \rangle, \\ \langle n_{Infl}[-n, /a/], n_{Infl}[-o, /r/] \rangle \end{array} \right\}$$

e. Chaining

$$/vél-a-r/$$

→ The linearization statements are compatible, so the result is grammatical.

- Now consider what goes wrong with non-syncretic masculine plurals.



a. List of Linearization Statements

$$\left\{ \begin{array}{l} \langle \sqrt{BÍL}, [n] \rangle, \langle [n], n_{Infl}[-v, +v, -n] \rangle, \\ \langle n_{Infl}[-v, +v, -n], n_{Infl}[-o] \rangle \end{array} \right\}$$

b. Fission/Individuation of Conflicting Features

$$\left\{ \begin{array}{l} \langle \sqrt{BÍL}, [n] \rangle, \langle [n], n_{Infl}[-v, -n] \rangle, \\ \langle [n], n_{Infl}[+v, -n] \rangle, \\ \langle n_{Infl}[-v, -n], n_{Infl}[-o] \rangle, \\ \langle n_{Infl}[+v, -n], n_{Infl}[-o] \rangle \end{array} \right\}$$

c. Masculine plural Impoverishment of [-o] in the context of [+v]

$$\left\{ \begin{array}{l} \langle \sqrt{BÍL}, [n] \rangle, \langle [n], n_{Infl}[-v, -n] \rangle, \\ \langle [n], n_{Infl}[+v, -n] \rangle, \\ \langle n_{Infl}[-v, -n], n_{Infl}[-o] \rangle, \\ \langle n_{Infl}[+v, -n], n_{Infl}[] \rangle \end{array} \right\}$$

d. Vocabulary Insertion

$$\left\{ \begin{array}{l} \langle \sqrt{BÍL}, [n] \rangle, \langle [n], n_{Infl}[-n, /a/] \rangle, \\ \langle [n], n_{Infl}[-n, /a/] \rangle, \\ \langle n_{Infl}[-n, /a/], n_{Infl}[-o, /r/] \rangle, \\ \langle n_{Infl}[-n, /a/], n_{Infl}[] \rangle \end{array} \right\}$$

e. Set Reduction

$$\left\{ \begin{array}{l} \langle \sqrt{BÍL}, [n] \rangle, \langle [n], n_{Infl}[-n, /a/] \rangle, \\ \langle n_{Infl}[-n, /a/], n_{Infl}[-o, /r/] \rangle, \\ \langle n_{Infl}[-n, /a/], n_{Infl}[] \rangle \end{array} \right\}$$

f. Chaining: Ineffable

→ The linearization statements still say two incompatible things, because impoverishment only applied in one pair, so the result is ungrammatical.

10 Conclusion

- In the passive of reflexive ditransitives in Icelandic, some speakers allow the object to be **NOM** and others **ACC**, but many speakers only allow it with nouns that take a **NOM/ACC SYNCRETIC** form.
 - We have proposed that the structure does not allow for unambiguous valuation of structural case, because reflexive Appl cuts the DP off from the rest of the structure.
 - Variation stems from how speakers' grammars handle this at PF: Impoverishment of one of the features or (late) Fission.
- This account can explain why a similar rescue-by-syncretism is not available when there is no Appl head—the latter is crucial to cutting off the DP object from the rest of the structure.
- We then turned to the syncretism effects, which are a general problem for morphological theory.
 - We proposed that the formal mechanism of Fission can apply before or after Linearization.
 - This mirrors proposals that has been made about Impoverishment and Agree-Copy, which have been proposed to occur before or after Linearization (Arregi and Nevins 2012:344, Wood et al. 2020), and resembles the Hypothesis of Cross-modular Structural Parallelism (Arregi and Nevins 2012:133).
 - (69) Operations across distinct modules of grammar employ identical computational mechanisms.
 - The idea would be that basic structural mechanisms like Fission can apply at different stages of grammar, with distinct effects derived from the independent properties of those stages.

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