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The rise of Dative Substitution in the history of Icelandic: A diachronic construction grammar account

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ABSTRACT

Dative Substitution, i.e. the change from accusative to dative subjects, has been explained in the generative literature as thematic case marking ousting idiosyncratic case marking (cf. [Jónsson, 2003](#); [Jónsson and Eythórsson, 2005](#)). A major anomaly for this account is the late onset of Dative Substitution, not documented in Icelandic texts until the latter part of the 19th century. As the prerequisites for Dative Substitution existed already in Old Norse-Icelandic, the question arises as to why this change did not take place earlier. I show in the present comparative study of Old Norse-Icelandic and Modern Icelandic texts that the semantic structure of the Dative Subject Construction has changed from denoting happenstance and experience-based events equally in Old Norse-Icelandic to a situation where experience-based events are in majority in Modern Icelandic. This change in language use entails that experience-based events are now in the spotlight of the Dative Subject Construction, which in turn makes the construction considerably more coherent semantically in Modern Icelandic, a known precondition for the productivity of argument structure constructions that are low in type frequency (cf. [Barðdal, 2006a, 2008](#)). This change in the semantic structure of the Dative Subject Construction, i.e. this narrowing and focusing of its semantic scope, is the motivating factor behind the late onset of Dative Substitution in the history of Icelandic. More generally, this investigation illustrates how productivity may increase despite a reduction in the type frequency of a construction, contra claims in the literature that type frequency is the most important factor for productivity ([Bybee, 1995](#)).

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1. Introduction

Dative Substitution in Icelandic, i.e. the development from accusative subject to dative subject case marking, has been the subject of intense research during the last few decades or so (see references in Section 2). It is, moreover, argued in the most recent literature that this ousting of accusative subjects by dative subjects is a consequence of idiosyncratic case giving way to regular thematic case ([Jónsson, 2003](#); [Jónsson and Eythórsson, 2005](#)). One question that arises is why Dative Substitution did not emerge earlier than during the latter part of the 19th century. This is a legitimate question given that the alleged prerequisites for Dative Substitution, i.e. idiosyncratic vs. thematic case assignment, have supposedly existed ever since Old Norse-Icelandic. The late onset of Dative Substitution in 19th century Icelandic is therefore a major anomaly for analyses based on the concepts of thematic and idiosyncratic case.

I show in the present comparative corpus-based study of Old Norse-Icelandic and Modern Icelandic that the relative type frequency of the Accusative Subject Construction, i.e. its type frequency in texts, has remained stable from Old Norse-Icelandic to Modern Icelandic. At the same time, the type frequency of the Dative Subject Construction has in fact gone down, even though it is still considerably higher in relative type frequency than the Accusative Subject Construction. It turns out that this reduction

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in relative type frequency of the Dative Subject Construction has affected certain lexical semantic verb classes more than others, resulting in a major shift in the semantics of the Dative Subject Construction. Predicates denoting happenstance events have gone considerably down in relative type frequency, with the consequence that experience-based predicates are now in the spotlight of the construction. As Dative Substitution first and foremost targets experience-based predicates, this change in the semantics of the construction explains why the Dative Subject Construction unexpectedly started gaining in productivity during the latter part of the 19th century, despite the reduction in relative type frequency. Only at that time had the construction become semantically coherent enough to start attracting other verbs from that same semantic field.

An important lesson from this study is that only by investigating data from language use will the glaring facts discovered here, relating to the change in the semantic structure of the Dative Subject Construction, become evident. Therefore, a systematic investigation of actual language use across different periods of Icelandic makes it possible to exhume the factors that motivate the late onset of Dative Substitution in the history of Icelandic.

Section 2 presents the facts of Dative Substitution, along with a brief overview of earlier approaches to the phenomenon, focusing most heavily on the concepts of idiosyncratic and thematic case assumed in most of the earlier generative approaches to Dative Substitution in Icelandic. Section 3 gives an overview of the semantics of the Accusative subject and the Dative Subject Constructions. In Section 4 I present my model of syntactic productivity, developed within the theoretical framework of Construction Grammar. I show how a usage-based constructional approach to productivity may account for Dative Substitution. In Section 5 I report on the comparative corpus-based study of Old Norse-Icelandic and Modern Icelandic, which reveals that the Dative Subject Construction is semantically more coherent in Modern Icelandic than in Old Norse-Icelandic with a shift in the semantics of the construction to Cognition/Emotion. This shift in the semantic structure of the Dative Subject Construction, I argue, is the motivating factor behind the late onset of Dative Substitution.

2. Dative Substitution: earlier approaches

Dative Substitution is a well-known phenomenon in Icelandic, intensively studied by both Icelandic and international scholars (Svavarsdóttir, 1982; Zaenen et al., 1985; Halldórsson, 1982; Rögnvaldsson, 1983; Svavarsdóttir et al., 1984; Smith, 1994; Eythórsson, 2000a,b, 2002; Smith, 2001; Barðdal, 2001a:134–138, 2004, 2008; Minger, 2002; Jónsson, 2003; Jónsson and Eythórsson, 2005; Friðriksson, 2008). The term Dative Substitution refers to a change in the case marking of oblique or non-nominative subjects in Icelandic, more precisely the fact that accusative subjects change into dative subjects. This is shown in (1) below where (1a) gives the verb *langa* 'long, want' with its original accusative subject and (1b) the more recent variant with a dative subject, without any apparent difference in meaning:

- (1) a. **Mig** langar í ís.
me.ACC longs in ice-cream
'I want ice cream.'
- b. **Mér** langar í ís.
me.DAT longs in ice-cream
'I want ice cream.'

The earliest explanation of Dative Substitution in the literature that I know of was put forward by Rögnvaldsson (1983) who argued for a functional systemic explanation. On his approach, Dative Substitution is to be seen as a part of a larger development in the Icelandic case and alignment system, where accusative subjects disappear, resulting in the category of accusatives being confined to objects and the category of objects being confined to accusative. This account therefore predicts that Dative Substitution should be concomitant with another change, namely a reduction in the frequency of both dative and genitive objects.

The problem with Rögnvaldsson's account is that neither accusative subjects, nor dative or genitive objects, have been heavily reduced from Old Norse-Icelandic to Modern Icelandic. This is shown in Table 1 which illustrates that both accusative subjects and genitive objects have remained fairly stable from Old Norse-Icelandic to Modern Icelandic, while dative objects are considerably more type frequent in Modern Icelandic texts than in corresponding Old Norse-Icelandic texts (see Section 4 for more information about the corpora). Therefore, Rögnvaldsson's account makes predictions that are not borne out when comparing the relative type frequency of these categories across language periods.

Table 1

Type frequencies of dative and genitive objects and accusative subjects across compatible Old Norse-Icelandic and Modern Icelandic corpora.

	Old Norse-Icelandic <i>N</i>	Modern Icelandic <i>N</i>
Acc subjects	12	14
Dat objects	105	141
Gen objects	21	17

Van Valin (1991, see also Minger, 2002) develops an RRG approach to case marking and syntactic functions in Icelandic. Van Valin dispenses with grammatical functions altogether and employs instead pivots and thematic roles, which he divides into macroroles and non-macroroles. Nominative case is assigned to the highest macrorole, accusative case to the lowest macrorole and dative case to non-macroroles. On this approach, the difference between dative and accusative subject case is that dative subject case is regular non-macrorole case, while accusative subject case is regarded as lexical. Therefore, Dative Substitution can be explained as idiosyncratic case marking giving way to regular non-macrorole case marking on this RRG approach.

Smith (1994) discusses Dative Substitution, not only in Icelandic, but in Germanic in general. He develops an approach based on analogy and restrictiveness. The ultimate result of analogy, on his approach, is a simplification of the system. As accusative subject case is more restrictive than dative subject case, Smith's model predicts that accusative subjects will give way to dative subjects in the course of time.

Wunderlich (2003) puts forward an optimality-theoretic approach to argument structure, where the interaction between the thematic structure and the morphological case marking patterns are accounted for by semantic ranking. This means that the highest ranked argument is in the nominative case and the lowest ranked argument is in the accusative case. Deviations from this pattern, like accusative or dative subjects, exist because of lexical marking of the arguments. Exactly like on Smith's account, Dative Substitution is regarded as a simplification of the system. In this case, accusative subjects lose a lexical feature and become realized as dative subjects instead. It is, however, not predicted on this approach why accusative subjects give way to dative subjects and not vice versa.

A major problem with Rögnvaldsson's, Van Valin's, Smith's and Wunderlich's accounts is the late onset of Dative Substitution in Icelandic in the latter part of the 19th century. There is nothing in their models that predicts the timing of Dative Substitution in neither Icelandic nor in any of the other Germanic languages they discuss. In fact, Dative Substitution seems to set in at different times in different Germanic languages. In Icelandic it starts in the latter part of the 19th century (Halldórsson, 1982), while in German it is already documented as a massive tendency during medieval times (Seefranz-Montag, 1983:162–163). Therefore, the time of the onset of Dative Substitution remains unexplained on all earlier accounts, not only in Icelandic but also in all the other Germanic languages where Dative Substitution is found, such as in Faroese, German and English. I will argue in Section 5 that the present usage-based constructional approach is superior to all earlier accounts in that it can in fact explain the late onset of Dative Substitution in Icelandic, as well as in the other Germanic languages where it has been documented.

The last approach to be discussed here is the generative approach, on which it is widely agreed upon that Dative Substitution is based on thematic roles. That is, the change from accusative to dative case on subjects is regarded as a change from idiosyncratic case marking to regular thematically based case marking of experiencers (cf. Zaenen et al., 1985; Yip et al., 1987; Zaenen and Maling, 1990; Jónsson, 2003; Jónsson and Eythórsson, 2005, amongst others). This approach has been most thoroughly spelled out in the recent work of Jónsson (2003) and Jónsson and Eythórsson (2005), where new empirical investigations are carried out and additional data reported on. This is the reason why I will focus on Jónsson's (2003) and Jónsson and Eythórsson's (2005) approach in the remainder of this section.

The concepts of idiosyncratic and thematic case have developed from the dichotomy between structural and lexical case, where structural case is regarded as nominative on subjects (and certain objects) and accusative on objects, while all deviations from that are regarded as lexical (Thráinsson, 1979; Andrews, 1982; Zaenen et al., 1985; Yip et al., 1987; Sigurðsson, 1989; Zaenen and Maling, 1990; Jónsson, 2003; Jónsson and Eythórsson, 2005). On this approach, dative and genitive objects, on the one hand, and accusative, dative and genitive subjects, on the other, count as being lexically case marked (cf. the overview in Barðdal, 2009:131–137). Lexical case has also been further divided into thematic and idiosyncratic case (cf. Jónsson, 2003). For subjects this means that accusative subjects are regarded as idiosyncratic while dative subjects are regarded as thematically assigned and thus as an instance of "regular" lexical case. In other words, dative case is assumed to be assigned in a regular fashion on the basis of thematic roles to experiencers and goals, while accusative is assumed to be assigned idiosyncratically to subjects (cf. Jónsson, 2003). Therefore, Dative Substitution, as in (1) above, has been explained in the generative paradigm as idiosyncratic accusative subject case giving way to the more regular thematic dative subject case.

Another related change in Icelandic, termed Nominative Substitution in the literature (Eythórsson, 2000a,b, 2002; Barðdal and Eythórsson, 2003; Jónsson, 2003; Eythórsson and Barðdal, 2005; Jónsson and Eythórsson, 2005), targets a different subclass of accusative subject predicates, namely those denoting changes in landscape and nature (2a and 3a). There are also a few dative subject predicates in Icelandic which belong to this semantic verb class (see Section 3), i.e. denoting changes in landscape and nature (2b). These are also subject to Nominative Substitution (3b):

- | | | | |
|-----|----|------------------------------|------------|
| (2) | a. | Bátinn rak á land. | Accusative |
| | | boat-the.ACC drifted a shore | |
| | | ‘The boat drifted ashore.’ | |
| | b. | Bátnum hvolfdi. | Dative |
| | | boat-the.DAT turned-around | |
| | | ‘The boat capsized.’ | |

- (3) a. **Báturinn** rak á land. Nominative
 boat-the.NOM drifted a shore
 ‘The boat drifted ashore.’
- b. **Báturinn** hvolfdi. Nominative
 boat-the.NOM turned-around
 ‘The boat capsized.’

Nominative Substitution, moreover, targets not only unaccusative verbs in Icelandic, but also passives, and is furthermore documented with a few accusative experiencer-based predicates. An attested example of nominative instead of the required accusative is given in (6) below with the accusative subject predicate *dreyma* ‘dream’. Passives are shown in the attested examples in (5) below where the dative subjects of the passive *vera stungið undir stólinn* ‘be slipped under the carpet’ and *vera smyglað* ‘be demolished’ occur in the nominative case (5), instead of the required dative case (4):

- (4) a. **Þessu frumvarpi** var stungið undir stólinn. Dative
 this.DAT motion.DAT was stuck under chair-the
 ‘This motion has been slipped under the carpet.’
- b. **Því** var smyglað í súkkulaðið hennar. Dative
 it.DAT was smuggled into chocolate her
 ‘It was smuggled into her chocolate.’
- (5) a. Og **þetta frumvarp** hefur áður verið Nominative
 and this.NOM motion.NOM has before been
 stungið undir stólinn ...
 stuck under chair-the
 ‘And this motion has been slipped under the carpet before ...’
- b. ... og endaði með því að **það** var smyglað Nominative
 and ended with it that it.NOM was smuggled
 inn í súkkulaðið hennar ...
 into in chocolate her
 ‘... and in the end it was smuggled into her chocolate ...’
- (6) a. **Mig** dreymdi draum. Accusative
 me.ACC dreamt dream.ACC
 ‘I dreamt a dream.’
- b. **Ég** dreymdi magnaðan draum í kvöld ... Nominative
 me.NOM dreamt magnificent dream.ACC in night
 ‘I dreamt a magnificent dream tonight ...’

The fact that not only accusative but also dative subjects of verbs denoting landscape and nature change into nominative has been explained by assuming that not only accusative subject marking of experiencers is idiosyncratic in Icelandic, but also accusative and dative subject marking of *themes* (Jónsson, 2003). That is, subjects of verbs denoting Landscape and Nature are analyzed as themes by Jónsson. For a critical discussion and a rejection of the dichotomies between structural and lexical case and between thematic and idiosyncratic case, see Barðdal (2011). I will return to Nominative Substitution in Section 4, where I refute Jónsson’s (2003) analysis.

Reverting to Dative Substitution, the variation between accusative and dative subject marking has become increasingly apparent in Modern Icelandic. A recent questionnaire survey of eight accusative subject verbs showed that Icelandic children substitute dative for accusative case in ca. 25–60% of the cases, depending on the verb (Jónsson and Eythórsson, 2005). A comparison with an earlier questionnaire study of Dative Substitution, carried out in the beginning of the eighties (Svavarsdóttir, 1982), reveals a 25% increase in children’s Dative Substitution during the last three decades in Iceland (Jónsson and Eythórsson, 2005:242 fn. 13).

An increased use of the dative as a subject case, instead of the prescribed accusative, has also become glaringly apparent in colloquial adult language. In an early study of mine on spoken Icelandic, based on 8 h of conversation (approximately 80,400 running words) from *Þjóðarsálin* (e. The Soul of the Nation), an interactive ring-in radio program, recorded during 1996–1997, I found six examples of Dative Substitution out of 99 targeted cases of accusative subject verbs (Barðdal, 2001b).

Only five accusative subject predicates occur in this spoken material, but all six examples were found with one and the same verb, *langa* 'want'. This counts as approximately 6% Dative Substitution in spoken Icelandic during the latter part of the nineties. Friðriksson (2008:193–213), who has investigated Dative Substitution in spoken Icelandic from a sociolinguistic point of view, based on spoken material produced approximately a decade later, incidentally happened to also record 99 occurrences of accusative subject verbs in his database. Of these, 13 instances were found with the non-target dative case, spread across five different verbs, although the verb *langa* 'want' was definitely most commonly used with a dative instead of the prescribed accusative. This counts as 13% Dative Substitution in present day spoken Icelandic. The differences across the two time periods, 6% vs. 13%, are of course not statistically significant, although they show a clear tendency towards an increase in Dative Substitution in spoken Icelandic.

The tendency for accusative subject verbs to occur with dative has been sporadically documented in the earliest Old Norse-Icelandic texts. However, in those texts, which date back to approximately 1200 AD, the massive tendency observed in contemporary Icelandic is not found (Viðarsson, 2005). It is, moreover, clear from written records that Dative Substitution, in the extensive form known from present-day Icelandic, does not appear in texts until the latter part of the 19th century. This has been thoroughly documented by Halldórsson (1982).

The question therefore arises as to why the onset of Dative Substitution takes place as late as in the latter part of the 19th century, given that the prerequisites for this change have existed ever since Old Norse-Icelandic. In other words, since idiosyncratic and thematic case were supposedly also idiosyncratic and thematic in Old Norse-Icelandic, why did this change not take place earlier? This is a major anomaly for all accounts of Dative Substitution, generative and others, not addressed at all in the literature. Before turning to the onset of this change during the latter part of the 19th century, let us first carry out a lexical semantic analysis of accusative and dative subject predicates in Modern Icelandic in order to investigate this alleged difference in subject case marking, that accusative subject marking is idiosyncratic while dative subject marking is thematic or semantic.

3. The semantics of accusative and dative subject predicates in Modern Icelandic

Thematic roles are generally assumed nowadays to be derived from the semantics of verbs. That is, thematic roles are not primitives in themselves but are regarded as derivatives of verbal semantics (Jackendoff, 1990; Goldberg, 1995). The term verbal semantics includes both causal and aspectual structure of predicates, as well as their lexical content (Croft, 1998). The assumption that dative subject case in Icelandic is "thematic" is based on the fact that it is assigned to whole classes of verbs, which can be regarded as being coherent semantically in terms of thematic roles. Therefore, if dative subject case is thematically assigned, i.e. based on thematic roles found with larger verb classes, and accusative subject case is idiosyncratically assigned, then the predicates selecting for accusative subjects in Icelandic should not cluster around specific lexical semantic verb classes, but rather be scattered across semantic space, not yielding a coherent lexical semantic class. In order to investigate this, it is important to carry out a lexical semantic analysis of the verb classes found with both accusative and dative subject predicates in Icelandic.

In earlier work on the lexical semantics of Dative subject predicates in Icelandic, German and Faroese (Barðdal, 2004), I have pointed out that these predicates are distributed across two major event-type categories, i.e. experience-based and happenstance events. They can, moreover, be divided into 13 more fine-grained semantic verb classes (in addition to a couple of predicates instantiating verbs denoting Landscape and Nature):

- (7) a. *Experience-based predicates:*
Verbs of Emotion, Attitudes, Cognition, Perception, Bodily States, Changes in Bodily States
- b. *Happenstance predicates:*
Verbs of Decline, Failing/Mistaking, Success/Performance, Ontological States, Social Interaction, Gain, Personal Properties

This analysis is based on the approximately 700 dative subject predicates, listed in Jónsson (1998), including different lexical entries of the same verbal stem, and compositional predicates consisting of the lexical verbs *vera* 'be' or *verða* 'become' together with a noun, an adjective or a PP.

The Accusative Subject Construction, in contrast, is considerably lower in type frequency in Icelandic than the Dative Subject Construction. Of the 180 Icelandic accusative subject predicates (again including different lexical entries of the same verbal stem), listed in Jónsson (2001), 160 predicates divide across four major semantic classes (in addition to a couple of verbs instantiating the two classes of verbs of Decline and Social Interaction):

- (8) a. *Experience-based predicates:*
Verbs of Emotion, Cognition, Bodily States
- b. *Happenstance predicates:*
Verbs of Landscape and Nature

These lexical semantic verb classes are exemplified in the following, for both accusative and dative subject predicates in Icelandic (for further details about the classification, see Barðdal, 2004):

- (9) *Verbs of Emotion:*
- a. **Mér** þykir þetta leitt. Dative
me.DAT feels this.NOM sad
'I'm sorry about this.'
- b. **Mig** iðrar þess. Accusative
me.ACC regrets this.GEN
'I regret that.'
- (10) *Verbs of Cognition:*
- a. **Mér** var það efst í huga þegar ... Dative
me.DAT was it.NOM above in mind when
'I remembered it the most when ...'
- b. **Mig** rekur ekki minni til þess. Accusative
me.ACC drives not memory to that
'I have no memory of that.'
- (11) *Verbs of Bodily States:*
- a. **Mér** blæddi mikið. Dative
me.DAT bled much
'I bled much.'
- b. **Mig** kitlar. Accusative
me.ACC tickles
'I tickle.'
- (12) *Verbs of Attitudes:*
- Honum** var ekki auðið að ... Dative
him.DAT was not possible to
'He didn't have the chance to ...'
- (13) *Verbs of Perception:*
- Mér** smakkaðist hákarlinn vel. Dative
me.DAT tasted shark-the.NOM well
'I liked the taste of fermented shark.'
- (14) *Verbs of Decline:*
- a. **Hríðinni** létti. Dative
snowstorm-the.DAT lightened
'The snow storm subsided.'
- b. **Hríðina** birti upp. Accusative
snowstorm-the.ACC lightened up
'The snow storm subsided.'
- (15) *Verbs of Failing:*
- Honum** mistókst þetta. Dative
him.DAT failed this.NOM
'He failed with this.'
- (16) *Verbs of Success:*
- Þeim** gengur vel. Dative
them.DAT goes well
'They're doing well.'

- (17) *Verbs of Ontological States:*
Þessu er þannig háttað að ... Dative
 this.DAT is such way that
 ‘This is in such a way that ...’
- (18) *Verbs of Personal Properties:*
Honum liggur hátt rómur. Dative
 him.DAT lies loud voice.NOM
 ‘He’s got a loud voice.’
- (19) *Verbs of Social Interaction:*
 a. **Þeim** varð sundurorða í gær. Dative
 they.DAT became argumentative in yesterday
 ‘They argued yesterday.’
 b. **Þá** greindi á um þetta. Accusative
 they.ACC disagreed on about this
 ‘They disagreed on this.’
- (20) *Verbs of Gain:*
Honum barst pakki í gær. Dative
 him.DAT received package.NOM in yesterday
 ‘He received a package yesterday.’
- (21) *Verbs of Landscape/Nature:*
 a. **Þessu** skolaði á land. Dative
 this.DAT got-washed on shore
 ‘This got washed ashore.’
 b. **Ána** lagði. Accusative
 river.ACC laid
 ‘The river froze solid.’

As already mentioned above, the present classification is based on Barðdal (2004) and it contrasts with recent classifications found in Onishi (2001), Haspelmath (2001) and Malchukov (2005), all of which deal with non-canonically case-marked experiencer subject predicates in various languages of the world. The classifications in Onishi and Malchukov are based on typological comparisons, whereas Haspelmath bases his classification on a subset of the Indo-European languages. The problem with both Haspelmath’s and Malchukov’s analyses is that their verb classifications do not cover the classes of lexical semantic predicates that I have found with non-canonically case-marked experiencer subject predicates in the Germanic languages. Haspelmath, for instance, divides his predicates into experience-based predicates, sensation predicates, and cognition predicates, including verbs denoting propositional attitude and modality. Malchukov, who also discusses typical transitive predicates like ‘kill’, ‘break’, ‘hit’, and ‘shoot’, surveys verbs of perception (‘see’, ‘hear’), verbs of pursuit (‘search’, ‘try’), verbs of knowledge (‘know’, ‘understand’), verbs of feeling (‘like’, ‘feel’, ‘fond of’), and verbs of relation (‘possess’). Happenstance predicates like *skrika fótur* ‘stumble’ and *seinka* ‘get delayed’, which also select for non-canonical subject marking, not only in Icelandic, but across the Germanic languages, are not subject to any discussion in neither Haspelmath nor Malchukov. Onishi, in contrast, is considerably more detailed than Haspelmath and Malchukov and his classification is more similar to the classification presented here. The difference is that Onishi only briefly mentions Happenstance predicates, and his classification is therefore far from as elaborated as the present classification of Happenstance predicates.

The present classification of predicate classes is quite crude and a more fine-grained classification is needed to properly map the details of the semantic properties of the two Oblique Subject Constructions. However, irrespective of whether the reader agrees with me or not on the exact details of the classification, it seems clear that both the Accusative and the Dative Subject Constructions motivate a number of narrowly circumscribed semantic classes, which overlap at least partially with each other. The most important issue here is that the same classification be applied on data from both constructions, in order to facilitate a proper comparison.

Returning to the lexical semantic comparison of the two constructions, observe that within the category of Experience-based predicates, accusative subject predicates turn out to be a proper subset of dative subject predicates. This is because accusative subject predicates instantiate the verb classes of Emotion, Cognition and Bodily States, exactly like dative subject predicates. The other Experience-based verb classes, found with dative subject predicates, are not found with accusative subject predicates.

It is therefore only with Happenstance predicates, however, that one does not find an overlap between accusative and dative subject predicates (see Figs. 3 and 4 in Section 3). The only large class of accusative Happenstance verbs is the verb class denoting happenstance in Landscape and Nature (ex. 21 above). Although, there are a couple of such predicates in Icelandic selecting for dative as a subject case, they are so few that they hardly make up a verb class of their own. The Dative Subject Construction is, furthermore, instantiated by different classes of Happenstance predicates, i.e. verbs of Failing, Success, Ontological States, Personal Properties, and Gain, which are not found with accusative subject predicates (except for the miniature representation of the verb classes of Decline and Social Interaction). For an exhaustive list of accusative subject predicates in Icelandic, see Appendix A, and for a comprehensive list of dative subject predicates in Icelandic, see Barðdal (2004).

Recall from the beginning of this section that lexical semantic verb classification provides the basis for any analysis in terms of thematic or semantic roles, as thematic roles are after all derivatives of verbal semantics. The analysis suggested here of accusative and dative subject predicates in Icelandic does not yield any motivation for why one is deemed in the generative literature to be idiosyncratic and the other to be thematic. As the overview in Appendix A shows, the four major semantic verb classes instantiated by accusative subject predicates are quite robust with 23 verbs of Cognition, 36 verbs of Emotion, 43 verbs of Bodily States and 58 verbs of Landscape/Nature. It is therefore not at all the case that the semantic distribution of accusative subject predicates is so uneven and scattered about in semantic space that no clear-cut lexical semantic classes can be discerned. On the contrary, three of four lexical semantic verb classes are shared with the Dative Subject Construction. My conclusion is therefore that the assumption found in the generative literature that accusative subjects are idiosyncratically assigned is non-motivated. Moreover, there does not seem to be any categorical difference in the nature of accusative vs. dative subject marking in Icelandic, as both are assigned to clearly delimited lexical semantic verb classes, all of which are in fact shared by the two subconstructions of the Dative Subject Construction. Hence, the explanation for Dative Substitution as being motivated by a regular thematic case, as opposed to accusative subjects being idiosyncratically assigned, does not hold.

To conclude, if the Accusative and Dative Subject Constructions are both instantiated by clearly delimited lexical semantic verb classes, there is no reason to analyze the Accusative Subject Construction as being idiosyncratically assigned and the Dative Subject Construction as being thematically assigned. With this explanation gone, the question is invoked as to why the change causes accusative subjects to change into dative subjects and not vice versa. In order to address that question, let us first briefly consider recent advances within theories of productivity, made within the framework of cognitive-functional Construction Grammar.

4. Productivity of case and argument structure constructions

Before addressing the issue of productivity in general, and my approach to the productivity of argument structure constructions in particular, let me first lay out the basics of my theoretical framework, i.e. the basics of a usage-based Construction Grammar. This framework provides the theoretical foundation for my approach to the productivity of argument structure constructions.

4.1. Usage-based Construction Grammar

All versions of Construction Grammar (see the overview in Croft and Cruse, 2004:257–290 and Goldberg, 2006:213–226) share the fundamental assumption that form–function correspondences are the basic units of language. Such form–function correspondence cut across the traditional division of linguistics into, for instance, syntax, morphology, phonology and semantics, as constructions consist of both a form part and a meaning part. The form itself may be of syntactic, morphological or phonological nature, or all three combined together. Semantically a construction may range from being compositional or *general*, i.e. with the meaning of the whole representing the sum of the meaning of the parts, to being non-compositional or *specific*, i.e. with the meaning of the whole not representing the sum of the meaning of the parts (Tomasello, 1998; Croft and Cruse, 2004:253–254). The latter type of constructions is semantically irregular or idiosyncratic (cf. Fillmore et al., 1988; Nunberg et al., 1994). However, irrespective of the nature of the form, or the nature of the semantics, one of the major advantages of Construction Grammar is that it represents all linguistic knowledge in a uniform way, i.e. as learned form–function pairings. This means that the theoretical machinery needed to account for semantically non-compositional or specific constructions can also be employed to account for semantically compositional or general constructions. From a science-theoretic perspective, therefore, Construction Grammar has a clear advantage over other current frameworks, as it uses its main theoretical machinery to account for different types of data.

The usage-based Construction Grammar that I endorse, which is of relevance for the issue of productivity to be discussed below, takes frequencies to be a major determinant of the grammatical system. On this view, the linguistic system is a dynamic system, both shaped by its input and shaping its output (cf. Barlow and Kemmer, 2000; Bybee and Hopper, 2001). Frequencies are taken to represent degrees of entrenchment, with highly frequent constructions being central to the system, while constructions of lower frequency are regarded as less entrenched (Langacker, 1988, 2000; Bybee, 2007). Less entrenched constructions are thus cognitively less salient. As will become evident below, however, lower type frequency is not less relevant for the issue of productivity.

Linguistic knowledge within a usage-based Construction Grammar may be represented in lexicality–schematicity hierarchies of the type suggested by Croft (2003) and implemented in Barðdal (2001c, 2006b, 2008) and Barðdal et al. (2011) and (Toft, 2009). On such an approach, different lexical semantic verb classes do not illustrate different senses of a

construction, as argued by Goldberg (1995), but are rather regarded as different subconstructions of a construction, with each and every lexical semantic verb class representing a subconstruction of its own. On this approach, the lowest level of a lexically–schematicity hierarchy specifies verb-specific constructions, the level above specifies verb-subclass-specific constructions, which are generalizations across the verb-specific constructions. The level above that specifies the verb-class-specific constructions, which are generalizations across the verb-subclass-specific constructions. The level above that specifies event-type categories, which are generalizations across the verb-class-specific constructions.

The lowest level of a construction, i.e. the verb specific level, equates a subcategorization frame in other frameworks. This level, therefore, is the most lexical level with the most concrete lexical semantic content. Each level of abstraction represents more and more schematic semantics, until at the topmost level, above the event-type categories, the semantics is at best relational (cf. Barðdal, 2008:44–48, 109–111). Lexicality–schematicity hierarchies for the Accusative and the Dative Subject Constructions are given in Figs. 3–6.

The exact number of levels found for each argument structure construction is an empirical issue. That is, not all argument structure constructions exist as schematic abstract constructions, although they all exist as low-level verb-specific constructions. For semantically general constructions, the number of higher levels is determined on the basis of the number of verbs instantiating a construction. The more verbs that instantiate a construction, the more lexical semantic classes and subclasses are found, and hence, the more schematic levels have to be posited for the relevant construction. This also means that the more verbs that instantiate a construction, the higher must the most schematic level of that construction be. In other words, a semantically general argument structure construction instantiated by more verbs will generally have a wider semantic scope than an argument structure construction instantiated by fewer verbs, and hence its highest level will also be more schematic, *with such a construction lending itself more easily as a model to productive extensions*. Therefore, on the present approach, the productivity of a semantically general construction is a direct derivative of a construction's highest level of schematicity, which in turn correlates with type frequency, although the former cannot be reduced to the latter (Barðdal, 2006a,b, 2008:44–49). As such, this is a bottom-up approach, aiming at representing the constructional knowledge of speakers in a psychologically plausible way.

This kind of a constructional approach not only overcomes subcategorization frames of verbs, i.e. variation in their lexical specifications, as illustrated by Goldberg (1995), but it can also be extended to model changes in case frames of verbs, as I will show in the remainder of this article. As such, Construction Grammar can be used not only to capture synchronic variation, but also diachronic change.

4.2. The productivity of the Oblique Subject Construction

I have argued elsewhere (Barðdal, 2008:19–24) that productivity, as the term is used within linguistics, reflects at least three different concepts of productivity, namely (i) productivity as REGULARITY, (ii) productivity as GENERALITY, and (iii) productivity as EXTENSIBILITY. I will be using the terms *productive* and *productivity* here to refer to the last concept, namely productivity as EXTENSIBILITY, in particular in relation to the extensibility of argument structure constructions. By the extensibility of argument structure constructions, I mean their ability to attract either new or existing verbs.

There is a growing consensus in the cognitive-functional literature that productivity may be regarded as a function of either type frequency alone or of type frequency and coherence (Bybee, 1985, 1995; Goldberg, 1995; Clausner and Croft, 1997; Clausner, 2002). Particularly for semantically general argument structure constructions I have recently suggested that their productivity is a function of type frequency, semantic coherence and an inverse correlation between the two (Barðdal, 2006a, 2008). This means that the higher the type frequency, the less important is the semantics, and vice versa. This view of productivity can be demonstrated as in Fig. 1 where the vertical axis stands for type frequency, the horizontal axis for coherence and the inverse correlation is given as a graphical line, representing the cline from high productivity to low productivity, via different degrees of productivity.

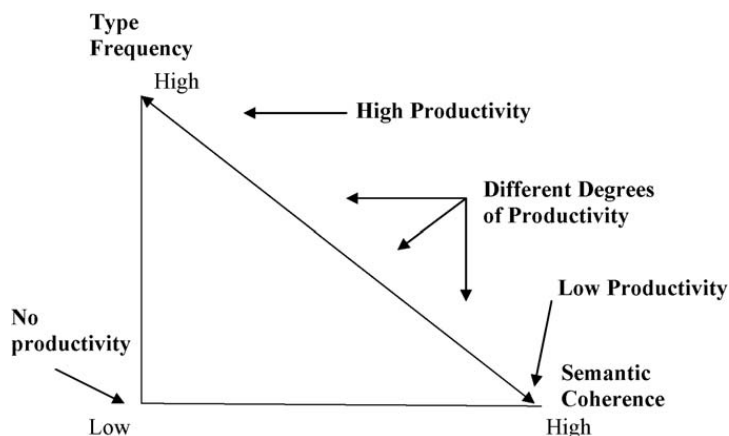


Fig. 1. Type frequency, semantic coherence and their inverse correlation.

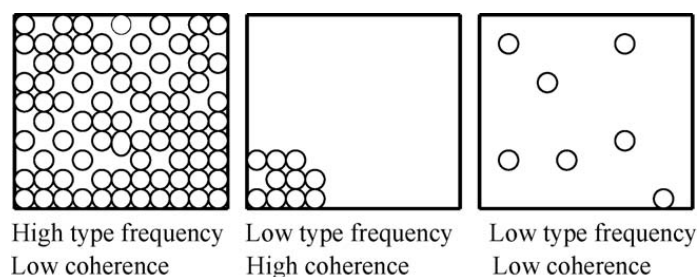


Fig. 2. The interrelation between type frequency and semantic coherence.

At the top of the cline we find categories that are high in type frequency, but at the same time such categories tend to be low in semantic coherence, exactly because they are so high in type frequency. That is, categories that are high in type frequency also have a wide semantic scope. Therefore, they exist at a high level of schematicity and they tend to be highly productive and extensible to new or existing items. In contrast, categories that are low in type frequency must be semantically coherent in order to be productive, i.e. in order to be extended to new or existing items. Such categories are located at the bottom right end of the cline in Fig. 1. It is not a given, however, that all low type frequency categories are semantically coherent, i.e. that they show internal consistency between their items. It is equally possible to imagine a low type frequency category where the items do not form a coherent class, but are instead scattered across semantic space. As such, they will be perceived of as island-specific items, not giving rise to productive extensions to new or existing items. Such categories, i.e. categories low in both type frequency and semantic coherence are located at the bottom in Fig. 1 to the left. The differences between the three hypothetical linguistic categories that I have just discussed are shown in Fig. 2.

The Nominative Subject Construction in Icelandic would be an example of the category in the left-most box, a category high in type frequency and low in semantic coherence. As evident from Fig. 2, this category fills up its possible semantic space, and can therefore easily be extended to items of all semantic types. The Accusative and the Dative Subject Constructions would both be instances of categories in the middle box, as both are low in type frequency and both are semantically restricted. On this approach, however, it is expected that the construction higher in type frequency will attract items from the construction lower in type frequency, and as alluded to in Section 3 above, the Dative Subject Construction is much higher in type frequency than the Accusative Construction. It is therefore expected that the Dative Subject Construction attracts items from the Accusative Subject Construction, given the similarity in semantics, which is here defined in terms of lexical semantic verb classes. The right-most box in Fig. 2 would represent idiosyncratic case marking, as no lexical semantic clusters are discernable, and any extensibility would have to take place on the basis of verb-specific islands (see Barðdal, 2008:75–77). As evident from the comparison in Section 3 above, the Accusative Subject Construction is better characterized by the intermediate box in Fig. 2, rather than by the right-most box.

Before comparing the relative type frequency of the Accusative and the Dative Subject Constructions in Old Norse-Icelandic and Modern Icelandic (see Section 5), i.e. their type frequencies in texts, let us first consider their absolute type frequencies, i.e. their type frequencies given a dictionary count of Icelandic. Table 2 demonstrates such absolute dictionary frequencies for all the different case and argument structure constructions in Icelandic. Table 2 shows furthermore that the type frequency of the Accusative Subject Construction is only a fraction of the type frequency of the Dative Subject Construction, although the Nominative Subject Construction is of course highest in type frequency of them all. The figures for the Nominative Subject Construction are based on a count of Nom-Acc, Nom-Dat and Nom-Gen in an intermediate-sized bilingual Icelandic–English dictionary (Hólmarsson et al., 1989). A count including, for instance, all intransitive predicates in Icelandic would of course yield much higher figures. Nevertheless, the figures in Table 2 show clearly that the Nominative Subject Construction is by far the highest in type frequency in Icelandic, followed by the Dative Subject Construction, then the Accusative Subject Construction, while the Genitive subject construction is only instantiated by a handful of predicates in Icelandic.

The Accusative and Dative Subject Constructions in Icelandic are similar in the sense that they both denote affectedness to a much higher degree than the Nominative Subject Construction (cf. Barðdal, 2008:62–76, 104–116, 2009). Even though a notion like affectedness may be notoriously difficult to define, a claim like the above one can in fact be verified empirically in terms of the lexical semantic verb classes which instantiate different case and argument structure constructions. The Nominative Subject Construction in Icelandic is instantiated by predicates from all lexical semantic verb classes, while the Accusative and the Dative Subject Constructions are not. Surely, there are experience-based predicates found to instantiate the Nominative Subject Construction in Icelandic, but these only make up a small subset of the predicates occurring in the Nominative Subject Construction, while experience-based predicates make up the majority of both accusative and dative subject predicates. In Barðdal (2008:Chapter 3) I list the lexical semantic verb classes, instantiating the

Table 2

Absolute type frequency of different case and argument structure constructions in Icelandic.

Nom-subject	Acc-subject	Dat-subject	Gen-subject
2156+	ca. 180–200	ca. 700	ca. 10–15

Nominative Subject Construction in Modern Icelandic, confining my analysis to a corpus of 40,000 running words. I found that there are at least 45 verb classes that instantiate the Nom–Acc constructions, 32 verb classes that instantiate the Nom–Dat construction, and only four verb classes that instantiate the Nom–Gen construction in Icelandic. Some verb classes are, of course, shared across the three constructions. This makes up a total of 81 narrowly circumscribed semantic classes which instantiate the Nominative Subject Construction in Icelandic.

When comparing the Nominative Subject Construction in Icelandic to the Accusative and the Dative Subject Constructions, based on the data presented in Section 3 above, the Dative Subject Construction makes up 13 lexical semantic verb classes, while the Accusative Subject Construction makes up four such classes. As is also shown in Section 3 above, there is a major semantic overlap between the Accusative and the Dative Subject Constructions in Icelandic in that the same lexical semantic classes are found instantiating both constructions. This major overlap is not found with the Nominative Subject Construction in the sense that the semantic scope of the Nominative Subject Construction is not confined to the same verb classes as the Accusative and the Dative Subject Constructions, but is much wider than that. It is beyond the scope of the present article to give a full-fledged overview of the semantic structure of the Nominative Subject Construction in Icelandic, but I refer the interested reader to Chapter 3 in Barðdal (2008) where a first attempt at such an analysis is laid out.

The structure of the Accusative and the Dative Subject Constructions can be represented as in Figs. 3 and 4, which show clearly that the Dative Subject Construction is much more robust than the Accusative Subject Construction. This is not only because of the higher type frequency of the Dative Subject Construction but also because of the larger number of lexical semantic verb classes instantiating it. This is shown with a difference in the highest existing level of these constructions, with the Dative Subject Construction existing at a higher level than the Accusative Subject Construction. The Dative Subject Construction exists at an event-type category level, while the Accusative Subject Construction does not exist above a verb-class level. This predicts that the Dative Subject Construction should be more productive than the Accusative Subject Construction, as it exists at a higher level of schematicity than the Accusative Construction.

At the level below the highest most schematic level in Fig. 3, the happenstance and the experience based event-type categories are represented, here referred to as the Happenstance and the Cognition/Emotion subconstructions. The intermediate level below represents the verb-class-specific constructions, i.e. the lexical semantic verb classes, and the lowest level is the verb-specific constructional level, here shown with [Verb]. As stated above, each level above the lowest verb-specific level is an abstraction based on a categorization of the entities at the level below. This means that the verb-specific constructions at the lowest level give rise to the verb-class-specific constructions one level up, which in turn give rise to the event-type constructions one level up, which in turn make up the highest, most schematic level of the construction. Observe that the verb-class-specific subconstructions should be horizontally aligned under each respective event-type construction. However, because of reasons of space, they are given here as vertically aligned lists.

For the Dative Subject Construction, the high number of verb classes, both happenstance and experience-based, contributes to the existence of the event-type constructions, Happenstance and Cognition/Emotion. However, with only two

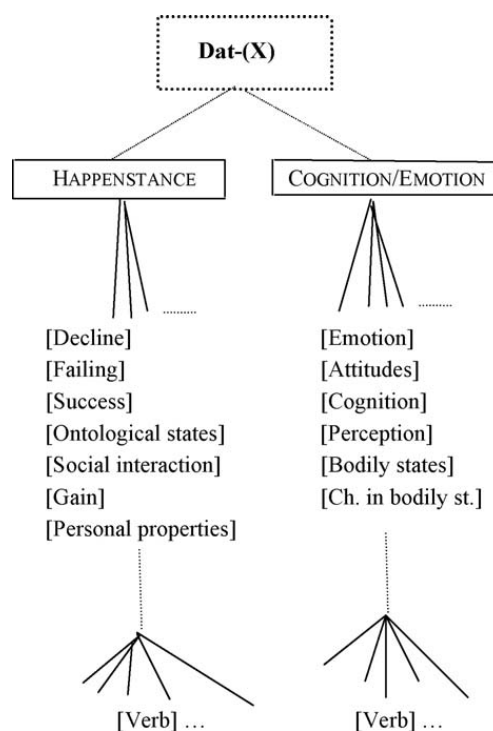


Fig. 3. The Dative Subject Construction in Icelandic (based on absolute type frequencies).

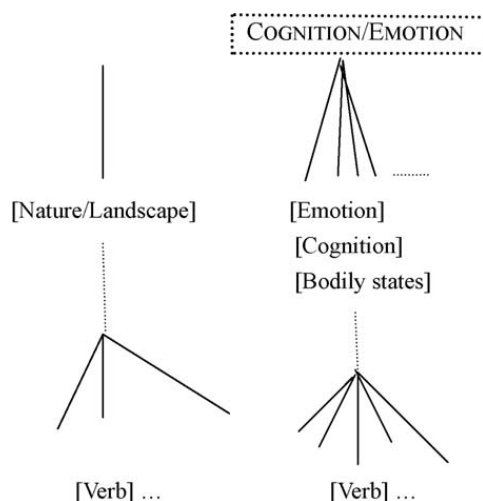


Fig. 4. The Accusative Subject Construction in Icelandic (based on absolute type frequencies).

event-type categories represented here, it is doubtful that the construction exists at the highest most abstract schematic level, here shown with dotted lines at the highest level, as opposed to solid lines for the event-type constructions one level below. On the basis of this, it can be argued that the highest level of the Dative Subject Construction, existing in the minds of Icelandic speakers, are the Happenstance and Cognition/Emotion levels.

The Accusative Subject Construction, in contrast, is only instantiated by four verb-class specific constructions, one Happenstance and three Experience-based. It is obvious that only one Happenstance verb class, i.e. with verbs of Landscape and Nature, does not in itself contribute to the existence of a higher-level construction. A happenstance event-type category can therefore not be assumed for the Accusative Subject Construction in Icelandic. Also, with only three experience-based verb classes, it is also doubtful whether an event-type category of Cognition/Emotion can be regarded as existing for the Accusative Subject Construction in the minds of Icelandic speakers. This is shown with a dotted line for the Cognition/Emotion subconstruction of the Accusative Subject Construction in Fig. 4.

Therefore, given the absolute type frequencies of the Accusative and the Dative Subject Constructions in Modern Icelandic, the difference in their schematicity, as well as the semantic overlap found between them, one would certainly expect the Dative Subject Construction to attract items from the Accusative Subject Construction, and not vice versa.

Before concluding this section, and before turning to relative type frequencies of the Accusative and the Dative Subject Constructions in Old Norse-Icelandic and Modern Icelandic in Section 5, let me first briefly comment on the status of Nominative Substitution in Icelandic and why it does not attract accusative subject predicates to any substantial degree. I have explained above why it is the Dative Subject Construction, and not the Nominative Subject Construction, that attracts items from the Accusative Subject Construction. I remind the reader that of the accusative subject predicates, it is only the experience-based predicates that are attracted by the Dative Subject Construction. That is, Dative Substitution only targets Experience-based predicates, not Happenstance predicates (see Section 2 above). Jónsson (2003:152–156), however, argues that this shows that dative subject case is thematic, while accusative subject case is idiosyncratic. He argues, moreover, that dative case marking on experiencers and goals is based on a rule targeting verbs which assign these thematic roles to their subjects, while the assignment of the thematic role of themes (i.e. to Happenstance predicates in our terminology) is idiosyncratic, both with accusative and dative subject predicates. This explains, on his approach, why accusative and dative themes tend to change into nominative, exemplified in (2–3) above, while accusative experiencers tend to change into dative. If there were no thematic rule here, accusative and dative experiencers should also change into nominative, he argues.

The productivity of the Dative Subject Construction, as opposed to the lack of productivity of the Accusative Subject Construction, may well be explained without making recourse to any rules, either thematic or structural rules of case marking, as I have shown here. The present usage-based constructional approach to productivity also makes it possible to explain why neither accusative nor dative experience-based predicates tend to change into nominative subject predicates, and to explain why accusative happenstance predicates change into nominative, instead of dative (see also the end of Section 5). The issue of productivity does thus not hinge upon the notion of rules.

We now turn to a comparison of how frequent the Accusative and the Dative Subject Constructions are in actual language use, comparing Old Norse-Icelandic to Modern Icelandic.

5. Comparing Old Norse-Icelandic and Modern Icelandic texts

Consider now the type frequency of accusative and dative subject predicates in texts, so-called relative type frequency, in both Old Norse-Icelandic and Modern Icelandic texts. The Modern Icelandic corpus consists of four different genres:

- (22) Icelandic Fiction
Translated Fiction
Biographies and Memoirs
Non-fictional texts

The Old Norse-Icelandic counterpart of the corpus consists of the four genres that functionally correspond mostly to the ones in Modern Icelandic. The texts date from approximately 1200 AD:

- (23) Icelandic Sagas and Tales (domestic fiction)
Romantic Sagas (translated fiction)
Sagas of Bishops and Sagas of Secular Chieftains (contemporary sagas)
Non-fictional texts

Each genre consists of ten 500-word extracts from different texts, randomly selected, 5000 running words for each genre, in total 20,000 running words for the four genres (for further details and references, cf. Barðdal, 2001a). The corpus is, in this sense, a well-stratified corpus.

The question arises, of course, of how representative this corpus is of the language of these two periods. In Barðdal (2001a:76–80) I show that the Modern Icelandic corpus, which is compiled according to the same principles as an earlier corpus of 500,000 running words, shows similarities with the larger corpus, bordering on identity, even though the current Modern Icelandic corpus is only 20,000 running words. These similarities relate to frequencies within the case marking of adjectives, nouns and pronouns. Some genre dependent differences, found in the larger corpus, are also represented in the current smaller corpus. There is thus no doubt in my mind that even though the current corpora of Modern Icelandic and Old Norse-Icelandic texts do not capture all aspects of the language, they are still fairly representative of the language of their time and provide a good view of facts relating to case marking.

Consider now the type frequency of accusative and dative subject predicates in Old Norse-Icelandic and Modern Icelandic texts. Table 3 reveals that there are 12 accusative subject predicates used in the Old Norse-Icelandic corpus and 14 in the Modern Icelandic corpus, while dative subject predicates are much higher in type frequency, namely 72 in Old Norse-Icelandic vs. 48 in the Modern Icelandic texts. The accusative subject predicates are the following:

- (24) *Old Norse-Icelandic (12)*
bera undan 'float away', *bresta* 'lack', *forvitna* 'be curious', *fýsa* 'want', *gefa til* 'get favorable weather', *gera fúsan* 'become eager', *greina á* 'disagree', *hungra* 'hunger', *reka* 'drift', *saka* 'harm', *sjá* 'see', *skorta* 'lack'
- (25) *Modern Icelandic (14)*
bresta kjark 'lack courage', *dreyma* 'dream', *finna* 'find', *fýsa* 'desire', *gruna* 'suspect', *langa* 'want', *leggja* 'waft', *lysta* 'want', *mega heyra* 'may be heard', *reka í rogastans* 'become surprised', *skorta* 'lack', *taka* 'take', *undra* 'be surprised', *vanta* 'need'

A quick glance at these lists shows that for the Old Norse-Icelandic texts four verbs relate to landscape and nature, while eight are experience-based predicates. For the Modern Icelandic texts there is one predicate, relating to landscape and nature and 13 are experience-based. Therefore, the overall type frequency of accusative subject predicates has remained more or less the same, although there is a slight difference in the proportion between experience-based predicates and happenstance predicates found between the two periods. This may suggest a change in the semantic structure of the Accusative Subject Construction, reflecting differences in language use between Modern Icelandic and Old Norse-Icelandic, although the total type frequency is so low that this cannot be asserted and no statistical conclusions can be drawn.

Consider now the dative subject predicates found in Old Norse-Icelandic and Modern Icelandic language use. Before that, however, I must point out that of the 72 vs. 48 dative subject predicates found in the texts, a small part consists of passive constructions. Confining the present analysis to active constructions, there are 66 active dative subject predicates in the Old

Table 3
Subject frequency in Old Norse-Icelandic and Modern Icelandic.

	Old Norse-Icelandic		Modern Icelandic	
	N	%	N	%
Nom	299	76.6	395	85.1
Acc	12	3.1	14	3.0
Dat	72	18.5	48	10.4
Gen	7	1.8	7	1.5
	390	100	464	100

Norse-Icelandic texts and 33 in the Modern Icelandic texts. This means that the use of the Dative Subject Construction has in fact been drastically reduced from Old Norse-Icelandic to Modern Icelandic, i.e. to 50% of its original use. It may appear as counterintuitive to assume that a construction which has gone down in relative type frequency, i.e. is used less, has gained in productivity from one time period to another. The fact remains, however, that the Dative Subject Construction is attracting and has been attracting predicates from the Accusative Subject Construction. Consider now the dative subject predicates occurring in the texts, listed according to verb class:

Experience-based predicates:

1. Verbs of Emotion: *bjóða hugur* 'want', *finnast* 'think, feel, seem', *geta(st) að* 'like', *líka* 'like', *lítast á* 'like', *mislíka* 'dislike', *vera að harmi* 'be grief-stricken', *vera ást á* 'love', *vera eftirsjá* 'regret', *vera ekki þökk á* 'dislike', *vera heyrilegt* 'be pleasurable', *vera í skapi* 'feel like', *vera ekki um* 'dislike', *þykja* 'feel'
2. Verbs of Attitudes: *fara vel* 'suit well', *sýnast* 'appear, seem', *vandast málið* 'become difficult', *vera best* 'be best for sby', *vera dul* 'be impossible', *vera nauðsyn* 'be necessary/important for sby', *vera vant* 'be difficult for sby', *vera vant* 'be in need of', *verða vei* 'be woe to', *verða hamingja að* 'be of happiness for sby', *vera þungt* 'be difficult for sby'
3. Verbs of Cognition: *ganga til* 'have the intention', *koma í hug* 'get an idea', *segja hugur um* 'have an instinct', *vera forvitni á* 'be curious', *vera grunur* 'suspect', *verða kunnugt* 'become known'
4. Verbs of Bodily States: *vera sár fótur* 'have pain in the leg'
5. Verbs of Obligation: *bera* 'be obliged'

Happenstance predicates:

6. Verbs of Failure/Mistake: *leiða illt* 'get into trouble', *misfarast* 'be unsuccessful', *standa mein að* 'have problems with', *verða mein að* 'be harmful to sby', *verða sein förin* 'be late', *verða seint* 'be late', *vera til dauða* 'cause to die'
7. Verbs of Success/Performance: *endast* 'last, manage, be able to', *greiðast* 'go well', *takast* 'succeed', *vaxa afl* 'become strong', *verða gott til fjár* 'become rich'
8. Verbs of Ontological States: *fara fjarri* 'be absurd', *fylgja* 'be accompanied with' *halda* 'stay in the same way', *vera borgið* 'be safe', *vera farið* 'be in a certain way', *vera maklegt* 'be deserved', *vera ofurefli* 'be inferior to', *vera síður* 'be long'
9. Verbs of Gain: *berast* 'receive', *byrja* 'get wind', *dæmast* 'receive by ruling', *gagna* 'be of use', *vera hollur* 'be faithful'
10. Verbs of Personal properties: *vaxa fjaðrir* 'grow feathers'
11. Miscellaneous: *fara* 'become of sby', *ganga út* 'become of sby', *ljúka* 'come to an end', *mega* 'happen to, become of', *snúa* 'get turned', *verða að munnni* 'accidentally speak', *verða vísa á munnni* 'happen to speak out a poem'

The semantic structure of the Dative Subject Construction in Old Norse-Icelandic can thus be represented as in Fig. 5, which is almost identical to Fig. 3 (not based on language use, however, but on dictionary counts). It is clear that the construction consists of two equally entrenched subconstructions in Old Norse-Icelandic, i.e. one denoting Happenstance events and the other denoting events of Cognition/Emotion.

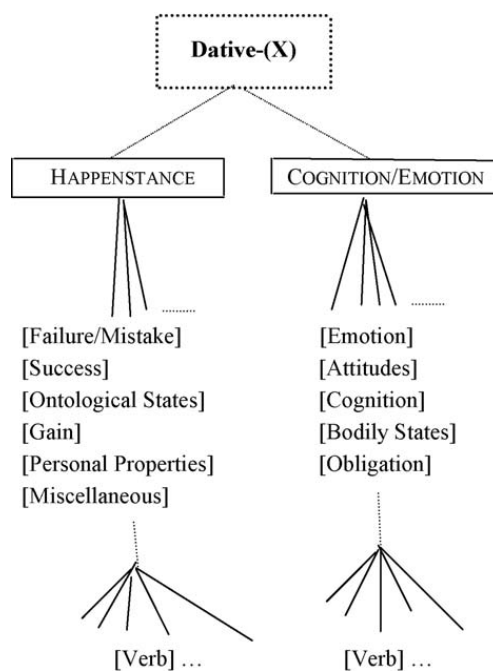


Fig. 5. The Dative Subject Construction in Old Norse-Icelandic (based on relative type frequencies).

Let us now compare the status of the Dative Subject Construction in Old Norse-Icelandic with the status of the construction in the Modern Icelandic corpus. The 33 predicates in Modern Icelandic only instantiate seven of the ten classes found in the Old Icelandic corpus:

Experience-based predicates:

1. Verbs of Emotion: *finnast* 'feel', *hitna í hamsi* 'become angry', *líða* 'feel', *líka* 'like', *renna kalt vatn á milli skinns og hörunds* 'be terrified', *standa stuggur af* 'be scared of sth', *vera (ekki) sama* '(don't) mind', *vera leitt* 'be sad', *verða bilt við* 'be startled', *vera þægð í* 'be content with', *þykja* 'feel, think, seem'
2. Verbs of Attitudes: *vera bágð til bjargar* 'be difficult to save', *vera nóg* 'be enough for sby'
3. Verbs of Cognition: *detta í hug* 'get an idea', *fljúga í hug* 'get an idea', *sýnast* 'seem, appear', *vera hugleikið* 'be on sby's mind', *verða hugsað til* 'remember, think about sby', *verða kunn* 'be known', *verða ljóst* 'realize', *vera ókunnur* 'be unknown', *virðast* 'seem, appear'
4. Verbs of Bodily States: *verða kalt* 'be cold', *vera ómótt* 'feel nauseated'
5. Verbs of Perception: *heyra* 'hear'

Happenstance predicates:

6. Verbs of Success/Performance: *takast* 'manage, succeed'
7. Verbs of Ontological States: *fara fjarri* 'be absurd', *fasta saman* 'be fastened together', *fylgja* 'be accompanied with', *reynast* 'turn out to be'
8. Miscellaneous: *halla* 'decline', *ljúka* 'come to an end', *verða starsýnt á* '(happen to) stare at'

Observe that of these 33 predicates, 25 are experience-based while only eight are happenstance predicates. Therefore, an analysis of the semantic structure of the Dative Subject Construction in the Modern Icelandic corpus, shown in Fig. 6, reveals that the subconstruction denoting happenstance events does not make up a significant part of the construction in Modern Icelandic anymore. In other words, only the subconstruction of Cognition/Emotion can be assumed to be psychologically real in the minds of present-day Icelandic speakers.

This difference between Old Norse-Icelandic and Modern Icelandic explains three different changes in Icelandic: (a) the late onset of Dative Substitution in the history of Icelandic, (b) the fact that the Dative Subject Construction does not attract Happenstance predicates from the Accusative Subject Construction, and (c) the fact that both accusative and dative subject Happenstance predicates change their subject to default nominative case. I will now discuss each of these in turn.

As a consequence of the fact that the use of Happenstance predicates is drastically reduced from Old Norse-Icelandic to Modern Icelandic, the Cognition/Emotion subconstruction has become the dominant subconstruction of the Dative Subject Construction. This, however, does not automatically entail that all such Happenstance predicates have been subject to Nominative Substitution, i.e. that they now occur with a nominative subject. It is equally possible that these predicates are simply falling into disuse. The Dative Subject Construction has therefore shifted from having two equally entrenched subconstructions in Old Norse-Icelandic, one denoting events of Cognition/Emotion and another denoting Happenstance events, to only having the Cognition/Emotion subconstruction as central in Modern Icelandic. This of course makes the Dative Subject Construction considerably more coherent semantically in Modern Icelandic than it was in Old Norse-

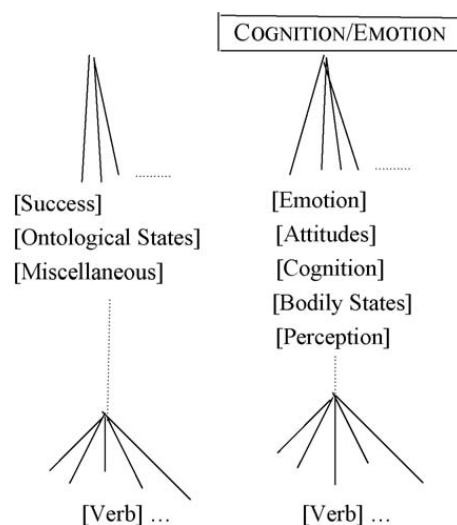


Fig. 6. The Dative Subject Construction in Modern Icelandic (based on relative type frequency).

Table 4

Type frequencies of dative subject predicates across subconstructions in Old Norse-Icelandic and Modern Icelandic.

	Old Norse-Icelandic		Modern Icelandic	
	<i>N</i>	%	<i>N</i>	%
Experience	33	50	25	76
Happenstance	33	50	8	24
	66	100	33	100

Table 5

Token frequencies of dative subject predicates across subconstructions in Old Norse-Icelandic and Modern Icelandic.

	Old Norse-Icelandic		Modern Icelandic	
	<i>N</i>	%	<i>N</i>	%
Experience	66	60	41	80
Happenstance	43	40	10	20
	109	100	51	100

Icelandic, and much more focused on experience-based predicates. And, indeed, the accusative subject predicates that undergo Dative Substitution in Icelandic belong to the experience-based class.

Tables 4 and 5 summarize the statistics for both language stages. Observe that while 50% of the dative subject types occurring in Old Norse-Icelandic denote experience-based events, as much as 76% of the types occurring in Modern Icelandic are of that type. This is a major change in the semantic structure of the Dative Subject Construction from Old Norse-Icelandic to Modern Icelandic times. The observed differences in distribution of types across subconstructions can occur by pure chance with a probability of less than 25 in a thousand (Yates Chi-Square, $p < 0.0253$; Pearson Chi-Square, $p < 0.0141$; Cramer's $V = 0.2466$). As Cramér's V shows that the association between the distribution of dative subject verbs across subconstructions in the two periods of Icelandic is as strong as 25%, this change in the semantic structure of the Dative Subject Construction is real.

Consider also Table 5 where token frequencies from both the Old Norse-Icelandic and the Modern Icelandic texts are given. The tendency found for experience-based dative subject types to be more prominent in Modern Icelandic than in Old Norse-Icelandic is also reflected in the token frequency. Experience-based predicates are higher in token frequency than Happenstance predicates already in Old Norse-Icelandic. Observe that the token frequency for experience-based dative subject predicates is skewed by the fact that a few predicates occur relatively more often than others in both corpora. The verb *þykja* 'feel' in Old Norse-Icelandic occurs 20 times, the verb *sýnast* 'seem' occurs eight times, while the remaining predicates occur only once. The verb *finnast* 'feel' in Modern Icelandic occurs seven times, while the remaining predicates occur once or twice, or at most three times each.

While more research is needed to determine if this change in the semantic structure of the Dative Subject Construction was gradual in the history of Icelandic, and to determine the pace at which it took place, it is beyond doubt that the Cognition/Emotion subconstruction has become the most salient subconstruction of the Dative Subject Construction in Modern Icelandic. This means that although the relative type frequency of the Dative Subject Construction has gone down from Old Norse-Icelandic to Modern Icelandic, the construction has still become considerably more coherent semantically during modern times. On the present approach to syntactic productivity, as a function of type frequency, semantic coherence, and an inverse correlation between the two, it is expected that semantically more coherent constructions are more extendable than constructions that are semantically less coherent, given the same type frequency. The present usage-based constructional analysis thus explains why Dative Substitution only got started as late as in the latter part of the 19th century and not already in Old Icelandic, as it was not until that late that the semantic structure of the Dative Subject Construction had shifted towards having the Cognition/Emotion subconstruction as central.

The present analysis also makes predictions about the onset of Dative Substitution for instance in the other Germanic languages. On this approach Dative substitution is expected to kick in when dative Happenstance verbs start losing their footing in the language, in conjunction with the higher type frequency of the Dative Subject Construction, as opposed to the Accusative Subject Construction. Let us investigate briefly whether this prediction is borne out, for instance, in Faroese. Dative Substitution is well known from Modern Faroese (Petersen, 2002, Thráinsson et al., 2004; Jónsson and Eythórsson, 2005), and according to Jónsson and Eythórsson (2005:226–228) original accusative Happenstance predicates are all construed with a nominative subject in present-day Faroese, while there are still a few original accusative experience-based predicates that show a variation between accusative and dative subject marking. A glance at the list of Dative subject predicates in Modern Faroese (Barðdal, 2004:137) reveals, moreover, that of 58 dative subject predicates in Modern Faroese, only 11 are Happenstance predicates, while the remaining 47 are experience-based. This shows that the Happenstance subconstruction is also losing ground in present-day Faroese, as compared to the Cognition/Emotion subconstruction. The predictions of the present account cannot be investigated diachronically, because of the late date of Faroese texts. However, the synchronic data are fully compatible with my predictions.

The difference in type frequency of the Dative Subject Construction from Old Norse-Icelandic to Modern Icelandic also explains why accusative Happenstance predicates are not attracted by the Dative Subject Construction, and it explains why both accusative and dative subject Happenstance predicates have become associated with the Nominative Subject Construction. From Old Norse-Icelandic times to Modern Icelandic times has the general use of dative subject Happenstance predicates gone down drastically, meaning that the Happenstance subconstruction is not saliently associated with the dative in Icelandic language use. As a consequence, these Happenstance predicates get attracted by the Nominative Subject Construction which is the default subject construction due to its high type frequency and heterogeneous semantics. Therefore, given the data provided when investigating language use, one would not expect accusative Happenstance predicates to change into dative Happenstance predicates in the history of Icelandic, underlining the importance of taking data from actual language use into account.

Another question raised relates to the observed change in language use, i.e. of why only happenstance predicates have gone down in use in the history of Icelandic, and not experience-based predicates. To this I can respond that dative subject experience-based predicates have also gone down in use from Old Norse-Icelandic to Modern Icelandic, although this has not resulted in the loss of the Cognition/Emotion subconstruction in Modern Icelandic, at least not yet. All scholars working on historical linguistics and historical lexicography are faced with the fact that the vocabulary changes over time. A certain amount of linguistic expressions fall into disuse and new expressions come into being, through language contact or otherwise. This seems to be a natural part of language renewal over time.

It appears at this point as if the terms *idiosyncratic* and *thematic* case assignment in the work of Jónsson (2003) and Jónsson and Eythórsson (2005) are meant to capture the fact that dative case assignment to experience-based predicates is productive in Modern Icelandic, while accusative case assignment to this semantic class is not. As the present study has shown, this is easily captured by using the terms *non-productive* and *productive* instead. The terms *idiosyncratic* and *thematic*, however, have deeper implications than only relating to productivity. The first, *idiosyncratic*, entails that the case marking is neither based on thematic roles nor structural considerations, and that, as such, the case marking has to be stipulated for each lexical entry. The second term, *thematic*, implies that the case marking is motivated by a discernible lexical semantic class of verbs, whatever that class may be (cf. Barðdal, 2011). I have shown here that accusative case marking of subjects in Icelandic is also thematic in the sense that it targets specific lexical semantic classes of verbs, and hence that the term *idiosyncratic* is a misnomer in this context, again reflecting the misconception that rules must entail productivity and lack of rules entails lack of productivity. It is accepted in morphology that morphological rules can be unproductive (cf. Haspelmath, 2002:40), and I have argued elsewhere that case and argument structure constructions, which correspond to “rules” in morphology, can also be non-productive in the sense that they do not attract new items (cf. Barðdal, 2008:33). This is irrespective of the “nature” of the actual morphological case assignment but dependent on the size and the semantic coherence found for and within the verbal category of each argument structure construction.

6. Summary

Variation in subject case marking is well known from the history of Icelandic and the history of the other Germanic languages. A particular instance of this variation, Dative Substitution, i.e. the change from accusative subjects to dative subjects, became increasingly apparent in the latter part of the 19th century in Iceland. A variation between accusative and dative subject marking, however, is an old phenomenon which can be traced back to Old Norse-Icelandic texts, although Dative Substitution, as the massive tendency found in Modern Icelandic, is not documented until as late as after the middle of the 19th century. Dative Substitution has most persuasively been explained in the literature as regular thematic case marking ousting idiosyncratic case marking. Given such an analysis, the question arises as to why this ousting of idiosyncratic case did not take place earlier than in the 19th century. This is a legitimate question as both idiosyncratic and thematic case were presumably idiosyncratic and thematic already in Old Norse-Icelandic, according to the generative view. The timing of the onset of Dative Substitution is also a major anomaly for all other approaches to Dative Substitution found in the literature.

The analysis of accusative and dative subject predicates in Icelandic into lexical semantic verb classes does not support the distinction between thematic and idiosyncratic case, as accusative subject predicates divide across four different verb classes in Icelandic, three of which are also found for the Dative Subject Construction, namely Verbs of Emotion, Cognition, and Bodily States. The fourth verb class consists of verbs denoting changes in Landscape and Nature. It is therefore clear that accusative subject case must also be regarded as thematically assigned, i.e. assigned on the basis of the thematic roles of experiencers and themes. With the explanation based on idiosyncratic and thematic case marking gone, the question arises as to why accusative subjects change into dative subjects and not vice versa.

On a usage-based constructional approach to the productivity of argument structure constructions, it is expected that the Dative Subject Construction attracts items from the Accusative Subject Construction because of the higher type frequency of the former as opposed to the latter, given a high enough semantic overlap. This is based on the hypothesis that the productivity of semantically general argument structure constructions is a function of type frequency, semantic coherence, and an inverse correlation between the two. This means that the weight of semantics increases inversely with the type frequency of a construction, again resulting in an increased importance of semantics for low type frequency constructions. As the Accusative Subject Construction is semantically a subset of the Dative Subject Construction (for the Cognition/Emotion subconstruction), it is expected that the Dative Subject Construction attracts items from the Accusative Subject Construction

because it is higher in type frequency. For Happenstance predicates, it is expected that the Dative Subject Construction will not attract items from the Accusative Subject Construction, as there is very little semantic overlap between the lexical semantic verb classes of happenstance across the two constructions. Both these predictions of the present usage-based constructional analysis are borne out.

An investigation of the type frequency of dative subject predicates in two corresponding corpora, one Old Norse-Icelandic and the other Modern Icelandic, reveals that the Happenstance subconstruction is well on its way to fall into disuse in Modern Icelandic language use. This entails a major shift in the semantic structure of the Dative Subject Construction with the Cognition/Emotion subconstruction now being in the spotlight. This explains, in turn, why the onset of Dative Substitution is as late as in modern times. It was not until after this change in the semantic structure of the Dative Subject Construction that the construction became semantically coherent enough to start systematically attracting items from the low type frequency Accusative Subject Construction. More generally, this case study presents evidence against the common claim in the literature that type frequency is the most important factor for productivity (Bybee, 1995), showing instead that the role of type frequency decreases inversely with the increased role of semantics.

In conclusion, this paper offers a genuine account of the onset of Dative Substitution in the history of Icelandic in terms of a usage-based constructional analysis, showing how Diachronic Construction Grammar may contribute to shedding light on old obscurities within the field of syntax and language evolution.

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Appendix A. The four major semantic classes of accusative subject predicates in Modern Icelandic

Verbs of Emotion: *baga* 'lack', *bresta* 'lack', *draga* 'need', *draga saman* 'fall in love', *firna* 'be surprised', *firna* 'be frightened', *furða á* 'be surprised', *fýsa* 'want', *grípa skelfing* 'become terrified', *hasa á* 'be disgusted', *hissa* 'be surprised', *hrylla* 'shudder', *iðra* 'regret', *káma* 'feel disgusted', *kynja* 'be surprised', *langa* 'want, long for', *lengja eftir* 'long for', *lysta* 'like', *muna í* 'want', *nauðsynja um* 'need', *offerja* 'be outraged', *ofhasa á* 'be bored', *óá við* 'fear', *ótta* 'fear', *reka í rogastans* 'be surprised', *setja óhug að* 'feel terrified', *skorta* 'lack', *stansa* 'be surprised', *stugga við* 'feel disgusted', *taka sárt* 'feel sorry', *tíða* 'want', *ugga* 'fear', *vanhaga um* 'need', *vanta* 'need', *vona* 'hope', *þrjóta* 'lack', *þrota* 'lack', *þverra* 'lack'

Verbs of Cognition: *brúa í* 'recall', *dirfa* 'become brave', *dreyma* 'dream', *forvitna* 'be curious', *gruna* 'suspect', *hilla eftir* 'vaguely recollect', *minna* 'remember vaguely', *misminna* 'remember incorrectly', *ona* 'suspect', *óra fyrir* 'imagine', *rangminna* 'remember incorrectly', *ráma í* 'vaguely remember', *rámka við* 'vaguely remember', *reka minni til* 'remember', *reka í vörðurnar* 'stammer, not know an answer', *rífa í* 'have a vague recollection of sth', *rofa í* 'have a vague recollection of sth', *smjúga* 'imagine', *undra* 'be surprised', *varða* 'suspect', *vænta* 'expect'

Verbs of Bodily States: *bíta* 'feel bitten by pain', *bora* 'tickle', *dotta* 'fall asleep', *fíðra* 'tickle', *flökra* 'feel nauseous', *gola í görm* 'be hungry', *hita* 'feel heat', *hnyta* 'form bump', *hreistra* 'form scales', *hungra* 'hunger', *hviðra* 'itch', *kala* 'freeze', *kitla* 'tickle', *klíga* 'feel nauseated', *klæja* 'itch', *kylja í hel* 'freeze to death', *nepja* 'feel cold', *næða* 'be blown', *ómætta* 'lose strength', *saka* 'be hurt', *setja rauðan* 'blush', *sigra svefn* 'fall asleep', *skarða* 'subside', *skálda* 'lose the hair', *skemma* 'shorten', *skera að innan* 'suffer from starvation', *skilja* 'split', *snara af baki* 'fall off a horse', *stugga* 'tickle', *stíra í augun* 'become tired in the eyes', *sundla* 'feel dizzy', *svengja* 'get hungry', *svima* 'feel dizzy', *svíða* 'smart', *syfja* 'get sleepy', *sækja svefn* 'become sleepy', *vanka* 'get turnsick', *velgja* 'feel nauseated', *verkja* 'feel pain', *væma við* 'feel nauseated', *yfirþyrma* 'feel paralyzed', *þurrka* 'feel dry', *þyrsta* 'thirst'

Verbs denoting Landscape and Nature: *bera* 'move, be moved', *birta upp* 'subside', *blása* 'be blown', *bláskarða* 'be thin', *bóla* 'form bubbles', *bólstra* 'form a cloud bank', *brima* 'begin to surf', *brjóta* 'break, be smashed', *daga uppi* 'be caught by daylight', *draga í fannir* 'pile up snow', *drepa* 'leak', *drífa að* 'come flocking', *farða* 'form a film', *fenna* 'get covered in snow', *festa* 'stick', *fletja* 'turn over', *flæða* 'be flooded', *fylla* 'get swamped', *gleðja* 'become windy', *hefja* 'be raised', *hema* 'freeze', *héla* 'frost up', *hjóma* 'be covered with film', *hnita* 'foam', *hnota* 'be thin', *hrekja* 'be driven away', *hríma* 'frost up', *hryggja* 'form crests of waves', *kálfa* 'calve', *kefja* 'sink', *kemba* 'be blown', *kreppa* 'bend', *kyrra* 'become still', *kæfa niður* 'sink, fall thick', *leggja* 'lay, freeze solid', *leysa* 'melt', *nátta* 'be caught by daylight', *reiða* 'move', *reka* 'drift', *renna* 'freeze over', *rífa* 'blow, burst', *rjúfa* 'clear', *setja* 'snow', *sjá óglögg* 'be difficult to see', *skafa* 'drift', *skæna* 'be covered with film', *slíta upp* 'be torn lose', *snerpa* 'get sharp', *stafa* 'fallen by beams', *stemma* 'get clogged', *svipa að* 'come near', *taka upp* 'melt', *taka út* 'be seized by the sea', *tólga* 'become covered with ice', *velkja* 'drift', *ysta* 'curdle', *þrjóta* 'come to an end', *þvera* 'blow in an opposite direction'

References

- Andrews, A.D., 1982. The representation of case in Modern Icelandic. In: Bresnan, J. (Ed.), *The Mental Representation of Grammatical Relations*. MIT Press, Cambridge, MA, pp. 427–503.
- Barðdal, J., 2001a. Case in Icelandic – A Synchronic, Diachronic and Comparative Approach [Lundastudier i Nordisk Språkvitenskap A 57]. Department of Scandinavian Languages, Lund.
- Barðdal, J., 2001b. Skýrsla um fallmerkingu frumlags ópersónulegra sagnasambanda í íslensku talmálssafni (1996–1997) [A Rapport on the case marking of impersonal predicates in a corpus of spoken Icelandic (1996–1997)], Ms., University of Manchester.
- Barðdal, J., 2001c. The perplexity of Dat-Nom verbs in Icelandic. *Nordic Journal of Linguistics* 24, 47–70.
- Barðdal, J., 2004. The semantics of the impersonal construction in Icelandic, German and Faroese: beyond thematic roles. In: Abraham, W. (Ed.), *Focus on Germanic Typology*. Akademie Verlag, Berlin, pp. 101–130.
- Barðdal, J., 2006a. Predicting the productivity of argument structure constructions. *Berkeley Linguistics Society* 32.
- Barðdal, J., 2006b. Construction-specific properties of syntactic subjects in Icelandic and German. *Cognitive Linguistics* 17 (1), 39–106.
- Barðdal, J., 2008. Productivity: Evidence from Case and Argument Structure in Icelandic. John Benjamins, Amsterdam.
- Barðdal, J., 2009. The development of case in Germanic. In: Barðdal, J., Chelliah, S.L. (Eds.), *The Role of Semantic, Pragmatic, and Discourse Factors in the Development of Case*. John Benjamins, Amsterdam, pp. 123–159.
- Barðdal, J., 2011. Lexical vs. structural case: a false dichotomy. *Morphology* 21(1).
- Barðdal, J., Eythórssón, T., 2003. The change that never happened: the story of oblique subjects. *Journal of Linguistics* 39 (3), 439–472.
- Barðdal, J., Kristoffersen, K.E., Sveen, A., 2011. West Scandinavian ditransitives as a family of constructions: with a special attention to the Norwegian V-REFL-NP construction. *Linguistics* 49.
- Barlow, M., Kemmer, S. (Eds.), 2000. *Usage-Based Models of Language*. CSLI Publications, Stanford.
- Bybee, J.L., 1985. *Morphology: A Study of the Relation between Meaning and Form*. John Benjamins, Amsterdam.
- Bybee, J.L., 1995. Regular morphology and the lexicon. *Language and Cognitive Processes* 10 (5), 425–455.
- Bybee, J.L., 2007. *Frequency of Use and the Organization of Language*. Oxford University Press, Oxford.
- Bybee, J.L., Hopper, P. (Eds.), 2001. *Frequency and the Emergence of Linguistic Structure*. John Benjamins, Amsterdam.
- Croft, W., 1998. Event structure in argument linking. In: Butt, M., Geuder, W. (Eds.), *The Projection of Arguments: Lexical and Compositional Factors*. CSLI Publications, Stanford, pp. 21–63.
- Croft, W., 2003. Lexical rules vs. constructions: a false Dichotomy. In: Cuyckens, H., Berg, T., Dirven, R., Panther, K.L.-U. (Eds.), *Motivation in Language: Studies in Honour of Günter Radden*. John Benjamins, Amsterdam, pp. 49–68.
- Croft, W., Cruse, D.A., 2004. *Cognitive Linguistics*. Cambridge University Press, Cambridge.
- Clausner, T.C., Croft, W., 1997. Productivity and schematicity in metaphors. *Cognitive Science* 21 (3), 247–282.
- Clausner, T.C., 2002. How conceptual metaphors are productive of spatial-graphical expressions. In: Gray, W.D., Shunn, C.D. (Eds.), *Proceedings of the 24th Annual Conference of the Cognitive Science Society*, Erlbaum, Mahwah, NJ, pp. 208–213.
- Eythórssón, T., 2000a. Dative vs. nominative: changes in quirky subjects in Icelandic. *Leeds Working Papers in Linguistics* 8, 27–44.
- Eythórssón, T., 2000b. Fall á fallanda fæti [Unstable case marking]. *Íslenskt mál og almenn málfraði* 22, 185–204.
- Eythórssón, T., 2002. Changes in subject case marking in Icelandic. In: Lightfoot, D. (Ed.), *Syntactic Effects of Morphological Change*. Oxford University Press, Oxford, pp. 196–212.
- Eythórssón, T., Barðdal, J., 2005. Oblique subjects: A common Germanic inheritance. *Language* 81 (4), 824–881.
- Fillmore, C.J., Kay, P., O'Connor, M.C., 1988. Regularity and idiomatity in grammatical constructions: the case of let alone. *Language* 64, 501–538.
- Friðriksson, F., 2008. *Language change vs. stability in conservative language communities: a case study of Icelandic*. Ph.D. Dissertation, Gothenburg University.
- Goldberg, A.E., 1995. *Constructions: A Construction Grammar Approach to Argument Structure*. University of Chicago Press, Chicago.
- Goldberg, A.E., 2006. *Constructions at Work: The Nature of Generalization in Language*. Oxford University Press, Oxford.
- Halldórsson, H., 1982. Um méranir: Drög að samtímalegri og sögulegri athugun [About dativizing: preliminaries of a synchronic and diachronic investigation]. *Íslenskt mál og almenn málfraði* 4, 159–189.
- Haspelmath, M., 2001. Non-canonical marking of core arguments in European Languages. In: Aikhenvald, A.Y., Dixon, R.M.W., Onishi, M. (Eds.), *Non-Canonical Marking of Subjects and Objects*. John Benjamins, Amsterdam, pp. 53–83.
- Haspelmath, M., 2002. *Understanding Morphology*. Arnold, London.
- Hólmarsson, S., Sanders, C., Tucker, J., 1989. *Íslensk-ensk orðabók: Concise Icelandic-English Dictionary*. Íðunn, Reykjavík.
- Jackendoff, R., 1990. *Semantic Structures*. MIT Press, Cambridge, MA.
- Jónsson, J.G., 1998. A list of Predicates that Take a Quirky Subject in Icelandic, Ms. University of Iceland.
- Jónsson, J.G., 2001. Lists of Quirky Subject Predicates in Icelandic, Ms. University of Iceland.
- Jónsson, J.G., 2003. Not so quirky: on subject case in Icelandic. In: Brandner, E., Zinsmeister, H. (Eds.), *New Perspectives on Case and Case Theory*. CSLI Publications, Stanford, pp. 127–164.
- Jónsson, J.G., Eythórssón, T., 2005. Variation in subject case marking in Insular Scandinavian. *Nordic Journal of Linguistics* 28 (2), 223–245.
- Langacker, R.W., 1988. A usage-based model. In: Rudzka-Ostyn, B. (Ed.), *Topics in Cognitive Linguistics*. John Benjamins, Amsterdam, pp. 127–161.
- Langacker, R.W., 2000. A dynamic usage-based model. In: Barlow, M., Kemmer, S. (Eds.), *Usage-Based Models of Language*. CSLI Publications, Stanford, pp. 1–63.
- Malchukov, A., 2005. Case pattern splits, verb types and construction competition. In: Amberber, M., de Hoop, H. (Eds.), *Competition and Variation in Natural Languages: The Case for Case*. Elsevier, Amsterdam, pp. 73–118.
- Minger, D.L., 2002. An analysis of grammatical relations and case marking in Icelandic. M.A. Thesis, University of California, Davis.
- Nunberg, G., Sag, I.A., Wasow, T., 1994. Idioms. *Language* 70, 491–538.
- Onishi, M., 2001. Introduction: non-canonically marked subjects and objects: parameters and properties. In: Aikhenvald, A.Y., Dixon, R.M.W., Onishi, M. (Eds.), *Non-Canonical Marking of Subjects and Objects*. John Benjamins, Amsterdam, pp. 1–51.
- Petersen, H.P., 2002. Quirky case in Faroese. *Fróðskaparrit* 50, 63–76.
- Rögvaldsson, E., 1983. Þágufallssýkin og fallakerfi í íslensku [Dative sickness and the case system in Icelandic]. *Skíma* 16, 3–6.
- Seefranz-Montag, A.v., 1983. *Syntaktische Funktionen und Wortstellungsveränderung: Die Entwicklung 'subjektloser' Konstruktionen in einigen Sprachen*. Fink, München.
- Sigurðsson, H.Á., 1989. *Verbal syntax and case in Icelandic: a comparative GB approach*. PhD dissertation, Lund University.
- Smith, H., 1994. 'Dative Sickness' in Germanic. *Natural Language and Linguistic Theory* 12, 675–736.
- Smith, M.B., 2001. Why quirky case really isn't quirky (Or how to treat dative sickness in Icelandic). In: Cuyckens, H., Zawada, B., Tuggy, D. (Eds.), *Polysemy in Cognitive Linguistics*. John Benjamins, Amsterdam, pp. 115–159.
- Svavarsdóttir, Á., 1982. 'Þágufallssýki ['Dative Sickness']'. *Íslenskt mál og almenn málfraði* 4, 19–62.
- Svavarsdóttir, Á., Pálsson, G., Þórlindsson, Þ., 1984. Fall er fararheill: um fallnotkun með ópersónulegum sögnum [Fall is a sign of luck: on case use with impersonal verbs]. *Íslenskt mál og almenn málfraði* 6, 33–55.
- Thráinsson, H., 1979. *On Complementation in Icelandic*. Garland, New York.
- Thráinsson, H., Petersen, H.P., Jacobsen, J.Í.L., Hansen, Z.S., 2004. *Faroese: An Overview and Reference Grammar*. Føroya Fróðskaparfelag, Torshavn.
- Toft, E.H., 2009. *Adnominal and adverbial genitive constructions in old Norse: a cognitive construction grammar account*. Oslo: University of Oslo dissertation.

- Tomasello, Michael, 1998. Cognitive linguistics. In: Bechtel, W., Graham, G. (Eds.), *A Companion to Cognitive Science*. Blackwell, Oxford, pp. 477–487.
- Van Valin, R.D., 1991. Another look at Icelandic case marking and grammatical relations. *Natural Language and Linguistic Theory* 9, 145–194.
- Viðarsson, H.F., 2005. Breytilegt frumlagsfall í forníslensku. Athugun á breytileika í fallmörkun skynjandafrumлага [Variation in subject case marking in Old Icelandic: an investigation of case variation with experiencer subjects]. B.A. Thesis, University of Iceland.
- Wunderlich, D., 2003. Optimal case patterns: German and Icelandic compared. In: Brandner, E., Zinsmeister, H. (Eds.), *New Perspectives on Case Theory*. CSLI Publications, Stanford, pp. 331–367.
- Yip, M., Maling, J., Jackendoff, R., 1987. Case in tiers. *Language* 63 (2), 217–250.
- Zaenen, A., Maling, J., 1990. Unaccusative, passive and quirky case. In: Maling, J., Zaenen, A. (Eds.), *Modern Icelandic Syntax*. Academic Press, San Diego, pp. 137–152.
- Zaenen, A., Maling, J., Thráinsson, H., 1985. Case and grammatical functions: the Icelandic passive. *Natural Language and Linguistic Theory* 3, 441–483.