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Changing Variation: Diffuse Directionality in Icelandic Subject Case Substitution

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Abstract

We present results from a large-scale online survey (N = 4545) and an in-depth follow-up study (N = 48) showing unexpected variation patterns in the case marking of theme subjects in Icelandic. In previous accounts (Jónsson 2003), quirky oblique theme subjects, in opposition to experiencers, were thought to obligatorily pattern with the structural nominative case instead of a possibly inherent dative case (Nominative Substitution rather than Dative Substitution). Contrary to this, we show that the productivity of dative case marking with themes is non-negligible and possibly increasing, pointing towards a much more diffuse directionality of the change. We argue that this is not unexpected if we assume a theory where semantic roles are probabilistically mapped onto case and productivity is driven by type frequency, as it is under the Tolerance Principle (Yang 2016). We put this to the test by combining a verb knowledge task with a case selection task to compute productivity patterns, and individual type frequency counts, predicting the presence of dative productivity correctly in 39 out of 48 participants by using the Tolerance Principle. Although our results disconfirm a categorical impossibility of theme subjects receiving dative rather than nominative, the previously attested patterns still hold. Experiencers appear significantly more frequently with non-nominative substitution than themes do, originally accusative subjects have the highest rate of substitution and verbs which are generally more known/frequent are less likely to show subject case substitution. These patterns are reflected in attested examples of non-nominative subjects with novel verbs.

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Dagbjört Guðmundsdóttir, Iris Edda Nowenstein, and Sigríður Sigurjónsdóttir*

1 Introduction

Assuming a theory where case can, at least in part, be predicted and inherently associated with theta roles (Woolford 2006), changes in case marking have to be interpreted in the context of the acquisition of verbs more generally. It is well-established that learning a verb is dependent on its semantic argument structure as well as its syntactic structure, with the syntactic bootstrapping literature offering evidence for the prominent role of argument structure patterns cross-linguistically (Lidz, Gleitman, and Gleitman 2003). Additionally, research shows that children acquiring languages rich in case marking use case as a cue for verb meaning (Göksun, Küntay, and Naigles 2008). Despite this, the relation between case-marking variation and the acquisition of verbs remains largely unexplored. In languages like Icelandic, where oblique (non-nominative) subjects exist and only occur as non-agents, the nature of this relationship becomes crucial in identifying possible contexts of overgeneralization and subsequently understanding the directionality of change in progress.

In this context of possible overgeneralization patterns, we present results from a large-scale online survey ($N = 4545$) and an in-depth follow-up study ($N = 48$) showing unexpected variation patterns in the case marking of theme subjects in Icelandic. In previous accounts (Jónsson 2003), quirky oblique theme subjects, in opposition to experiencers, were thought to obligatorily pattern with the structural nominative case instead of a possibly inherent dative case (Nominative Substitution rather than Dative Substitution). Contrary to this, we show that the productivity of dative case marking with themes is non-negligible and possibly increasing, pointing towards a much more diffuse directionality of the change. We argue that this is not unexpected if we assume a theory where semantic roles are probabilistically mapped onto case and productivity is driven by type frequency, as it is under Yang's Tolerance Principle (2016). We put this to test by combining a verb knowledge task with a case selection task to compute productivity patterns, and individual type frequency counts, predicting the presence of dative productivity correctly in 39 out of 48 participants by using the Tolerance Principle. Although our results disconfirm a categorical impossibility of theme subjects receiving dative rather than nominative case, the previously attested patterns still hold. Our results show that experiencers appear significantly more frequently with non-nominative substitution than themes do, originally accusative subjects have the highest rate of substitution, and verbs which are generally more known/frequent are less likely to show subject case substitution. These patterns are reflected in attested examples of non-nominative subjects with novel verbs.

2 Subject Case Variation in Icelandic

One of the distinctive features of Icelandic is the well-established presence of non-nominative, or oblique, subjects in the language (e.g., Andrews 1976, Zaenen, Maling, and Thráinsson 1985, and Sigurðsson 1989). The variation these non-nominative subjects display is in turn one of the most-researched topics of morphosyntactic change in Icelandic (e.g., Svavarsdóttir 1982, Jónsson 2003, Jónsson and Eythórsson 2005, Thráinsson 2013, Nowenstein 2017). *Dative Substitution* (DS), where originally accusative experiencers are substituted with dative, is the best-known example of subject case marking variation in Icelandic (1a). Still, the variation also extends to the less discussed *Nominative Substitution* (NS) of theme subjects. NS comprises a change from an oblique subject case (accusative or dative) of intransitive verbs of motion or change of state, i.e. theme verbs, to nominative (Jónsson and Eythórsson, 2005:225), see (1b). The third attested pattern (1c) is only established with two verbs, oblique case replaces nominative with two psych verbs, *kviða fyrir* ('be anxious about') and *hlakka til* ('look forward to').

*We would like to thank the participants who made the data collection for this paper possible. We would also like to thank the audience at the 42nd Penn Linguistics Conference for helpful feedback.

- (1) a. **Dative Substitution – psych verbs/experiencers**
 Hana langar í epli → Henni langar í epli
 Her.ACC wants in apple → Her.DAT wants in apple
 ‘She wants an apple’
- b. **Nominative Substitution – theme verbs/verbs of motion and change of state**
 Bátinn rak á land → Baturinn rak á land
 boat.the-ACC drifted to shore → boat.the-NOM drifted to shore
 ‘The boat drifted to shore’
- c. **Oblique case replaced nominative with psych verbs *kviða fyrir* and *hlakka til***
 Hún kveið fyrir prófunum → Hana/Henni kveið fyrir prófunum
 She-NOM was anxious for exams.the → her-ACC/DAT was anxious for exams.the
 ‘She was anxious for the exams’
 Hún hlakkar til jólanna → Hana/Henni hlakkar til jólanna
 She-NOM looks forward to Christmas.the → her-ACC/DAT looks forward to Christmas.the
 ‘She looks forward to Christmas’

In opposition to this third pattern, DS and NS can be viewed as an example of overgeneralization/leveling where productive, unmarked patterns are generalized at the expense of less productive, lexically specific and more marked patterns. Previous ideas (e.g., Jónsson 2003, Jónsson and Eythórsson 2005) about changes in subject case marking in Icelandic are summarized below:

- (2) **Nominative Substitution (themes)**
 Lexical ACC/DAT (quirky) case → Structural case. **Dative is not productive.**
Dative Substitution (experiencers)
 Lexical ACC (quirky) case → Inherent case. **Dative is productive.**

Within approaches which link case to theta roles, patterns between datives and argument identity in Icelandic have been used to justify a distinction between inherent (predictable but not structural) and quirky/lexical (unpredictable) case (e.g., Yip, Maling, and Jackendoff 1987, Jónsson 2003, and Woolford 2006). In this context, dative subjects are associated with experiencers and not themes. Jónsson and Eythórsson (2003, 2005) and others have based their explanations on the differences between NS and DS on such assumptions, arguing that oblique subject case with motion or change of state verbs (theme verbs) in Icelandic is always quirky, based on the lack of predictability. Dative subjects of experiencer verbs are, on the other hand, assumed to be both more predictable and regular, and their productivity is apparent in DS. Still, dative is not the default structural case for experiencer subjects. Instead, it can be considered to be the inherent case, too predictable to be quirky but regular enough to substitute quirky accusative case with experiencers.

Although the subjects of theme verbs, just like the subjects of experiencer verbs, are originally both accusative and dative, it has been noted that the dative fails to attract the accusative in the same way that dative experiencer subjects do. In fact, it has been maintained that such patterns are impossible, since the dative fails to acquire the status of inherent case with theme verbs (Jónsson 2003, Jónsson and Eythórsson 2005). This difference in the directionality of variation between themes and experiencers is furthermore predicted by the application of the Tolerance Principle (Yang 2016). In simple terms, the Tolerance Principle accounts for the productivity of rules or patterns. A rule is productive if the maximum number of exceptions under the Tolerance Principle, calculated through the natural log of the total number of types, is not exceeded. Therefore, this is not a proportional mechanism and smaller sets in fact allow for a bigger proportion of exceptions. By applying the Tolerance Principle to the number of attested oblique subject verbs shown in Table 1 (attested oblique subject verbs in Modern Icelandic), Yang predicts that the dative subject verbs are not numerous enough for productivity in the case of themes, while they are if we look at experiencers.

	ACC	DAT	Total (N)	θ_N
Theme	14	19	33	9
Experiencers	37	227	264	47

Table 1: Application of Tolerance Principle (Yang 2016:165) to Icelandic subject case variation.

This is shown in Table 1, where the accusative theme subject verbs exceed the computed threshold while the accusative experiencer subject verbs do not. For themes, the accusative verbs represent too many exceptions for datives to be productive. Yang’s (2016) analysis therefore yields the same conclusion Jónsson and Eythórsson (2005) reached, although on different premises, where Dative Substitution should not appear with motion or change of state verbs.

Reviewing previous accounts of subject case variation in Icelandic, this prediction seems to be borne out. Although DS with psych verbs/experiencers has been a very active field of investigation, subject variation with themes has received much less attention. It is briefly mentioned in Svavarsdóttir’s (1982) paper on subject case variation, in the description of the first systematic documentation of DS, where 6th graders were presented with a forced choice judgment task (fill in the blanks). In a follow-up study conducted in 2001, Jónsson and Eythórsson (2003) collected data about DS with experiencer subject verbs but added three theme subject verbs (one originally accusative and two originally dative). They found that subjects with all three verbs tended to receive nominative substitution in subject case, with the originally accusative verb getting the highest rate of nominative. Jónsson and Eythórsson (2003) associated this with frequency effects, assuming that the accusative verb was less known by the participants. The results of this study (Jónsson and Eythórsson 2003) established the categorical distinction between themes and experiencers, and the variation in the subject case of themes has never been the main focus of research. The aim of the online survey presented in the next section was to follow-up on the data collected in 2001 and establish whether the rate of NS had increased. As will be described in the following section, the results of this simple monitoring study indicate that nominative is far from being the only substitution option for theme subjects, prompting the need for a more thorough documentation of the variation.

3 Current study

As has been mentioned, we report on the results of two separate studies, a short online survey and an in-depth follow-up. Since our main focus is the results of the follow-up study, we begin by briefly describing the methods and relevant results of the short online survey before describing the subsequent questions which form the basis of the follow-up study. We end this section by describing the methods for the follow-up study before proceeding to Section 4 with the results.

3.1 Online Survey: Methods and Relevant Results

The short online survey targeted four theme verbs with originally oblique subjects, two with accusative case (*daga uppi* ‘perish’ and *reka á land* ‘drift to shore’) and two with dative case (*hvolfa* ‘capsize’ and *ljúka* ‘finish’). Using a forced choice task, participants were presented with a sentence containing a theme verb and a blank for the subject. They then had to select either the nominative, accusative or dative form of a preselected subject. The survey was shared on various social media platforms and gathered responses from 4545 participants in 9 hours (1.2% of Iceland’s population).

Based on previous accounts, the expected results were an increase in NS with theme verbs, with possibly higher rates of nominative with originally accusative verbs. The general results do show an increase in the rate of NS compared to previous results (Jónsson and Eythórsson 2005) and further support the idea that dative theme verbs preserve their original oblique case better. But, surprisingly, subjects which were originally accusative additionally show significant rates of dative, a pattern which was not thought to appear. Table 2 shows the online survey results for *daga uppi* (‘perish’).

Age	Selected case		
	Nominative	Accusative	Dative
13-16-year-olds (N=221)	77.8%	5.8%	16.4%
17-19-year-olds (N=243)	81.8%	3.2%	15%
20-25-year-olds (N=465)	83.2%	4%	12.8%
26-39-year-olds (N=968)	93.9%	2%	4.1%
40+ year-olds (N=2648)	96.4%	2.7%	0.9%

Table 2: Results for *daga uppi* (‘perish’), online survey.

Strikingly, participants between the ages of 13 and 25 display a noticeably higher rate of dative, largely exceeding the original accusative. Results from older participants are much more in line with previous accounts.

Table 3 shows the rate of DS with *reka á land* ('drift to shore'), also originally accusative. Since this verb was tested in 2001, the results from Jónsson and Eythórsson 2003 are shown at the top of the table as reference. The age group they tested falls into the category of 26-39-year-olds in the online survey. The table also shows the rate of DS in the in-depth follow-up study, which also tested 6th graders.

Age	DS
6th graders in 2000-2001 (N=845)	9.1%
26-39-year-olds in 2017 (N=968)	12.3%
20-25-year-olds in 2017 (N=465)	15.6%
17-19-year-olds in 2017 (N=243)	16.4%
13-16-year-olds in 2017 (N=221)	14.9%
6th graders in 2017 (N= 48)	19.3%

Table 3: Rate of DS with *reka á land* ('drift to shore') from the Jónsson and Eythórsson study (2003), online survey and in-depth follow up study.

These results fall in line with the observed pattern in Table 2, indicating a shift in directionality with an increased rate of DS for theme verbs. Still, it is important to notice that this pattern was already apparent in the Jónsson and Eythórsson data, a rate of 9.1% might not have justified an account where DS with themes is considered impossible.

3.2 Subsequent Questions and Follow-up Study

Following these unexpected results, subsequent questions arise: Have younger speakers deviated from the ongoing direction of the change or are the results reflective of emerging case patterns when speakers are faced with unknown verbs? Furthermore, what knowledge do speakers rely on when determining the case-marking of unknown verbs? Are subjects that have transparent theme characteristics (–sentient, –agent) pulled towards the nominative rather than subjects that are more likely to be experiencers (+sentient, –agent) and therefore dative? Is the productivity of the dative within individual speakers predictable under Yang's Tolerance Principle (2016)?

To address these questions, we administered a follow-up study to 57 students in 6th grade (11-12 years old) of elementary school in the fall of 2017. This is the same age group tested in Jónsson and Eythórsson's (2003) study. Out of these 57 students, 48 answers were usable (we only included native speakers which completed the whole experiment). In the experiment, participants were forced to choose the subject case of 24 theme and experiencer verbs which originally take either nominative, accusative or dative case. Two frequency groups were used for each of the conditions, with a dichotomy between the most and least frequent oblique subject case verbs in Modern Icelandic. As opposed to previous research, the main focus of the study was on theme verbs, and the case selection task therefore included 18 theme verbs and 6 experiencer verbs. Following the forced choice task, participants were asked to select the verbs they previously knew, evaluating all the verbs of the forced-choice task as well as the remaining 22 theme verbs with an original oblique subject which have been attested in Modern Icelandic (8 accusative and 14 dative).

We are therefore able to address three main lines of inquiry which are explored in Section 4. More generally, we explore the effects of verb knowledge and original case on the rate of substitution, as well as the effect of theta roles on the rate of non-nominative substitution. On an individual level, we investigate the participant's productivity pattern and test the predictions of the Tolerance Principle based on individually computed type frequency.

4 Results and Discussion: In-Depth Follow-up Study

Before discussing the individual productivity patterns, we explore the relationship between the original subject case of each verb and the mean rate of knowledge and substitution in general. We then examine the relationship between semantic role and the rate of non-nominative substitution. The data analysis was conducted in RStudio (RStudio Team 2016), plots were constructed with the ggplot2 package (Wickham 2016) and generalized linear mixed-effects models run with the lme4 package (Bates et al. 2015).

4.1 Original Case, Knowledge and Substitution Rate

As has been mentioned, previous accounts have stipulated that different rates of case substitution between verbs could be explained on the basis of frequency. Lesser known verbs should be more sensitive to leveling. Still, this had not been tested with measurement of actual participant vocabularies. The data from the knowledge task we administered allows us to investigate this, and Figure 1 shows the relationship between substitution rate and knowledge rate.

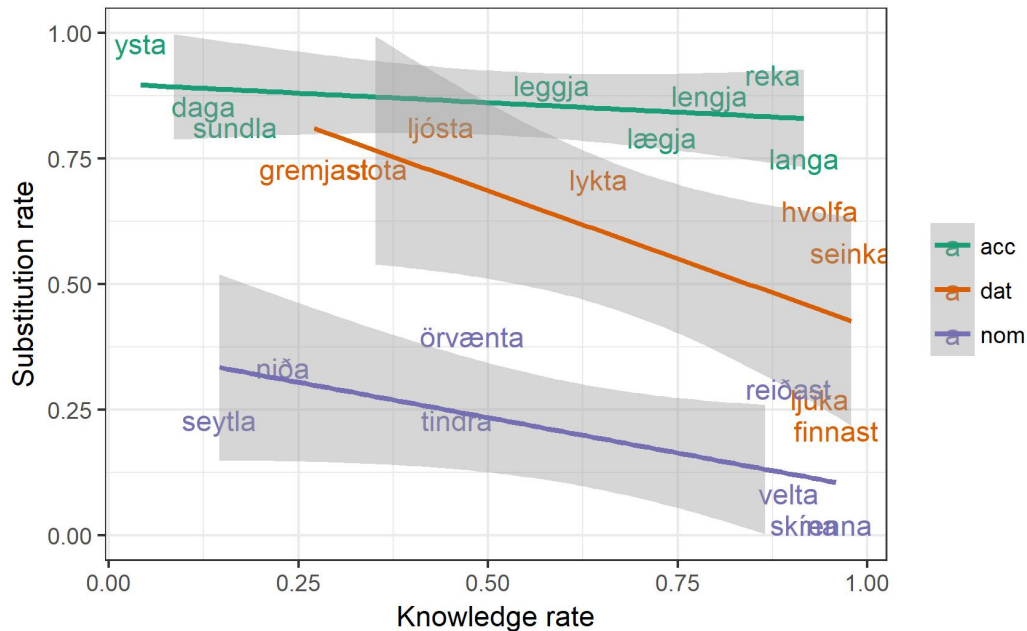


Figure 1: Relationship between substitution rate and knowledge rate by original subject case, within theme and experiencer verbs. Linear model with 95% confidence intervals fitted.

Based on Figure 1, we can see that higher mean substitution rates are indeed associated with less mean knowledge of individual verbs, but that the strength of this relationship is dependent on the original case of the subject. This tendency appears in verbs which have an originally nominative subject and is even stronger in verbs which have an originally dative subject. On the other hand, the substitution rate of verbs with originally accusative subjects stays very high throughout, with a much weaker link to knowledge rate. Figure 1 therefore also shows, unsurprisingly, that verbs with an original accusative subject have the highest substitution rate, followed by the verbs with an originally dative subject. It does not come as a surprise that verbs with an originally nominative subject get the least substitution. On the other hand, the rate of non-nominative substitution with originally nominative subjects still is relatively high, with the rarer experiencer verb, *örvænta* ‘despair’, being substituted the most (38%). This might already indicate that experiencers are more likely to receive non-nominative substitution.

To further explore the variables predicting substitution, we ran binomial generalized linear mixed-effects models with substitution as the outcome variable and verb knowledge, original case

and theta role as predictive variables (models A). We included random intercepts for speakers. We built a null-model and then proceeded to nested model comparison, adding one variable to each model and comparing them with a chi-square test. Table 4 shows the results of this model comparison.

models A: case substitution	log-likelihood	χ^2	df	p-value	significance
null	-616.88	-	-	-	-
knowledge	-592.48	48.8	1	<0.001	***
knowledge + original case	-584.02	16.9	2	<0.001	***
knowledge + original case + theta	-583.63	0.79	1	0.3752	ns

Table 4: Nested comparison of binomial generalized linear mixed-effects models for substitution.

As can be seen, the model improves significantly when the knowledge of the verb and the original case are added as predictive variables, confirming the patterns seen in Figure 1. On the other hand, adding the theta role does not significantly improve the model, implying that neither experiencers nor themes get a higher rate of substitution. The substitution rate for *örvænta* ‘despair’, mentioned before, still might imply that experiencers are more likely to receive non-nominative substitution, consistent with previous accounts which assume that experiencers get DS while themes get NS. This is further explored in the following section.

4.2 Semantic Role and Non-nominative Substitution

The prediction that experiencers are more likely to get non-nominative substitution is carried out, as can be seen in Figure 2. The term non-nominative is employed here because, as discussed in section 4.3, *Accusative Substitution* (AS) also appears.

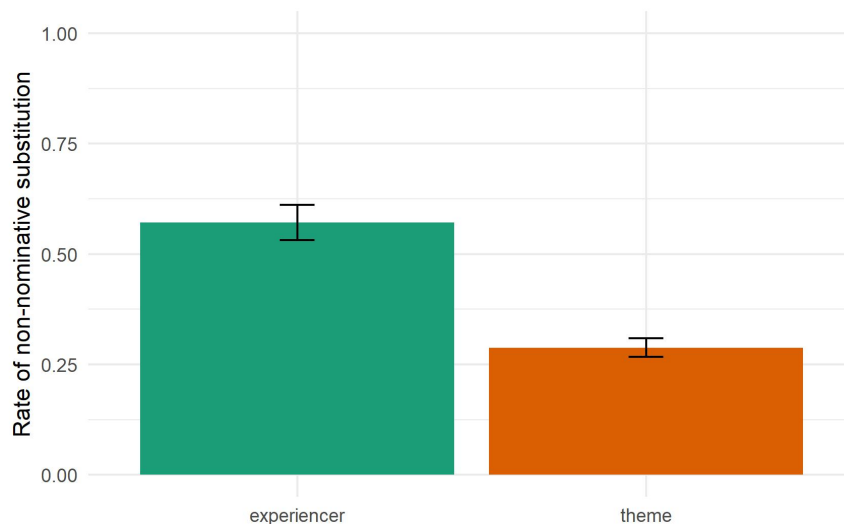


Figure 2: Mean non-nominative substitution with experiencers (6 verbs) and themes (18 verbs). 95% confidence intervals.

Figure 2 shows that, in line with previous research, experiencers are more likely to receive non-nominative substitution (AS or DS). To confirm this, we ran models parallel to models A, with non-nominative substitution as the outcome variable (models B). The results of the model comparison are shown in Table 5. As can be seen, the model improved significantly at every step. The models showed that knowing the verbs increases the likelihood of non-nominative substitution and that datives are less likely to get another non-nominative case than accusative verbs are. Finally, themes are less likely to get non-nominative substitution.

models B: non-nominative substitution	log-likelihood	χ^2	df	p-value	significance
null	-410.81	-	-	-	-
knowledge	-408.79	4	1	<0.05	*
knowledge + original case	-328.42	160.7	2	<0.0001	***
knowledge + original case + theta	-313.95	28.9	1	<0.0001	***

Table 5: Nested comparison of binomial generalized linear mixed-effects models for non-nominative substitution.

Despite this pattern, it has to be emphasized that theme subjects display a non-negligible rate of oblique substitution. Before discussing these results in more detail, we look at the case selection patterns for theme verbs and the productivity patterns of individual speakers.

4.3 Individual Productivity Patterns

As can be deduced from section 4.2, the theme subject verbs in the study are far from a categorical exclusivity of NS. Figure 3 shows the proportion of each case option with the theme subject verbs based on their original subject case.

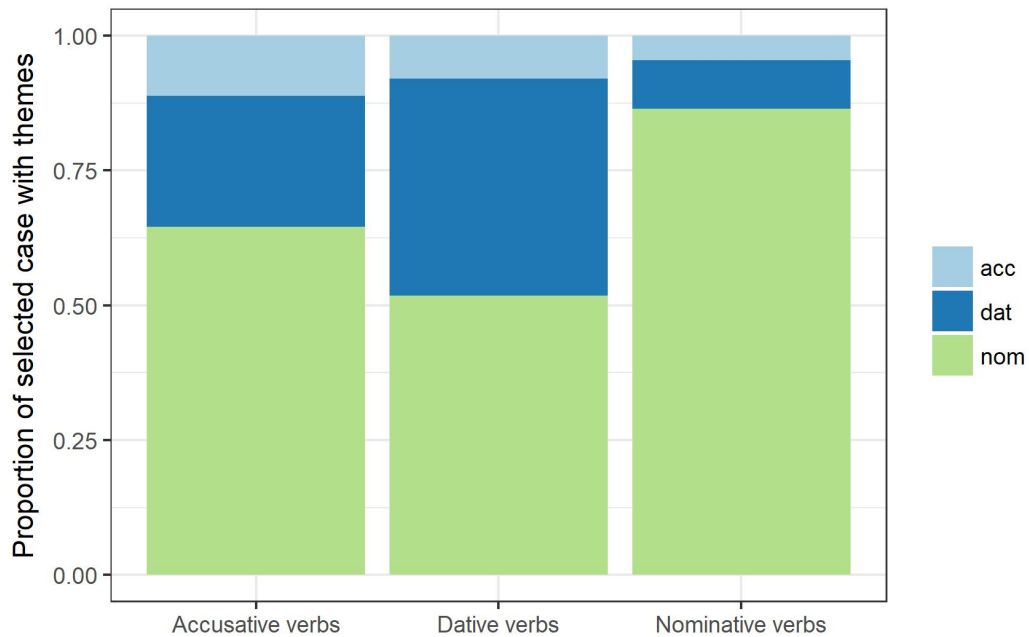


Figure 3: Proportion of selected subject case, divided by original subject case (6 verbs for each case).

We can see from the data in Figure 3 that dative verbs (verbs with an originally dative subject) do in general get a lower rate of NS and preserve their original case better than the accusative verbs. However, accusative case is sometimes selected with dative verbs. This would be the accusative substitution briefly mentioned in the previous section. Interestingly, the accusative does not appear significantly more in the subject case of verbs which originally have accusative subjects. Those verbs in fact get a higher rate of dative than their original accusative, and they therefore display DS. Finally, both accusative and dative even appear as the subject case of verbs with an originally nominative subject, a previously unattested phenomenon when it comes to themes (but known with experiencer subjects, see example (1c)).

Bearing these diverse substitution patterns in mind, it might not be unexpected that individual speakers also display diverse productivity patterns with theme verbs. These patterns are found in Table 6.

	NS	AS	DS	NAS	NDS	NADS	Total
Speakers	15	1	0	4	23	5	48

Table 6: Individual substitution patterns for unknown theme subject verbs.

The patterns found in Table 6 were computed based on the participants' case selection with verbs they did not know prior to the experiment, since it is not possible to distinguish between productive case and lexically fixed case when it comes to known verbs. As can be seen, only one speaker exclusively displayed non-nominative substitution, producing an accusative subject with a theme verb. All other speakers displayed NS to some degree, with 15 speakers showing NS exclusively. This was not the most common productivity pattern, as 48% of the speakers displayed the NDS pattern, producing nominative and dative subjects. In total, 58.3% of the participants showed dative productivity. In addition to the one AS speaker, 9 more speakers produced accusative subjects with other cases as well, with a total of 20.8% of participants showing accusative productivity.

To test whether the Tolerance Principle (Yang 2016) could predict these productivity patterns, we computed individual type frequency counts based on the participants' answer in the verb knowledge task. On average, the participants knew 6 verbs with accusative subjects ($SD = 2.6$) and 12 verbs with dative subjects ($SD = 3.9$). For this average total number of verbs (18), the computed threshold for productivity ($\theta_N - 18/\ln(18)$) is 6, which would predict a productive dative. On the other hand, the highest verb knowledge values were 13 accusative verbs and 19 dative verbs. With 32 verbs, the threshold for tolerated exceptions is 9. Since 13 exceeds this number, we would not expect dative productivity. By computing individual counts in this fashion, we were able to successfully predict the presence of dative productive for 81.3% of the participants (39 out of 48). However, the application of the Tolerance Principle did not predict accusative productivity. In this context, it has to be noted that with a small number of total types, the Tolerance Principle can predict the productivity of more than one pattern. For example, if the total number of verbs is 7, the number of tolerated exceptions is 4. This means that a 3-4 split between condition would predict a double productivity, since neither type would exceed the threshold for tolerated exceptions.

5 Conclusions

The data presented in Section 4 has made it possible to address the questions raised as a reaction to the results of the online survey described in Section 3.1. We asked whether younger speakers were changing the variation, shifting the directionality of case substitution for subjects of theme verbs. We also asked what knowledge speakers rely on when determining the case-marking of unknown verbs, where subjects which have transparent theme characteristics ($-sentient$, $-agent$) would be pulled towards the nominative rather than subjects which are more likely to be experiencers ($+sentient$, $-agent$) and therefore dative? Finally, we wanted to find out whether the productivity of the dative within individual speakers was predictable under Yang's Tolerance Principle (2016).

We do believe the data presented in sections 3 and 4 indicate that changes in Icelandic subject case are progressing, but not in the previously predicted direction. Still, we do not believe the data show a clear shift in directionality, since dative seems to have been an option for themes in earlier documentation (Jónsson and Eythórsson 2003) – although this was discarded as noise in the data at the time, favoring a more categorical distinction with cross-linguistic parallels. As noted in Eythórsson and Jónsson (2005), oblique subjects are only preserved as experiencers and not as themes in Faroese. The data still seem to always have indicated a more diffuse directionality. Although the variation seems to be more complex than previously thought, the originally observed general patterns still have validity. Participants are more likely to use nominative with themes, and correspondingly they choose non-nominative substitution more often with experiencers, although verb knowledge additionally favors non-nominative substitution in general. Surprisingly, the data showed that nominative and dative are not the only options when selecting case with unknown themes, accusative also seems to be productive for some speakers, but to a lesser extent than dative or the default nominative. A possible account of these diverse productivity patterns might be found in an approach which allows for a probabilistic dimension to rules, as in Yang's variational model of language acquisition (2002). Within such a model, a more specific rule applies over the default

rule with a probability. This is stochastic blocking, which allows rules to work with a probability lower than 1.00, so a rule can exist even though it is not applied in all possible cases. A possible application of this line of thinking for subject case substitution is the following:

- (3) **IF [-agent]** → increase [+oblique] (e.g., DAT≈ 0.4 & ACC≈ 0.1)
ELSE IF [-agent, +sentient] → increase [+oblique] (e.g., DAT≈ 0.7 & ACC≈ 0.2)
 ELSE use default [-oblique]

Such an approach would additionally account for the fact that verbs with originally accusative subjects and verbs with originally dative subjects show very similar patterns of selected case. The variable rules could then be combined with a mechanism which determines whether a particular case is productive. Our results suggest that the application of the Tolerance Principle to this context is promising but might need to be further fine-tuned. A raw estimation of type frequency in individual vocabularies based on self-assessment might not be the most feasible approach, since it does not differentiate between relatively rare and late-acquired verbs, and more frequent verbs which might already be available in child-directed language. It is not clear that all verbs are equal when it comes to being eligible material for productive rule formation.

Regardless of the most viable approach for predicting individual productivity, our analysis predicts that if novel verbs were to appear with non-nominative subjects, they would most likely be experienter verbs, and the subjects might appear in the accusative as well as the dative. This prediction seems to be carried out in the only attested examples of oblique case appearing with a novel verb,¹ the verb *kreiva/kreifa*, an adaptation of the English *crave*:

- (4) a. mig kreifar í ávexti
 me-ACC craves in fruit
 ‘I crave fruit’
 b. so kreifar honum alltaf í eitthvað
 then craves him-DAT always in something
 ‘Then he always craves something’

Example (4a) shows an accusative subject in the first person singular, and (4b) shows a dative pronoun (third person singular) as a subject. This is in line with the so-called Person-Specific Retention in Icelandic subject case variation (Nowenstein 2017), where accusative is more likely to appear with subjects in the first and second person. Future research and developments in the language will show whether novel theme verbs can appear with non-nominative subjects.

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¹ This verb predominantly appears in the nominative, examples in (4) were found on an online message board:

(4a) <https://bland.is/umraeda/aum-utthembd/29043263/>

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