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# Reconstructing Syntax: Construction Grammar and the Comparative Method\*

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## 1 Introduction

In historical-comparative research of today, syntactic reconstruction is, at best, a highly controversial enterprise and, at worst, a stranded endeavor (see references in Section 2 below). The reason is that the Comparative Method, used in reconstructing earlier layers of existing or historical languages, is based on cognate form–meaning pairings, which are not generally assumed to be found in syntax. That is, in order for a reconstruction to be possible, the input for the relevant correspondence sets must consist of a form side and a meaning side, as only (lexical) items that are inherited from an earlier stage can be cognates, i.e. inherited items with the same form and the same meaning. Therefore, the existence of cognates – as instantiations of form–meaning pairings across related languages – is the foundation of the Comparative Method and all reconstruction.

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In contrast, syntactic objects like sentences have traditionally not been regarded as being form–meaning pairings by the linguistic research community. Of course, this does not mean that semantic problems have gone unnoticed. The problem here is that the meaning of sentences has traditionally and generally been taken to be derived from the meaning of the lexical elements making up that sentence and that the meaning of larger expressions has been taken to be derived from combinatoric rules or principles of a very general nature. In other words, the meaning of sentences has not been considered as being inherent to a syntactic pattern. Therefore, as sentence meaning has been regarded as a derivative of the combined meaning of the lexical items in a sentence, there will be no particular meaning attached to the relevant syntactic form, but only as many meanings as the possible combinations of lexical items found in a sentence. This, in turn, rules out a principled reconstruction based on syntactic form and the meaning paired with that form.

The goal of this paper is to argue for the revival of syntactic reconstruction in historical-comparative research in general and in Indo-European Studies in particular. Such a resurgence of syntactic reconstruction is made possible by the development of the theory and framework of Construction Grammar, where objects previously regarded as syntactic objects are viewed as form–function or form–meaning pairings, exactly like words. This view of syntax makes “syntactic structures” a legitimate object of the Comparative Method, as “syntactic structures” in this framework consist of a form side and a function side, exactly like words.

In contrast to what is generally assumed in the historical-comparative and the syntactic literature, not only can syntactic patterns be reconstructed with the tools of Construction Grammar, but also the grammars of earlier stages, including syntactic functions. This follows directly from the assumption in Construction Grammar that constructions are stored in Constructicons, which are similar to lexicons, except that they contain structures at all levels of language, and not only lexical structures.<sup>1</sup> Constructicons in Construction Grammar are structured inventories of constructions. Or, in the terminology of Sign-Based Construction Grammar, Constructicons contain a uniform hierarchically structured specifications of the words and the phrases that exist in a language. As such, Constructicons make up the grammar of the language. Therefore, all reconstruction of constructions for earlier stages of a language will contribute to establishing

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<sup>1</sup> As the strings *construction* and *Constructicon* only differ with one letter, i.e. the /c/ between -i and -o in *-ticon*, the latter will be given with a capital C in the remainder of this paper in order not to impede the reading process.

a Constructicon, a structured inventory of constructions, for that language stage. This is how grammars of earlier stages and proto-stages can be modeled.

The way in which grammars of earlier language stages can be approached and modeled in Construction Grammar is a major advantage of this particular linguistic framework. This does, of course, not mean that other linguistic frameworks cannot model syntactic structures at earlier stages, but rather that because words and larger syntactic structures are treated alike in Construction Grammar, i.e. as form–function pairings, the framework of Construction Grammar can easily be extended from its current area of coverage to historical-comparative reconstruction through the Comparative Method. In other words, there is a natural leap from synchronic form–function pairings to historical reconstruction, as such reconstruction is based on form–function pairings. This leap is more natural for frameworks which assume that meaning and form are integrated with each other than for frameworks who separate meaning from form and view the two as distinct autonomous systems. In that sense, Construction Grammar is a dynamic linguistic framework, easily extensible to new linguistic areas.

This paper is structured as follows: Section 2 gives a short overview of the background of historical-comparative research in linguistics, including the basics of the Comparative Method. In Section 3 some of the challenges discussed in the literature for syntactic reconstruction will be reviewed and refuted. In Section 4 we present the basics of the framework of Construction Grammar, and we show how the tools of Construction Grammar make syntactic reconstruction possible. We proceed with a first attempt to reconstruct the Dative Subject Construction for Proto-Germanic, using the formalism of Sign-Based Construction Grammar. In Section 5 we lay out the consequences of our approach for the reconstruction of alignment in Proto-Indo-European. Given the present historical-comparative approach, the alignment system of Proto-Indo-European cannot be regarded as a typical Nominative–Accusative system, a typical Ergative–Absolutive system, or even as a typical Stative–Active system. However, a comparison of the case and argument structure constructions found in Old Germanic, Latin, Ancient Greek, Lithuanian, and Russian clearly shows several reconstructable subsystems of semantic alignment, where both subjects of intransitive verbs, S, and objects of transitive verbs, P, can be case marked in the nominative, accusative, dative, or genitive, illustrating the utter inadequacy of the traditional case alignment terminology.

## 2 The Comparative Method

The Comparative Method has its origin in 19th century studies of the relationship between the Indo-European languages. It is therefore a well-established method of comparing different languages in order to determine whether they are related, what the relative chronology of related languages is, and on the basis of that to reconstruct a common ancestral language. The Comparative Method is based in part on the comparison of grammatical and morphological features and in part on comparing cognate words across related languages, that is, inherited vocabulary with a similar form and meaning. This is shown in Table 1 for the established reconstruction of the numeral ‘five’ in Indo-European.

The topmost row in Table 1 specifies the names of the ten relevant language branches within the Indo-European language family. Below that, one example of an existing modern descendant is given, and the corresponding form of the numeral ‘five’ in that modern language. For the Indo-Aryan languages, for instance, the Modern Sinhalese form is *pəhá*, while for the Germanic languages, the Modern Faroese form is *fimm*. In the next row below, the name of the oldest language is given in each language branch, and the corresponding earliest attestation of ‘five’ is specified in the row there under.

Ind.	Iran.	Armen.	Greek	Alban.	Balt.	Slav.	Germ.	Ital.	Celt.
Modern Languages:									
Singh.	Osset.	East Arm.	Cret.	Alban.	Kur.	Slovak.	Far.	Ladin.	Sc.-Gael.
<i>pəhá</i>	<i>fonʒ</i>	<i>hing</i>	<i>hing</i>	<i>pəsə</i>	<i>pīats</i>	<i>pāt'</i>	<i>fimm</i>	<i>čint'</i>	<i>kōg'</i>
Oldest Attestations:									
Ved.	Avest.	Classical Arm.	Homer.	Early Alb.	Old Lith.	OCSl.	Goth.	Lat.	Old Ir.
<i>pánča</i>	<i>panča</i>	<i>hing</i>	<i>pénte</i>	<i>pesə</i>	<i>penki</i>	<i>peŕi</i>	<i>fimf</i>	<i>quīnque</i>	<i>kōg'</i>
Reconstructable Prestage:									
Pr.-Irr.	Pr.-Armen.	Pr.-Greek	Pr.-Alban.	Pr.-Balt.	Pr.-Slav.	Pr.-Germ.	Pr.-Ital.	Pr.-Celt.	
<i>*panča</i>	<i>*p'enk'e</i>	<i>*pénk'e</i>	<i>*pénke</i>	<i>*pénk-ī</i>	<i>*penk-tis</i>	<i>*fimfe</i>	<i>*pénk'e</i>	<i>*kenke</i>	
Proto-Indo-European Reconstruction:									
<i>*pénk'e</i>									

Table 1. *The reconstruction of the numeral ‘five’ in Indo-European* (adopted from Gippert 1999)

To exemplify, the oldest Germanic attestation *fimf* is found in Gothic and the oldest Indo-Aryan attestation *pánča* is found in Vedic. The row below gives a reconstructed form for each of the language branches, based on the earliest attestations in that language branch, taking into consideration all the various forms of the attested daughter languages, aiming at a

reconstructed form from which all the descendant forms can be derived. For Proto-Germanic this gives us the reconstructed form *\*fimfe* and for Proto-Iranian the reconstructed form *\*panča*. Finally, on the basis of all the reconstructed proto-forms for each language branch, a proto-form can be reconstructed for Proto-Indo-European from which all the individual proto-branch forms can be derived. This would yield the form *\*pénk<sup>u</sup>e* for ‘five’ in Proto-Indo-European.

Observe that comparisons of this type and reconstructions like the ones in the last two rows in Table 1 must of course comply with possible developmental paths of vowels, consonants, and other phonological and morphophonological sequences. In fact, on the basis of such comparisons, during the earliest phases of the Comparative Method in the 19th century, such developmental paths were identified for phonological units. These developmental paths gave rise to the concept of sound laws, which in turn are used to explain how the forms have developed from a proto-language to the daughter languages. As evident from Table 1, comparisons of this type are successful in the sense that proto-forms can be reconstructed from which all the other forms are derivable. As such, this is clearly a viable scientific method. Note, however, that the Comparative Method has first and foremost been applied to the fields of phonology, morphology, and lexicology, while syntactic research has largely been left unattended.

A fundamental assumption within the Comparative Method, on which the whole enterprise of diachronic-genetic linguistics rests, is that reconstructions are carried out on the basis of form–function pairings:

- Similar form is not enough to establish correspondences as a basis for reconstruction
- Similar function is not enough to establish correspondences as a basis for reconstruction either

To elaborate briefly, in order to reconstruct there has to be a form–function pairing; e.g. *pater* in Latin and *fadar* in Gothic are cognates with the same lexical meaning ‘father’, which gives us a set of two form–meaning pairings. If the Gothic form *fadar* had been coupled with a meaning irreconcilable with ‘father’, no reconstruction on the basis of *pater* and *fadar* could take place. Therefore, the emergence of the Comparative Method in the 19th century represents one of the major revolutions within linguistics, as this method constitutes the most powerful tool there is for establishing language relatedness. We now turn to the possible reconstruction of “syntactic structures,” as opposed to morphological and lexical structures.

### 3 Mishaps of Syntactic Reconstruction

One of the general criticisms directed towards the Comparative Method is that it is only an aid in revealing whether languages are related, while the method has nothing to say on whether languages are not related (cf. Lehmann 2005). This is of course only a problem for research programs specifically targeting the issue of language relatedness. However, for research on syntactic and grammatical features of languages that have already been shown to be related, based on prior phonological, morphological, and lexical reconstructions, this is of course neither an obstacle nor an argument against using the Comparative Method. Also, scholars working on phylogenetic methods within linguistics have been developing tools to distinguish between borrowing and inheritance, which reduces the force of this objection even further (see, for instance, various papers in Forster & Renfrew 2006).

Different scholars may also have different aims with reconstructing syntax. One possible aim might be to reconstruct a viable language supposedly spoken in the past. Another is to reconstruct earlier stages of a language in order to better understand the mechanisms of language change (cf. Ferraresi & Goldbach 2008). A further goal, possibly an extension of the second one, is to reconstruct earlier syntactic stages in order to better understand, not only the general mechanisms of language change, but also the possible developmental paths of certain synchronic structures. This is our main goal represented here (see Venneman 1988 for a similar attempt in phonology).

Phonological, morphological, and lexical reconstructions were clearly favored, both by the neo-grammarians and the structuralists, over syntactic reconstruction. Fox (1995: 104) suggests that this may in part be because these two schools were focused on the phonological and morphological components of language, while syntax was a grossly underrepresented area within the theoretical frameworks of that time. Although that cannot be said about the generative framework, there are still conflicting opinions, among generative syntacticians, on whether syntactic reconstruction is at all possible.

Roberts (1998, 2007) and Guardiano & Longobardi (2005) suggest that the concept of parameters, i.e. bundles of syntactic features, opens up for comparative-historical research using the Comparative Method, as languages should either occur with or without the whole set of syntactic features represented by each parameter. While we acknowledge the potential theoretical restrictiveness of such an approach, in the sense that it makes the prediction that a whole set of features should be found in languages, it is still problematic for the following two reasons: This view of

parameters presupposes that we should be able to argue for particular reconstructions based on implicational relations between properties (or features in a bundle). But a methodological strategy which posits the reconstruction of a property A on the basis of the existence of property B places a great deal of weight on the reliability and precision of the correlations and is therefore fraught with peril. Thus, it comes as no surprise that this kind of methodology has been subject to severe criticism in the literature (see for instance Wichmann 2008: 5–7 and the references there on the reconstruction of Stative–Active alignment systems on the basis of morphosyntactic properties mistakenly assumed to accompany stative–active languages). For this reason, reconstruction based on implicational relations between properties (features) should be regarded with skepticism.

Second, this approach still fails to provide us with the necessary linguistic elements required for setting up legitimate correspondence sets, as correspondence sets must consist of form–meaning pairings. In this case, the correspondence sets are made up of parameters, which are instantiated by bundles of syntactic features, devoid of meaning. Given its basic assumption that syntax and semantics are autonomous systems, generative syntactic theory is not designed to capture the correspondence between grammatical form and meaning. Compositional semantics, in particular, has been problematic for the mainstream paradigm of generative linguistics (cf. Piattelli-Palmarini and Cecchetto 1997). Therefore, using syntactic parameters as a basis for correspondence sets does not involve the meaning component required for a legitimate correspondence set, and hence for a valid reconstruction.

It has, moreover, been argued that syntactic reconstruction is problematic because of differences between syntax, on the one hand, and phonology, on the other (Jeffers 1976). The point of this argument is that there are no “syntactic laws” in the same sense as there are “sound laws,” meaning that sentences are different from words in that they do not involve cognate material, and hence no correspondence sets are found, which in turn excludes reconstruction. Consider the following sentences:

- |       |  |                  |
|-------|--|------------------|
| (1)a. | Das Mädchen aß die Wurst.<br>the.NOM girl.NOM ate the.ACC sausage.ACC<br>'The girl ate the sausage.' | Modern German    |
| b.    | Stelpan borðaði bjúgað.<br>girl-the.NOM ate sausage-the.ACC<br>'The girl ate the sausage.'           | Modern Icelandic |

In these Germanic examples, we have “equivalent” sentences, since they have the same meaning. However, as no cognates are involved, there can be no reconstruction, according to Jeffers’ argumentation. Consider, now, the following two examples, which in fact involve cognate lexical material:

- (2)a. Hans aß das Brot. Modern German  
 Hans.NOM ate the.ACC bread.ACC  
 ‘Hans ate the bread.’
- b. Hans át brauðið. Modern Icelandic  
 Hans.NOM ate bread-the.ACC  
 ‘Hans ate the bread.’

In this case, *Hans* and *Hans*, *aß* and *át*, and *Brot* and *brauð* are cognates. In spite of these equivalent sentences being made up of cognate material, one would still not reconstruct a sentence for Proto-Germanic based on it, according to Jeffers. He further argues that one cannot reconstruct either on the basis of comparisons of the patterns which are instantiated by sentences, as patterns do not evolve the way sounds do. “The history of syntactic systems is a history of pattern replacement and reanalysis” (Jeffers 1976: 4).

We, of course, agree with Jeffers that one cannot reconstruct “utterances” (loosely defined as something uttered by a specific person at a specific time and place) for a proto-language, but we beg to differ with him on his remaining points. First, the fact that one does not have cognate lexical material in sentences does not exclude correspondence sets. Consider, for instance, the verb ‘eat’ which has cognates in all the Germanic languages and selects for the Nom-Acc argument structure construction in Modern Icelandic, Faroese, and German, and selected for Nom-Acc in all the old Germanic languages. This entails that the verb ‘eat’ can self-evidently be reconstructed for Proto-Germanic, with a reconstructed form based on the cognates, the Nom-Acc case frame, and the meaning ‘eat.’ Therefore, sentence-level constructions like argument structure constructions do not need to consist of cognate lexical material throughout. It is sufficient that the head of the argument structure construction, the verb, can be reconstructed as a part of its case and argument structure construction. By *case and argument structure construction* we refer to argument structure constructions in languages exhibiting morphological case, i.e. argument structure constructions which come with a predefined set of morphological cases, like Nom-Acc, Nom-Dat, Nom-Gen, Acc-Acc, Acc-Gen, Dat-Nom, etc. (see Section 5 below for a further discussion of these in the Indo-European languages).

Moreover, the term *cognate*, which literally means ‘of common descent, blood relative’ in Latin, has been used in historical-comparative research about structures which “descend from” a corresponding structure in an ancestor language common to two or more daughter languages. Although traditionally this applies to lexical and morphological structures, nothing prevents it from also applying to syntactic structures, such as case and argument structure constructions (cf. Kikusawa 2003 on the term *cognate structures*). Thus, the Nom-Acc argument structure constructions in Icelandic, Faroese, and German are to be regarded as *cognate argument structure constructions*, as they all descend from the Proto-Germanic Nom-Acc construction. In contrast, the Germanic Nom-Acc construction and the Indo-Aryan Nom-Acc construction are not cognate argument structure constructions, as the Indo-Aryan Nom-Acc construction is not a direct descendant of a corresponding structure in Sanskrit or Avestan, given that all case morphology was replaced in Indo-Aryan at the end of the MIA period (Beames 1872–1879, Tagare 1948). In sum, this means that the concept of cognates and cognate material in historical-comparative research is also applicable to syntactic structures and not only to morphological and lexical structures, as claimed by Jeffers. Observe also that the employment of Construction Grammar to reconstruct case and argument structure constructions of this type entails reconstructing the grammar of earlier stages and not just forms. In that sense, the approach suggested here does not involve the traditional use of the Comparative Method, but leads instead to a major extension of the Comparative Method.

Turning now to the neo-grammarians’ “sound laws, these are allegedly both “regular” and “exceptionless”, according to the neo-grammarians’ argumentation. However, the whole concept of sound laws is based on possible developmental paths. That is, it is based on a change from one sound to another, which in essence represents a developmental path. Observe that developmental paths are in principle also detectable for syntactic structures, as well as for phonological and morphological structures, when using the Comparative Method, which means that syntactic reconstruction is far from prevented altogether. Pattern replacements also represent developmental paths. Whether or not the results of syntactic reconstructions are conclusive rests solely on the nature and the quality of the input material for each correspondence set and not on any perceived lack of exceptionlessness or lack of regularity of the developmental paths found in syntax. It may be that developmental paths for syntactic structures are not as exceptionless as the sound laws, but the fact that developmental paths/sound laws have been regarded as exceptionless is not of prime importance for the Comparative Method. Instead, what has been regarded of

prime importance for the Comparative Method is the *regularity* of sound change.

This regularity of sound change, however, only exists by definition, as discussed by Hoenigswald (1987), who points out that processes that have exceptions are simply not labeled “regular” change processes in the neo-grammarians tradition. Irregular and less regular sound change processes, which are well documented in the literature (cf. Mazoudon & Lowe 1994 and the references cited there), are therefore systematically excluded from the notion of “sound change” by definition. In this sense, the regularity of sound change is an illusion insofar as it allegedly affects all lexical items within its conditions simultaneously at a given point in time. We quote Harrison (2003: 220):

I use the term [regularity] *assumption* here quite purposefully, because it is by now well demonstrated that sound change is not regular, in the usual intended sense, but precedes in a quasi-wavelike fashion along the social and geographic dimensions of the speech-community, and through the linguistic system itself. At any given point in time, a particular sound change may be felt only in a part of the speech-community and, if it affects lexical signs, only through a portion of the lexicon. [emphasis original]

Of course, the neo-grammarians “sound laws” originally emerged from the observation of sound correspondences across lexical items and languages, which in turn gave rise to the concept of sound laws. Harrison (2003) points out that the sound laws and their perceived regularity stands in for a similarity condition when deciding whether two similar forms across languages or dialects are cognates or not. In other words, because of the sound laws, comparative-historical linguistics does not need a measure of relative similarity when deciding on cognate status. The sound laws do this work instead. The sound laws, therefore, have first and foremost the function of being an aid in deciding on cognate status of lexical and morphological units, which in turn means that if cognate status can be decided on by different means, the sound laws are dispensable.

Another possible reason that the role of the sound laws has been overemphasized in historical-comparative linguistics relates to the view that phonetic and phonological features are more prone to change than larger more complex units of language. Blust (1996: 151–152) discusses the idea, originally suggested by Hermann Paul (1978), that there is a physiological explanation for the perceived regularity of sound change, i.e., that articulatory gestures are inherently unstable because of their independence from meaning. As such, the regularity of sound change becomes an

epiphenomenon. On such an assumption, however, one might simply expect less “change” to take place in the areas of grammar where form–meaning pairings are found, i.e. at the morphological, lexical, and least of all at the syntactic level. If so, the sound laws do not need an equivalence in syntax and grammar, as a) there is less of a change to be found there, and consequently, b) it is easier to identify cognate constructions in grammar/syntax than in phonology.

Another concept regarded as crucial for reconstruction is the concept of *arbitrariness*. The arbitrariness of the form–meaning pairing is a major premise for establishing cognate sets and it underpins as such the entire method. Harrison (2003: 23) proposes that arbitrariness is not found in syntax, only in the lexicon and in the morphology, hence deeming syntactic reconstruction to be uninteresting. We disagree with Harrison’s claims on two points. First, there may well be arbitrariness in the form–function pairings found in syntax. As will be discussed in Section 4.3 below, syntactic constructions divide into two subtypes: those which are semantically general, i.e. compositionally derived, and those which are semantically specific, i.e. non-compositionally derived. The latter type represents an arbitrary, yet possibly a motivated, form–function pairing. Second, as emphasized by Harrison himself, arbitrariness is a major requirement only when establishing genetic relatedness. Syntactic reconstruction, however, is not the primary tool for establishing genetic relatedness. Syntactic reconstruction is usually carried out after genetic relatedness has been established through lexical, phonological, and morphological comparison and reconstruction. In other words, given that the goal of syntactic reconstruction is to reveal the possible developmental paths of certain synchronic structures, as in the present case, the arbitrariness requirement becomes an inessentiality, as genetic relatedness has already been established.

Yet another objection against syntactic reconstruction, raised for instance by Lightfoot (1979 and later work, e.g. 2006), is that sentences differ significantly from words in the sense that words are transmitted from one generation to another, while sentences are generated from the grammar that children construct on the basis of their input, and that sentences are therefore not transmitted like words from one generation to the next. Hence, there can be no reconstruction on the basis of sentences.

We take issue with Lightfoot on this point. Children do not “inherit” the vocabulary of previous generations. Rather, the vocabulary is acquired in exactly the same way as the grammar, namely as abstractions on the basis of the input that children receive (cf. Adger 2003, Tomasello 2003). Given that lexical items are also abstractions, the acquisition of words cannot be used as an argument against syntactic reconstruction, as it is based on an invalid

distinction between the vocabulary and syntax. Hence, we concur with Harris & Campbell (1995: 344–376) that syntactic reconstruction is possible on the following basis:

- correspondence sets can also be established in syntax, and not only in phonology
- one is aware of areal features, contact situations, and analogical processes
- one pays attention to relics/archaisms, as these often represent earlier layers (cf. Meillet’s dictum that reconstruction is carried out on the basis of exceptions)
- one takes directionality of grammatical change into consideration, like the fact that partitive case is known to develop from either genitive case or a locative/ablative case and not vice versa

To these we would like to add the following two points:

- one reconstructs on the basis of both form and function, which should be possible, as sentence-level constructions differ from each other with regard to function
- one takes into account the fact that syntax can be extremely conservative; there are many documented cases of syntactic structures that have been preserved for centuries (cf. Barðdal & Eythórrsson 2003a: 464–465, Janda & Joseph 2003: 65–66, Nichols 2003, and Keenan’s 2003 Law of Inertia)

Starting with our first point, consider the functional equivalence of speech acts and sentence types across languages and language periods; it is a fact that declaratives, questions, commands, exclamations, etc. are traceable across earlier historical texts. For instance, most of the ancient Indo-European languages had declarative word order in yes/no questions, with the addition of a question particle in the beginning of the sentence, signaling an interrogative clause. The question arises whether to reconstruct questions for the proto-language on the basis of this structure and function. According to Klimov (1977) this might be labeled “diachronic interpretation” rather than syntactic reconstruction. Whether one uses the label *diachronic interpretation* or *syntactic reconstruction* of course boils down to how one defines *form*. We maintain that not only lexical or morphophonological form is form but also that schematic or grammatical form counts as form. Schematic form is in fact the only “form” found for abstract syntactic or grammatical structures. This entails the reconstruction of grammars on which basis one can also reconstruct the forms licenced by the reconstructed

grammar. We elaborate further on this issue in next section.

In connection with the last point, i.e., the stability of syntactic patterns, consider, for instance, the verb ‘like’ in Germanic which is documented with a subject-like dative in Gothic and still occurs with a dative subject in Modern Icelandic, seventeen centuries later. For this verb, the following correspondence set can be established in Germanic:

- (3)a. **Nom-Acc**  
 Eg liker denne maten. Modern Norwegian  
 I.NOM likes this food.ACC
- b. I like this food. Modern English
- (4)a. **Dat-Nom**  
 Mér líkar þessi matur. Modern Icelandic  
 me.DAT likes this.NOM food.NOM
- b. hve þeim líkaði þessi skemmtan. Old Norse-Icelandic  
 how they.DAT liked this.NOM entertainment.NOM  
 ‘... how they liked the entertainment.’  
 (Bjarnar Saga Hítðalakappa: Ch. 23)
- c. Gode licað ure drohtnunge. Old English  
 God.DAT likes our living.NOM (Allen 1995: 77)  
 ‘God likes our way of living.’
- d. saei fauragaleikaida imma Gothic  
 the-one-that.NOM liked-before him.DAT (Eph. 1:9)  
 ‘the one that he liked earlier’

As we know from internal reconstruction that the occurrence of the verb ‘like’ with the Nom-Acc case pattern is an innovation in Germanic, and that this verb originally came with the Dat-Nom case frame, it is possible to reconstruct the verb ‘like’ for Proto-Germanic with the Dat-Nom case frame.<sup>2</sup>

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<sup>2</sup> Observe that in Eythórsson & Barðdal (2005: 832–833) we argue that when the Gothic verb (*ga*)leikan ‘like, please’ occurs in the texts with both a dative and a nominative argument, as opposed to Dat-only or Dat-PP, it is in all instances a Nom-Dat verb. The example in (4d) however, and others like it, suggests that the Gothic (*ga*)leikan may have been an alternating Dat-Nom/Nom-Dat predicate (see Barðdal 2001a, Eythórsson & Barðdal 2005: 840–842, 860–868 on alternating predicates). Such alternating predicates have been documented in the history of English (Allen 1995) and Scandinavian (Barðdal 1998), as well as in Modern Icelandic

This example with the verb ‘like’ invalidates one particular criticism of using the Comparative Method for reconstructing syntax put forward in the literature (e.g. Fox 1995: 105), namely that it is problematic because syntactic correspondence sets do not involve equivalent *genetic* form, but only equivalent function, and thereby the explanatory power of the Comparative Method is weakened. As argument structure constructions always come together with specific verbs, this means that there is in fact phonological/morphological form involved, namely the form of the verb. Therefore, lack of genetic form is not a problematic issue when reconstruction verb-specific argument structure constructions (see Section 4.4 below). Moreover, it is generally possible to establish a genetic relationship between case markers across the Indo-European languages (Luraghi 1997, Kock 2003).

Simplifying somewhat for the sake of argument, we can say that the accusative of a given noun in Icelandic, for example, is genetically related to the accusative of a corresponding noun in German, in the sense that both can be argued to derive from a common Proto-Germanic accusative form. Syntactic reconstruction thus need not involve structures devoid of equivalent genetic form or of cognate patterns, because the form of the case markers across related languages are in fact cognates. However, before we lay out how Construction Grammar provides us with a principled approach to reconstructing syntax, let us first consider some basics of the framework.

#### 4 Construction Grammar and Syntactic Reconstruction

We start in 4.1 with a general introduction of Construction Grammar, presenting the concepts that are of most relevance for historical-comparative research. We then illustrate in 4.2 how the Comparative Method works in conjunction with Construction Grammar and how the conceptual framework of Construction Grammar makes syntactic reconstruction a legitimate object of the Comparative Method. Syntactic reconstruction has otherwise been a stranded endeavor in historical-comparative research. In 4.3 we discuss how the semantics of constructions can be either specific or general and how the semantics of general constructions can be established on the basis of the semantics of the predicates instantiating the constructions. This makes it possible to reconstruct the semantics of constructions in dead or historical languages, in spite of the fact that there are no living speakers to consult. In particular we

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(Barðdal 1998, 2001a) and Faroese (Barnes 1986). Furthermore, we have argued that German *gefallen* ‘like, please’ is also an alternating predicate, exactly like its Icelandic cognate *falla* (*gefð*) ‘like, please’ (Eythórssón & Barðdal 2005).

discuss the Dative Subject Construction in Germanic and how a Proto-Dative-Subject-Construction can be reconstructed for Proto-Germanic (Section 4.4), showing in practice how grammatical reconstruction, which has hitherto been regarded as fundamentally different from phonological, morphological and lexical reconstruction, may be carried out.

#### 4.1 Introduction

One of the basic tenets of Construction Grammar is that a *construction* is a form–meaning or form–function pairing. This entails that all linguistic units are regarded as constructions in their own right, as they are form–meaning pairings. This is shown in Table 2 illustrating a continuum from atomic bound morphological units to complex and schematic units like argument structure constructions and higher-level sentence-type constructions. The syntax–lexicon continuum stretches along two parameters, namely complexity and schematicity. This means that constructions may vary as to how atomic vs. complex they are; words can be atomic, while larger syntactic constructions are complex. Constructions may also vary as to how schematic they are; words are lexically-filled or substantive, while larger complex constructions can be either schematic, i.e. represented as empty slots in a larger structure, or lexically-filled, i.e. substantiated by lexical material. Argument structure constructions and sentence-level constructions with morphological flags, like the English *Way* construction (Goldberg 1995: Chapter 9, Israel 1996) and passives with specific passive morphology (Barðdal & Molnár 2003) exemplify such mixtures of schematic and partly lexically-filled constructions.

Construction type	Traditional name	Examples
Complex and (mostly) schematic	<b>syntax</b>	[SBJ <i>be</i> -TNS V- <i>en</i> by OBL]
Complex, substantive verb	<b>subcategorization frame</b>	[SBJ <i>consume</i> OBJ]
Complex and (mostly) substantive	<b>idiom</b>	[ <i>kick</i> -TNS <i>the bucket</i> ]
Complex but bound	<b>morphology</b>	[NOUN- <i>s</i> ], [VERB-TNS]
Atomic and schematic	<b>syntactic category</b>	[DEM], [ADJ]
Atomic and substantive	<b>word/lexicon</b>	[ <i>this</i> ], [ <i>green</i> ]

Table 2. *The syntax–lexicon continuum* (Croft & Cruse 2004: 255).

In some versions of Construction Grammar, like the ones advocated by Goldberg (1995, 2006), Croft (1998, 2003), Barðdal (2001a, 2004, 2006,

2007, 2008), Boas (2003), Iwata (2008), and others, the integral relation between verbs and argument structure constructions is emphasized. In essence this means that argument structure constructions cannot be investigated in isolation from their instantiating verbs. Therefore, all historical research on argument structure constructions and the case frames associated with them must also include as a research object the lexical predicates which instantiate these case and argument structure constructions in the relevant ancient and archaic branches of the language family under investigation.

Within Construction Grammar, moreover, constructions are stored in a *Constructicon*, which is similar to a lexicon, except that it contains not only lexical constructions or words, but also the more complex and schematic constructions, including lower-level argument structure constructions already lexically filled with their verbs, which are termed *verb-specific constructions* (see next section).

#### **4.2 Construction Grammar and the Comparative Method**

Ever since early work in generative grammar (Halle 1962, Postal 1968, King 1969), it has been clear that the goals of historical comparative linguistics must be modified to include the reconstruction of grammars, and not only forms. The theory of Construction Grammar in general, and of Sign-Based Construction Grammar in particular, provides historical comparative linguistics with the tools to do this. With Construction Grammar the Comparative Method may be extended from being applied to phonological and morphological units to larger syntactic units, as larger syntactic units are regarded in principle as the same kind of units as smaller lexical and morphological units, i.e. as form–function pairings. Therefore, using Construction Grammar to reconstruct larger syntactic units means in essence that it is the grammar that is being reconstructed and not just forms. The Comparative Method is a method to reconstruct forms, not grammars, so using Construction Grammar in combination with the Comparative Method to reconstruct grammar represents a major shift in what is being reconstructed and hence a substantial development of the Comparative Method.

First of all, the theoretical inventory of a Constructicon, where all form–function mappings of a language are stored, *invites us to reconstruct syntax*, as syntactic constructions and argument structure constructions have a natural place there. In other words, a linguistic theory which treats lexical items and larger syntactic units alike, and views the grammar in terms of a Constructicon, where these units are stored together with the relations between them, makes the conceptual leap from synchronic linguistic

description to historical-comparative reconstruction shorter than a theory where the grammar is not conceived of in terms of a Constructicon. Second, the constructional inventory in a set of Constructicons for the individual Indo-European languages provides the correspondence sets for reconstructing a Constructicon for Proto-Indo-European.

Let us elaborate on this; as constructions are form–meaning mappings within Construction Grammar, the theory of Construction Grammar opens up for syntactic reconstruction. First, the lower-level verb-specific constructions in each of the ancient and archaic Indo-European languages have to be determined, as they constitute constructions of their own in each of these languages and they thus provide input for possible correspondence sets. Next, on the basis of these existing constructions, *proto-constructions* can be reconstructed for the proto-language of each of the Indo-European language branches. These proto-constructions, in turn, are the inventory of a *Proto-Constructicon* in each language branch. Then, the proto-constructions in the Proto-Constructicons may be used as a correspondence set for reconstructing proto-argument-structure-constructions for the proto-language, which in turn make up the inventory of a Proto-Proto-Constructicon for Proto-Indo-European. Therefore, Construction Grammar can be used, not only to reconstruct syntax, but also to reconstruct the grammar of the proto-branches and of Proto-Indo-European, as Constructicons in Construction Grammar are structured inventories of constructions, and as such they constitute the grammar of the language.

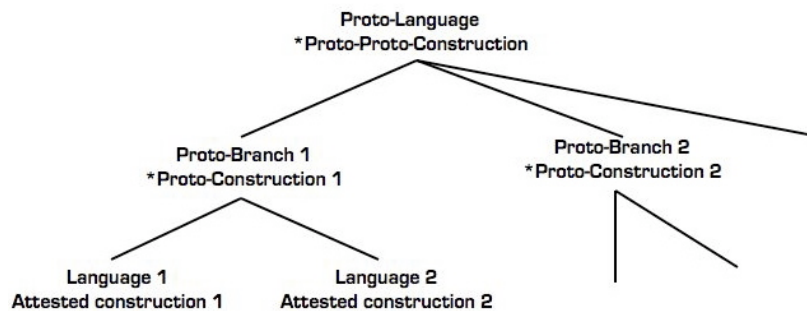


Figure 1. *Reconstructing Syntax.*

A reconstruction process like the one described can be shown in Figure 1, where attested constructions are at the bottom of the hierarchy, here shown for Language 1 and Language 2, which belong to the same branch of a given language family. Attested construction 1 and Attested construction 2 provide the correspondence set for reconstructing a Proto-construction 1 for this particular proto-branch. The same process must be carried out for

Proto-branch 2 and all the remaining branches found for this language family. Now, on the basis of Proto-construction 1, Proto-construction 2, and whatever other Proto-constructions that must be reconstructed for additional branches within this particular language family, a Proto-proto-construction may be reconstructed for the ultimate Proto-language of this particular language family.

Figure 2 is a replication of Figure 1, except that it includes the Constructicons of each language, each language branch and the proto-language of our hypothetical language family. The Constructicons are given as boxes for each language stage, and they include the constructions of that particular stage. Constructicons are, as stated above, *structured inventories of constructions*, but due to space limitations, they are shown as lists in Figure 2.

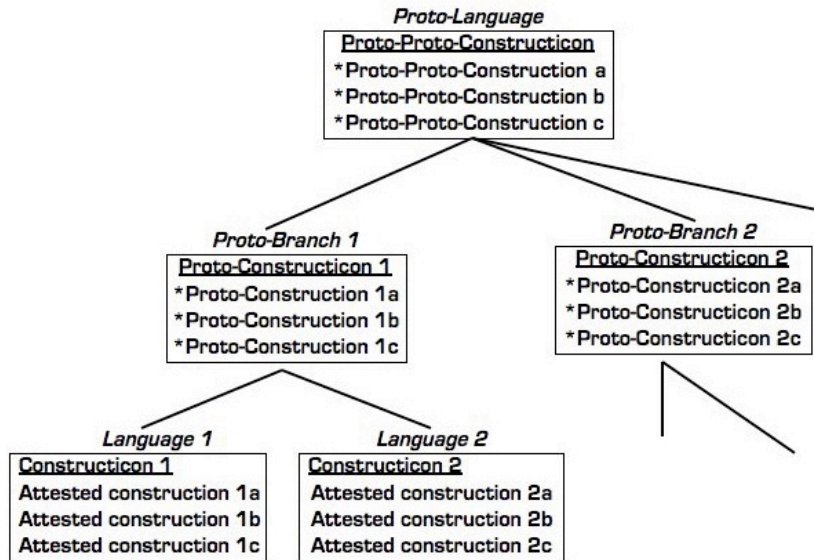


Figure 2. *Reconstructing constructions and Constructicons.*

Observe that the Comparative Method is a method defined over corresponding sets of forms. What we are proposing here is therefore fundamentally different from the traditional way of using the Comparative Method, as we are proposing to reconstruct proto-grammars, based on correspondences among the grammars of the daughter languages. This kind of historical-comparative work presupposes that the constructions and the Constructicons of the modern languages, or the constructions and the Constructicons of the earliest attested stages of each language, be identified

and modeled. However, if one's research question is confined to a certain set of constructions, like in this case non-canonically case marked argument structure constructions, it is enough for such purposes that these particular constructions be identified in the earliest attested stages of Indo-European and/or in the modern languages that represent an archaic stage of the language. In other words, the whole Construction of a given language does not have to have been worked out in order for syntactic reconstruction to be possible, but only the constructions of relevance for the research issue.

Finally, syntactic functions like the subject and the object relation can also be reconstructed with the method that we have laid out here, of course keeping in mind the limitations of the data. For each language there is a set of constructions that single out the higher-ranked argument, the subject, and a set of constructions singling out the lower-ranked argument, the object. Illustrating our point with the subject relation, the typical subject tests include word order distribution across several different clause types, omission in control infinitives and conjoined clauses, raising-to-subject and raising-to-object, and reflexivization, to mention a few (cf. Eythórsson & Barðdal 2005, Barðdal 2006). Therefore, a reconstruction of the subject relation for a given proto-branch is dependent on the reconstruction of the types of construction that constitute the subject tests, like for instance raising-to-subject, raising-to-object, control infinitives, etc. When these have been reconstructed for the relevant proto-branch, when the case and argument structure constructions have been reconstructed, and when it has been defined for each argument structure construction how its arguments behave in the set of constructions singling out the subject relation (cf. Barðdal 2006 where this is laid out for Modern Icelandic and Modern German), the subject relation itself will immediately follow from these reconstructions. A first attempt in this direction is made in Barðdal & Eythórsson (in prep). We now turn to the Dative Subject Construction in Germanic.

### 4.3 The Dative Subject Construction in Germanic

Before presenting the facts of the Dative Subject Construction in Germanic, let us first acquaint ourselves with the cline in Construction Grammar from *semantically specific* constructions to *semantically general* constructions (Tomasello 1998, Barðdal 2001a, 2009, Croft & Cruse 2004, Barðdal, Kristoffersen & Sveen 2011). The characteristic of the first is that the semantics of the whole is not derivable from the semantics of the parts, while for the second the semantics of the whole corresponds to the sum of the semantics of the parts. These have also been referred to in the literature

as semantically non-compositional vs. semantically compositional constructions.

One example of the former construction is the English Incredulity Construction (Akmajian 1984, Lambrecht 1990, Tomasello 1998, Goldberg & Casenhiser 2008):

- (5)a. Him (be) a doctor!  
 b. My mother ride a motorcycle! No way!

The elements of the form/structure and the components of the meaning can be given as in the following:

- *Form*: oblique argument – verb in the infinitive –XP (NP, PP) – exclamation mark (in writing) – intonation of incredulity (in speech)
- *Meaning*: Incredulity at the relevant proposition

Observe that the verb is optional if it is the verb *be*. It is clear, however, that the semantics of the construction as a whole cannot be derived from either the semantics of the parts or from their form. This particular semantics of disbelief towards a proposition cannot in any way be derived from the fact that there is an oblique argument as a subject, a verb in the infinitive, and a complement, e.g. a noun phrase or a prepositional phrase. Furthermore, the incredulity towards the proposition in (5a), for instance, cannot be derived from the meaning of the lexical parts either, as all male doctors are also persons that can be referred to using the pronoun *him* and the noun *doctor*. Also, when describing people's profession, the verb *be* is the default option in a predicative complement. It is therefore clear that the lexical items *him*, *be* and *a doctor*, or the combination of these together, do not in themselves give rise to the meaning of incredulity observed here.

The question arises, of course, as to whether this meaning of incredulity can perhaps be derived from the intonation pattern used in the Incredulity Construction. Lambrecht (1990: 225) points out that a similar intonation pattern can be used with sentence fragments when expressing disbelief towards a proposition. Despite that, it seems that the intonation pattern of the Incredulity Construction *as a whole* is specific for this construction and can therefore not be derived from other established constructions in English. Now, whether the semantics of the English Incredulity Construction can be derived from this intonation pattern or whether the intonation pattern follows from the semantics of the construction, we leave for scholars of English to work out. What remains clear, however, is the fact that there is no inherent symbolic relation between the meaning of incredulity and this

particular intonation pattern, indicating that the meaning of incredulity has to be idiosyncratically linked to this particular intonation pattern.

Also, the form of the syntactic constituents is an aberration from the unmarked neutral sentence pattern of English and an aberration from the morphological forms of subjects and verbs when used in ordinary declarative clauses (see Sag this volume). This in turn requires a unique pairing of the form here with the semantics and the intonation pattern of the construction, as such contributing to a semantically specific or non-compositional construction.

In contrast, consider now the following attested examples of the Icelandic Dative Subject Construction (Barðdal 2004, 2006, 2008, 2010, 2011), which is clearly a semantically general or a semantically compositional construction, where the semantics of the whole can easily be derived from the semantics of the parts:

- |  |          |
|--|----------|
| (6)a. Mér er djöfulli kalt.<br>me.DAT is devilishly cold<br>'I'm fucking cold.'  | Dat-only |
| b. Mér leiðist þetta tómarúm.<br>me.DAT bores this.NOM empty-space.NOM<br>'I'm bored by this emptiness.'                           | Dat-Nom  |
| c. Ef hundinum þínum líkar ekki við fólk ...<br>if dog.DAT your.DAT likes not with people<br>'If your dog doesn't like people ...' | Dat-PP   |
| d. Mér skilst að ...<br>me.DAT understands that<br>'I understand that ...'   | Dat-S    |
| e. Honum skrikaði fótur á hálu dekki.<br>him.DAT lost foot.NOM on slippery deck<br>'He stumbled on a slippery deck.'               | Dat-Nom  |

The elements of the form/structure and the components of the meaning can be given as in the following:

- *Form*: Dative subject – verb – (XP: NP, PP, S)
- *Meaning*: The meaning of this construction can be derived from the meaning of the parts, in particular from the meaning of the ca.

700 predicates which can instantiate the construction in Icelandic  
(cf. Barðdal 2004)

The construction consists of a dative argument in subject position, followed by a non-agreeing verb that can be instantiated by the copula ‘be’ and an adjective (6a), or a main verb followed by a nominative object (6b and 6e), a prepositional object (6c), or a sentence (6d).

Note here that the argument structure of dative subject predicates in Icelandic is not derivationally derived from any other “standard” argument structure patterns of the same verb, at least not synchronically. To be sure, the verb *skiljast* ‘come to understand’ in (6d) could be regarded as derived from the simple verb *skilja* ‘understand’ which selects for the Nom-Acc construction, but the same cannot be said about *leiðast* ‘be bored’ in (6b) and its corresponding simple verb *leiða* ‘take somebody by the hand’, which must be regarded as two different lexical verbs. This shows that the argument structure [Dat V-*st* Nom] cannot be regarded as a derivation of the argument structure [Nom V Acc] in Icelandic. Also, verbs like *líka* ‘like’ and *skrika fótur* ‘stumble’ do not occur in any other argument structure construction in Icelandic, meaning that dative subject verbs can generally not be derived from nominative subject verbs.

Turning to the semantics of the construction, it can clearly be derived from the semantics of the verbs that instantiate it. These can be divided into two crude classes of verbs, *experience-based* predicates and *happenstance* predicates, which again can be divided into more fine-grained lexical verb classes (Barðdal 2004, 2008: 111–116, 158–164):

- *Experience-based predicates*: Verbs denoting Emotions, Attitudes, Cognition, Perception, Bodily States, Changes in Bodily States
- *Happenstance predicates*: Verbs of Success/Performance, Gain, Failing/Mistaking, Decline, Personal Properties, Ontological States, and Social Interaction

These lexical semantic verb classes can be exemplified with the following verbs from Icelandic:

- (7)
- a. Emotions: *líka* ‘like’
  - b. Attitudes: *vera auðvelt* ‘be easy (for sby)’
  - c. Cognition: *bjóða í grun* ‘suspect’
  - d. Perception: *smakkast* ‘taste’
  - e. Bodily States: *blæða* ‘bleed’
  - f. Changes in Bodily States: *verða illt* ‘become sick’

- (8) a. Success/Performance: *heppnast* ‘succeed’  
 b. Gain: *berast* ‘receive’  
 c. Failing/Mistaking: *misheppnast* ‘fail’  
 d. Personal Properties: *vera e-ð eðlislægt* ‘be natural for sby’  
 e. Decline: *hnigna* ‘deteriorate’  
 f. Ontological States: *vera háttað* ‘be (in a particular manner)’  
 g. Social Interaction: *vera vel til vana* ‘be friends’

This verb classification is different from recent classifications in Onishi (2001), Haspelmath (2001), and Malchukov (2005), which all deal with non-canonically case marked experiencer subject predicates in various languages of the world. Onishi’s and Malchukov’s analyses are typological, while Haspelmath’s analysis is based on a subset of the Indo-European languages. The reason that we do not employ Haspelmath’s or Malchukov’s analyses is that their verb classifications do not encompass the lexical semantics of the predicate classes found to exist in Germanic. Haspelmath discusses experience-based predicates, sensation predicates, and cognition predicates, including verbs denoting propositional attitude and modality. Malchukov discusses, in addition to typical transitive predicates such as ‘kill’, ‘break’, ‘hit’, and ‘shoot’, 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’). Neither Haspelmath nor Malchukov discuss 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. Onishi’s (2001) verb classification, in contrast, is considerably more detailed than the other two and it is closer to the classification presented here, except that Onishi’s class of happenstance predicates is not as elaborated as in the analysis of Barðdal (2004).

The present classification into verb classes is not intended to be applicable throughout the lexicon, cutting across syntactic classes, as Levin’s (2003) classification is intended to do, as that classification is in part based on verbs’ occurrences in syntactic constructions. In contrast, the present classification is confined to the predicates occurring in the Dative Subject Construction in Icelandic. The classification is based on semantic similarity, our intuitions about synonymy, near-synonymy and the distances in similarity found between the predicates. We admit that a more refined classification of narrowly-circumscribed verb classes is due. We believe, moreover, that our classification is fully compatible with a Frame Semantic approach (Fillmore 1982, Petruck 1996, Baker & Ruppenhofer 2002), but a further explication of that is excluded for reasons of space. We emphasize, however, that our goal with this classification is not to present a theory of

verb meaning and argument structure, but simply to provide a descriptive similarity metric.

Originally, the present verb classification was developed by Barðdal (2004) to give a more detailed picture of the semantics of the Dative Subject Construction in Icelandic than provided by earlier accounts which had simply stated that Dative Subjects carry the thematic roles of Experiencers or Themes (e.g. Zaenen, Maling & Thráinsson 1985, Jónsson 2003). This verb classification can now be extended to provide a similarity metric for comparing the Dative Subject Construction in Icelandic with its cognate constructions in related languages. For this purpose a simple lexical-semantic classification of the type presented here should be sufficient. For the details of this classification, we refer the reader to Barðdal (2004) where the principles of the categorization are spelled out.

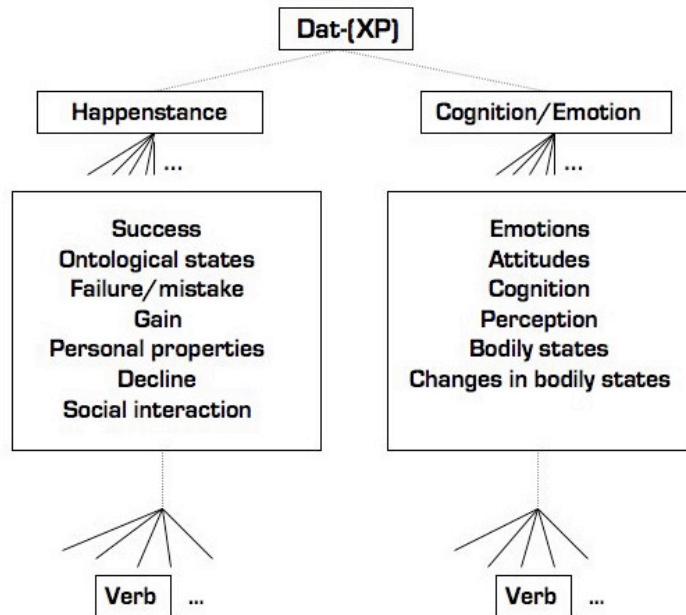


Figure 3. *The structure of the Icelandic Dative Subject Construction.*

The semantic structure of the Dative Subject Construction in Icelandic is given in Figure 3, organized as a *lexicality–schematicity hierarchy* (cf. Croft 2003, Barðdal 2001a, 2007, 2008: 68–69, Toft 2009, Barðdal, Kristoffersen & Sveen 2011). This means that the topmost level represents the most schematic level and the bottom level represents the least schematic and most substantive level, i.e., the level that is filled with most lexical material.

The intermediate levels represent intermediate groupings in the classification.

To concretize, the topmost level specifies the form of the construction and it is also the most schematic level with least lexical semantic information. The semantic information stored at this level is at best confined to relational content, such as the number and nature of the participants of the event denoted and the relation between them. The level below that denotes event types. In this case, the Icelandic Dative Subject Construction splits into two subconstructions, one denoting happenstance events and the other denoting events of cognition, emotion, and related events. The level below that represents verb-class-specific constructions, like verbs of emotion, attitudes, cognition, etc. Finally, the lowest level of the lexicality–schematicity hierarchy represents the verb-specific argument structure constructions, compatible to subcategorization frames in other current frameworks.

For reasons of space, the verb-class-specific-constructions are given as a vertical list instead of being aligned horizontally under their event-type constructions. Not all of the concrete lexically-filled verb-specific constructions in Icelandic, located at the bottom of the hierarchy, are shown either for reasons of space, although Figure 3 should illustrate the spirit of lexicality–schematicity hierarchies.

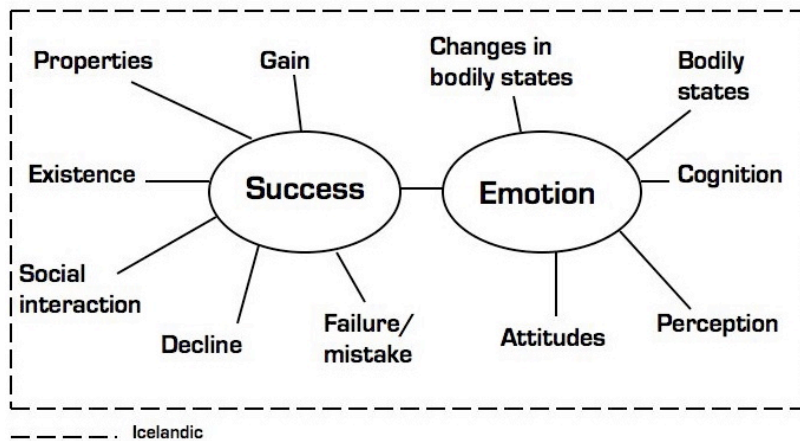


Figure 4. A semantic map of the Icelandic Dative Subject Construction.

The semantics of the Dative Subject Construction in Icelandic can be graphically laid out as in Figure 4, where the two subconstructions of the Dative Subject Construction are represented as adjacent to each other, here given with the metonymic labels *Emotion* and *Success* for Experience-based

and Happenstance predicates, respectively. The verb-class-specific constructions are shown as extensions of the central classes.

Observe that even though the majority of the instances of the Dative Subject Construction in Icelandic are semantically general in the sense that the meaning of the whole can be derived from the meaning of the parts, examples can of course be found that are not semantically compositional but must be analyzed as idiomatic expressions. One example is given in (9), where the semantics of the whole is not derivable from the semantics of the parts.

- (9) Henni leystist höfn.  
 her.DAT loosened having.NOM  
 ‘She had a miscarriage.’

Note that the nominative *höfn* literally means ‘having’ but is here used in a metaphorical meaning ‘fetus’, referring to fetuses as POSSESSION. This use of the noun *höfn* is only found in a few metaphorical expressions, like *taka við höfn* ‘become pregnant’, literally meaning ‘receive having’, and *kasta höfn(um)* ‘lose having’ which can either mean ‘have a miscarriage’ or ‘give birth prematurely.’ The noun *höfn* usually means ‘harbor’ in Modern Icelandic, so it is not generally known to Icelandic speakers that *höfn* in (9) means ‘fetus’ and not ‘harbor’. Hence, the meaning of the whole cannot be regarded as being derived from the meaning of the parts, but must be contributed by this lexicalized construction itself (or by a small family of idiomatic constructions).

This example shows that even among semantically general constructions, lexicalized instances can be found, confirming the by now general assumption that there is a cline in language from more to less idiomatic constructions (Fillmore, Kay & O’Connor 1988, Nunberg, Sag & Wasow 1994, Barðdal, Kristoffersen & Sveen 2011). Observe, also, that the idiomatic expression in (9) instantiates the Happenstance subconstruction of the Dative Subject Construction, as it denotes a spontaneous event, generally outside the control of the subject referent. Therefore, even lexicalized idiomatic expressions conform to the semantics of the Dative Subject Construction in Icelandic, further corroborating the validity of the proposed semantic structure of the Dative Subject Construction.

A comparison of the lexical semantics of the predicates instantiating the Dative Subject Construction in German and Faroese reveals that the semantic range of the German Dative Subject Construction is a subset of the semantic range of the construction in Icelandic, and further that the semantic range of the Faroese Dative Subject Construction is a subset of the semantic range of the construction in German and Icelandic (see Figure 5).

We refer the reader to Barðdal (2004) where the details of our lexical semantic comparison are spelled out. Examples are given in (10–13) below:

- (10) German
- a. Emotions: *gefallen* ‘like’
  - b. Attitudes: *leicht/schwerfallen* ‘be easy/difficult (for sby)’
  - c. Cognition: (*eine Idee*) *kommen* ‘get an idea’
  - d. Perception: *schmecken* ‘taste’
  - e. Bodily States: *weh tun* ‘be in pain’
  - f. Changes in Bodily States: *schlecht werden* ‘become sick’
- (11) German
- a. Success/Performance: *glücken* ‘succeed’
  - b. Gain: *nutzen* ‘benefit from’
  - c. Failing/Mistaking: *missglücken* ‘fail’
  - d. Personal Properties: *angeboren sein* ‘be natural for sby’
- (12) Faroese
- a. Emotions: *dáma* ‘like’
  - b. Cognition: *gruna* ‘suspect’
  - c. Bodily States: *standast við* ‘feel sick’
- (13) Faroese
- a. Success/Performance: *lukkast* ‘succeed’
  - b. Gain: *lutast* ‘receive’
  - c. Failing/Mistaking: *berast á* ‘(accidentally fall)’

The fact that the semantics of the Dative Subject Construction in Faroese and German is a subset of the semantics of the construction in Icelandic may suggest historical relatedness. The question of course arises whether the construction has expanded in Icelandic or contracted in German and Faroese.

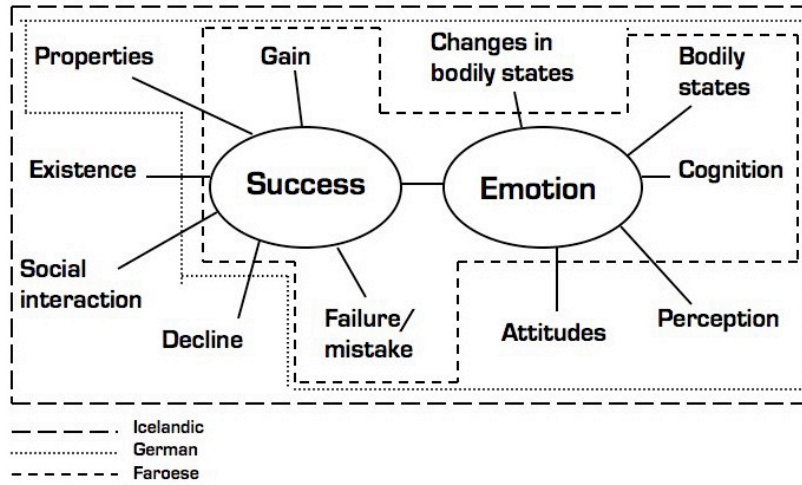


Figure 5. A semantic map of the Germanic Dative Subject Construction.

When comparing Modern Icelandic texts with equivalent Old Norse Icelandic texts it is striking that the use of the construction has gone down considerably from Old Norse-Icelandic to Modern Icelandic (cf. Table 3). In an otherwise well-stratified corpus of Icelandic texts, containing 20,000 running words for either period, divided across four different genres, dative subject predicates amount to 72 types in Old Norse-Icelandic while there are only 48 types found in corresponding Modern Icelandic texts (Barðdal 2008, 2009).

	Old Norse-Icelandic		Modern Icelandic	
	N	%	N	%
Nom	299	76.3	395	85.0
Acc	14	3.5	15	3.2
Dat	72	18.4	48	10.3
Gen	7	1.8	7	1.5
	392	100	465	100

Table 3. Subject frequency in Old Norse-Icelandic and Modern Icelandic texts (Barðdal 2009: 150).

This does not suggest that the semantic scope of the construction has expanded in the history of Icelandic, rather the contrary. It is also a well-known fact, discussed both in the handbooks and the reference grammars, as well as in more recent scholarly work on the historical development of German and Faroese that the Dative Subject Construction has lost

predicates in the history of German (Dal 1966: 168–170, Seeffranz-Montag 1983: 158–201, 1984: 541, Smith 1994, 1996) and the history of Faroese (Petersen 2002, Jónsson & Eythórsson 2005, Jónsson 2009). This suggests that the Modern Icelandic situation is the most archaic one and that state of affairs may at least be as old as Proto-Germanic, although a comparison with Gothic, Old English, Old High German/Saxon is needed to verify this assumption. We refer the interested reader to Barðdal & Eythórsson (in prep).

Therefore, the common semantics, paired with a cognate form, and the fact that the type frequency of the construction has gone down in all the languages suggests a common Germanic development. If the Dative Subject Construction in Germanic were not the result of a common development, one would not expect the same semantics found across the three languages. Rather, it would be equally likely that the form became mapped with a different semantic content, that a different set of lexical predicates with a different meaning would be instantiated by construction, ultimately resulting in a set of different constructions in the three languages. This, however, is not what has happened.

Clearly, the loss of dative subject predicates will ultimately lead to a change in the grammar, i.e., if the construction is non-productive and does not attract any new predicates, it will eventually go lost, leaving the grammar with a Nominative Subject Construction only or a grammar where case marking has disappeared, like in English and the Modern Scandinavian languages (cf. Barðdal 2008: Ch. 6, 2009). The gradual loss of these predicates will therefore ultimately change the grammar of the Indo-European languages. This makes these predicates important for the purpose of reconstruction. That is, it is only through the class of dative subject predicates that the Dative Subject Construction can be reconstructed for earlier periods of Indo-European.

Moreover, the present typology of dative subject verb classes has been successfully applied by Lühr (2008) to additional Indo-European languages, like Ancient Greek. This means that a subset of these verb classes is also found in Ancient Greek (see Lühr 2008 for details). Meillet's (1925) dictum specifies that a linguistic element cannot be reconstructed for the proto-language unless it is attested in at least three daughter branches. More research on the semantics of the construction in earlier and archaic Indo-European languages is needed to establish this beyond doubt; however, the fact that the lexical semantic typology of dative subject predicates can be applied to earlier and geographically more remote Indo-European languages certainly suggests that the semantics of the Dative Subject Construction in Icelandic is neither an Icelandic nor a Germanic innovation, but is inherited from an even earlier historical period common to these languages.

A question that arises is whether the semantics of the Dative Subject Construction discussed here is specific for the Germanic or the Indo-European languages, or whether it is typical for dative subject predicates crosslinguistically. To this we respond by pointing out that there is nothing that restricts non-canonical subject case marking to the fields of experience and happenstance events to begin with. That is, the field of non-agentivity is much broader than only encompassing these two particular semantic subfields. An oblique subject construction may in principle occupy any part of the non-agentive semantic space. On a non-inheritance analysis, one would not expect an oblique subject construction in one language to semantically mirror an oblique subject construction in another language. If they do, that is rather indicative of inheritance than non-inheritance.

In order to illustrate with a concrete example how Construction Grammar can be used to reconstruct the syntax of earlier language periods, we now present a first attempt to reconstruct the Dative Subject Construction in Proto-Germanic, using the formalism of Sign-Based Construction Grammar (Sag, this volume, Michaelis 2010).

#### 4.4 Proto-Germanic Reconstruction

The Dative Subject Construction is a *lexical class construction* in the terminology of Sign-Based Construction Grammar. The description of the grammar relevant for the Dative Subject Construction consists of *lexical entries* and *lexical class constructions*, while the syntactic behavior of the Dative Subject Construction, like the order between the subject and the predicate in neutral word order, questions, topicalizations, etc., would be captured with additional constructions which will not be discussed here, as they have to be reconstructed on their own grounds. Similarly, we will not reconstruct any real utterances (see Section 3 above), and will thus not need any inflectional constructions conveying tense, etc. What will be reconstructed here is therefore only the part of the grammar of Proto-Germanic that is relevant for the description of argument structure constructions with dative subjects and the predicates instantiating these.

Lexical entries in Sign-Based Construction Grammar are specified as attribute-value matrices of the type given in Figure 6, which shows a lexical entry for the two-place Dative subject predicate ‘like’ in Proto-Germanic. The forms of this verb in the earliest Germanic daughters are the following: OE. *lícian*, OFris. *likia*, OS. *lîkôn*, ON-I. *líka*, Goth. *leikan*, OHG. *lîhhên*, *lîchên*. The Proto-Germanic forms reconstructed for this verb are *\*lîkējana(n)* (Goth., OHG.) and *\*lîkōjana(n)* (OE, OFris., OS., ON-I.) (see e.g. Bjarvand & Lindeman 2000: 533, and other standard Germanic etymological dictionaries, including OE 2001, OED).

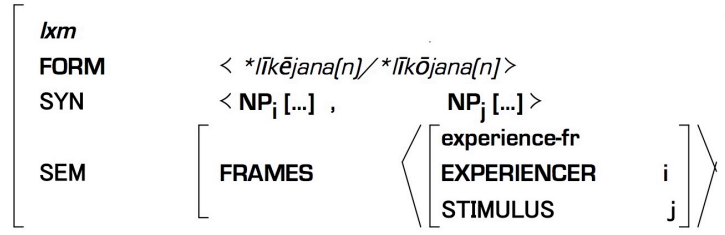


Figure 6. A lexical entry for the Dative subject predicate ‘like’ in Proto-Germanic.

The FORM feature in the lexical entry in Figure 6 gives the reconstructed form \*līkējana(n)/\*līkōjana(n). More entries for Proto-Germanic can be reconstructed when the predicates instantiating the Dative Subject Construction in Gothic, Old Norse-Icelandic, Old English, Old High German and Old Saxon have been compared. Only the predicates that are common to the majority of all the languages can be reconstructed as separate entries for Proto-Germanic.

The lexical entry in Sign-Based Construction Grammar consists of feature values of which three are relevant here, FORM, SYN, and SEM. The FORM feature gives the morphological form and morphological properties of the predicate which, in this case, is \*līkējana(n)/\*līkōjana(n), as already stated. The SYN feature lists the two arguments of which the first NP is the subject and the second NP is the object. These are coindexed with the roles in the experiencer frame. The SEM feature consists of the value FRAMES. A FRAME refers to an elementary scene where the participants and their roles towards each other and the event is specified. In this case there are two participants, an EXPERIENCER and STIMULUS, which are indexed according to their role in the event with indexes matching the indexation on the NPs in SYN.

Observe that the case marking is not specified directly in the lexical entry, as a) one and the same lexical predicate can occur with different case frames, and b) specifying the case frame in the lexical entry loses the generalization that the case frame is valid for a subset of predicates. Therefore the case frame is specified in the lexical class construction and not directly in the lexical entries for verbs. In other words, the lexical class constructions are here defined in terms of their case frames.

Figure 3 above represents a lexical class construction where the mother sign is stated at the top of the hierarchy, as Dat-(XP) and the daughter signs are given as lists of verb classes under the mother sign. Lexical class constructions are regarded as strictly local in Sign-Based Construction

Grammar, introducing no structure. For case marking languages like Icelandic, however, which exhibit several different case frames, like Nom-Acc, Nom-Dat, Nom-Gen, Acc-Acc, Dat-Nom, Gen-Nom (see Table 4 below), the case frame needs to be specified for each lexical class construction. This can be done as in (14), where the class of lexical predicates is defined in terms of its case frame, introducing the feature CASE, here specified as dative.

- (14) dat-subj-lxm => [SYN [CAT [XARG [CASE dat ]]]]

Lexical class constructions like the one in (14) may be reconstructed for Proto-Germanic on the basis of lists of lexical entries for dative subject verbs when these have been reconstructed for Proto-Germanic on the basis of the evidence in the daughter languages. Assuming preliminarily that the category of dative subject predicates in Proto-Germanic consisted of two semantically restricted subconstruction, i.e. experience-based and happenstance subconstructions, as suggested by the data from Modern Icelandic, Modern German and Modern Faroese, this can be captured by an inheritance hierarchy of the following type:

- (15)
- |  |
|--|
| dat-subj-verb-lxm                                  |
|  |
| happenstance-verb-lxm    experience-based-verb-lxm |

The semantic constraints for each of these can be set up as follows:

- (16) happenstance-verb-lxm => [SEM [FRAMES < [happ-fr] >]]  
 experience-based-verb-lxm => [SEM [FRAMES < [exp-fr] >]]

Therefore, lexicality–schematicity hierarchies of the type suggested in Section 4, employed in Radical Construction Grammar (Croft 2001, 2003, Barðdal 2001a, 2006, 2008, 2011), are easily formalized in Sign-Based Construction Grammar, showing how insights from other constructional frameworks can be implemented into the Sign-Based Construction Grammar formalism.

This overview shows how the Sign-Based Construction Grammar formalism can be employed in the reconstruction of case and argument structure constructions for Proto-Germanic. As expected, the Sign-Based Construction Grammar formalism has shown itself to adequately capture what needs to be captured when reconstructing lexical entries and lexical class constructions for proto-stages. It is in part the explicitness of Sign-Based Construction Grammar and in part its attention to detail that lend

Sign-Based Construction Grammar specifically suitable for reconstructing the grammar of earlier stages. Moreover, the fact that constructions are located inside the grammar, i.e. that the grammar in Sign Based Construction Grammar is perceived of as a set of constructions and their constraints, makes Construction Grammar particularly suitable for reconstructing grammar.

#### 4.5 Interim Summary

To sum up, the fundamental assumption within the Comparative Method is that one reconstructs on the basis of form–function pairings. This means that similarity in either form or function is not enough to establish correspondence sets as a basis for reconstruction. However, as Construction Grammar takes argument structure constructions, including case frames, to be form–function pairings, Construction Grammar allows for the reconstruction of predicates selecting for non-canonical case marked arguments and for the reconstruction of their argument structure constructions. The *grammar* in Construction Grammar is perceived of in terms of a Constructicon which is similar to a lexicon, except that it contains form–meaning mappings at the syntactic level, as well as at the lexical level. In fact, all levels of linguistic representation, be it phonological, morphological, or syntactic, are stored in constructions, as evident from the presentation in Table 2 and Figure 6 above. Hence, the argument structure constructions, with their form and meaning, are stored in the Constructicon. This also entails that when Constructicons have been modeled for all the ancient and archaic Indo-European languages, containing verbs and their argument structure constructions, the inventory of these Constructicons provide us with the correspondence sets for reconstructing a Constructicon for Proto-Indo-European. This is how grammar can be reconstructed with the methodology outlined here, combining Construction Grammar with the Comparative Method. That is, since constructions are *in the grammar*, reconstructing constructions means reconstructing grammar.

This methodology also allows us to reconstruct syntactic functions which are reconstructable through the constructions which single out the relevant syntactic functions. Such constructions have to be reconstructed on their own grounds, and when they have, the relevant syntactic function can be derived from the behavior of the arguments in these constructions. Finally, Sign-Based Construction Grammar provides the adequate formalism needed to capture the lexical entries and the lexical class constructions that are relevant for reconstructing case and argument structure constructions in earlier prehistoric language stages.

## 5 Reconstructing Case Alignment for Proto-Indo-European

As argued by Barðdal (2001b: 33–39) and Fried (2005), in terms of Construction Grammar, lexically-selected case patterns are indistinguishable parts of argument structure constructions in languages with case marking. These have been referred to as *case and argument structure constructions* in this paper. In the SBCG terminology, these are lexical class constructions, also treatable as form–function pairings.

A comparison of the ancient and the modern Germanic languages that have maintained case morphology reveals a situation which is much more complicated than conveyed by the general label ‘Nominative–Accusative’ language. The attested case and argument structure constructions are given in Table 4 and these encompass several subconstructions of the Nominative Subject Construction, the Accusative Subject Construction, the Dative Subject Construction, and the Genitive Subject Construction.

Nom	Acc	Dat	Gen
Nom	Acc	Dat	Gen
Nom-Acc	Acc-Nom	Dat-Nom	Gen-Nom
Nom-Dat	Acc-Acc	Dat-Gen	Gen-PP
Nom-Gen	Acc-Gen	Dat-PP	Gen-S
Nom-PP	Acc-PP	Dat-S	
Nom-S	Acc-S		

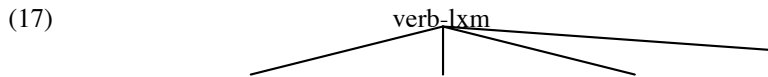
Table 4. Case and argument structure constructions in Germanic.

For instance, the Nominative Subject Construction consists of a) the intransitive Nom-only construction, b) constructions with two arguments like the Nom-Acc construction where the first argument is in the nominative case and the second argument in the accusative, c) the Nom-Dat construction where the first argument is in the nominative and the second argument in the dative case, d) the Nom-Gen construction where the first argument is in the nominative case and the second argument in the genitive case, e) the Nom-PP construction where the first argument is in the nominative case and the second argument is a prepositional object, i.e. an object headed by a preposition, and f) the Nom-S construction where the first argument is in the nominative case while the second argument is realized as a clause. In the same vein, the Accusative Subject Construction consists of a) the intransitive Acc-only construction, b) the Acc-Acc construction where both the first and the second argument are in the

accusative case, c) the Acc-Gen construction where the first argument is in the accusative case and the second argument is in the genitive, etc.

In this connection, the question of the subject properties of the oblique subject-like arguments must be briefly addressed. In the languages that we have investigated most intensively, viz. the Germanic languages, it turns out that it is the highest-ranked argument that passes all subject tests (Barðdal & Eythórsson 2003a–b, Eythórsson & Barðdal 2005, Barðdal 2006, Barðdal & Eythórsson 2006), irrespective of case marking.<sup>3</sup> It is also the lower-ranked argument that behaves syntactically as an object. Future research will reveal whether this ranking of arguments and its relation to syntactic functions also holds for the remaining Indo-European languages, like for instance the *mihi est* construction in Latin and others. We emphasize, however, that nobody disagrees that, for instance, the accusative of the Acc-Gen construction is the highest ranked argument. What is more astonishing, moreover, is that nobody demands evidence for an object analysis of the accusative of Acc-Gen, although the research community demands that a corresponding subject analysis be shown beyond doubt. Hence, higher standards have been subjected to the subject analysis of the oblique subject-like argument than to the object analysis of that same argument (cf. Barðdal 2000b).

Returning to the case and argument structure constructions in Proto-Germanic, listed in Table 4 above, on an SBCG account these are treated as distinct subtypes of verb-lexemes, shown in (17):



<sup>3</sup> Other analyses of non-nominative subjects in Icelandic and Germanic include the following works: Andrews (1976), Thráinsson (1979), Zaenen, Maling & Thráinsson (1985), Yip, Maling & Jackendoff (1987), Sigurðsson (1989), Jónsson (1996), Fanselow (2002), Bayer (2004), Haider (2005), and Wunderlich (2009). While these authors unanimously regard subject-like obliques as syntactic subjects in Icelandic, some of them explicitly analyze them as syntactic objects in German, thus positing a major difference between Modern Icelandic and Modern German. In Barðdal & Eythórsson (2003b, 2006), Eythórsson & Barðdal (2005), and Barðdal (2006) we present data from German, both Modern German and 18th century German, where only a subject analysis of the subject-like oblique is possible. The analysis is based on control infinitives where the subject-like dative is left unexpressed, a behavior which is found to be confined to subjects crosslinguistically, and is not found with objects. See also Kristoffersen (1996), Falk (1997), and Faarlund (2001), where it is argued that Old Scandinavian was like Modern German in the sense that the subject-like oblique behaved syntactically as an object. In Rögnvaldsson (1995), Barðdal 2000a, Barðdal & Eythórsson (2003a), and Eythórsson & Barðdal (2005) the object analysis is refuted and it is shown that subject-like obliques in Old Germanic also behaved syntactically as subjects. Again, this argument is based on control infinitives where the subject-like oblique is left unexpressed, showing beyond doubt that the subject-like oblique behaved syntactically as a subject in earlier Germanic.

nom-subj-verb-lxm acc-subj-verb-lxm dat-subj-verb-lxm ...

Each of these has properties which are defined by a lexical class construction, like the ones listed in (18):

- (18) nom-subj-verb-lxm => [SYN [CAT [XARG [CASE nom ]]]]  
 acc-subj-verb-lxm => [SYN [CAT [XARG [CASE acc ]]]]  
 dat-subj-verb-lxm => [SYN [CAT [XARG [CASE dat ]]]]  
 gen-subj-verb-lxm => [SYN [CAT [XARG [CASE gen ]]]]

The lexical semantic verb classes identified for each case and argument structure construction are subtypes of the lexical class constructions. For instance the two subconstructions of the Dative Subject Construction, i.e. the Happenstance and the Experience-based subconstructions, are subtypes of the lexical class construction defining dative subject lexemes:

- (19)
- ```

graph TD
  A[dat-subj-verb-lxm] --- B[happenstance-verb-lxm]
  A --- C[experience-based-verb-lxm]
  
```

As already stated above, the semantic constraints for each of these can be set up as follows:

- (20) happenstance-verb-lxm => [SEM [FRAMES < [happ-fr] >]]  
 experience-based-verb-lxm => [SEM [FRAMES < [exp-fr] >]]

The different predicates would then have lexical entries specifying their form and their particular semantic frame which would be a subtype of the relevant frame type. The lexical entry for the verb ‘like’ in Proto-Germanic, suggested in Figure 6 above, is such an example. The case assignment of the various lexical predicates would then follow directly from constraint inheritance.

It is generally accepted in linguistics that lexical classes of verbs are semantically defined (cf. Levin 1993, Croft 1998, Goldberg 1995, and others). It is therefore expected to find constructions of the sort illustrated here for the Dative Subject Construction in Germanic. A recent work on the Accusative Subject Construction in Icelandic, both Old Norse-Icelandic and Modern Icelandic, shows a considerable semantic overlap between the Accusative and the Dative Subject Constructions (Barðdal 2008: Ch 6, 2010). It should be stressed here that the semantic map in Figure 5 above only renders the semantics of the Dative Subject Construction in the Germanic languages. More research is needed on the lexical semantic verb

classes instantiating the remaining subconstructions in the early and archaic Indo-European languages in order to substantiate a full-fledged analysis of the lexical class constructions of these in Indo-European, although, as mentioned above, pioneering work in this respect is reported on by Lühr (2008) for Ancient Greek. Such an analysis would be based on lists of verbs instantiating each case and argument structure construction in order to throw light on the question whether oblique subject predicates have a common point of origin or whether they represent an independent development in the various ancient and archaic Indo-European languages.

The present analysis of case patterns as being parts of argument structure constructions in languages exhibiting morphological case, or in SBCG terminology, lexical class constructions defined by different case frames, entails that there is no qualitative difference between the so-called lexical and structural cases, a dichotomy suggested amongst others by Zaenen, Maling & Thráinsson (1985) and Yip, Maling & Jackendoff (1987). That is, on the present analysis, the nominative as a subject case is also assigned “lexically,” exactly like the accusative, dative and genitive (cf. Barðdal 2011). The evidence supporting this analysis is found with case assignment to borrowed verbs in Icelandic, where it is clear, for instance, that the assignment of the Nom-Acc construction is word bound, exactly like the assignment of the Nom-Dat construction. This means that the Nom-Acc construction is assigned to borrowed verbs on the basis of existing lexical entries of synonymous verbs, like the Nom-Dat construction. Therefore, assuming that the assignment of dative case to objects in Icelandic is lexically based, i.e. that it is a lexical class construction, entails that the assignment of accusative to objects in Icelandic is equally lexically based, i.e. that it is also a lexical class construction. This analysis is corroborated by the fact that the predicates instantiating the Nom-Acc Construction in Icelandic are easily distinguishable into lexical semantic subclasses, of which forty-six such are suggested in Barðdal (2008: Ch. 3) and twenty-seven for the Nom-Dat construction. For a critical review of the predictions made by the lexical vs. structural case dichotomy, as well as the thematic vs. idiosyncratic case dichotomy, on a) productivity, b) language change, and c) language acquisition (see Barðdal 2011).

Let us now consider the case patterns found for other archaic and ancient Indo-European languages. A preliminary investigation reveals that there are comparable case and argument structure constructions documented in, for example, Latin, Ancient Greek, Lithuanian, and Russian. The results of a survey of these languages, based on standard reference grammars, are shown in Tables 5–8 (where the strikethroughs indicate argument structure constructions that are attested in Germanic but unattested in the language in question).

| Nom     | Acc                | Dat     | Gen     |
|---------|--------------------|---------|---------|
| Nom     | Acc                | Dat     | Gen     |
| Nom-Acc | Acc-Nom            | Dat-Nom | Gen-Nom |
| Nom-Dat | <del>Aee</del> Aee | Dat-Gen | Gen-PP  |
| Nom-Gen | Acc-Gen            | Dat-PP  | Gen-S   |
| Nom-PP  | Acc-PP             | Dat-S   |         |
| Nom-S   | Acc-S              |         |         |

Table 5. *Case and argument structure constructions in Latin (preliminary).*

| Nom     | Acc                | Dat     | Gen     |
|---------|--------------------|---------|---------|
| Nom     | Acc                | Dat     | Gen     |
| Nom-Acc | Acc-Nom            | Dat-Nom | Gen-Nom |
| Nom-Dat | <del>Aee</del> Aee | Dat-Gen | Gen-PP  |
| Nom-Gen | <del>Aee</del> Gen | Dat-PP  | Gen-S   |
| Nom-PP  | Acc-PP             | Dat-S   |         |
| Nom-S   | Acc-S              |         |         |

Table 6. *Case and argument structure constructions in Ancient Greek (preliminary).*

| Nom     | Acc                | Dat     | Gen     |
|---------|--------------------|---------|---------|
| Nom     | Acc                | Dat     | Gen     |
| Nom-Acc | Acc-Nom            | Dat-Nom | Gen-Nom |
| Nom-Dat | <del>Aee</del> Aee | Dat-Acc | Gen-PP  |
| Nom-Gen | Acc-Gen            | Dat-Gen | Gen-S   |
| Nom-PP  | Acc-PP             | Dat-PP  |         |
| Nom-S   | Acc-S              | Dat-S   |         |

Table 7. *Case and argument structure constructions in Lithuanian (preliminary).*

| Nom     | Acc                | Dat                | Gen     |
|---------|--------------------|--------------------|---------|
| Nom     | Acc                | Dat                | Gen     |
| Nom-Acc | Acc-Nom            | Dat-Nom            | Gen-Nom |
| Nom-Dat | <del>Aee</del> Aee | Dat-Acc            | Gen-PP  |
| Nom-Gen | <del>Aee</del> Gen | <del>Dat</del> Gen | Gen-S   |
| Nom-PP  | Acc-PP             | Dat-PP             |         |
| Nom-S   | Acc-S              | Dat-S              |         |

Table 8. *Case and argument structure constructions in Russian (preliminary).*

Note that the argument structure constructions in Latin, Ancient Greek, Lithuanian, and Russian are a proper subset of the argument structure constructions in Germanic. There is one additional case construction in Lithuanian and Russian, Dat-Acc, which is not found in Table 5 for Germanic. There is, however, a Dat-Acc construction documented in Germanic, although it is not included in Table 5 as it represents demonstrably secondary developments in Germanic: on the one hand a development from Dat-Nom to Dat-Acc (Modern Faroese, Middle English, Old Swedish) and, on the other hand, a development from Acc-Acc to Dat-Acc (Modern Icelandic). This raises the question of whether the Dat-Acc construction in Baltic and Slavic may also be a secondary development. More research on Baltic and Slavic is needed in order to decide on the issue. Also, two additional patterns, Dat-Dat and Dat-Gen, are found with modal infinitives in Russian. As infinitive constructions with a modal meaning are not argument structure constructions in our sense, these will be excluded from this comparison.

The fact that the case and argument structure constructions in Latin, Ancient Greek, Lithuanian, and Russian are a proper subset of the case and argument structure constructions in Old Germanic (except for the Dat-Acc construction) may suggest historical relatedness. Observe that in Latin, Ancient Greek, Baltic, and Slavic, the Acc-Acc construction is missing which may suggest that this construction represents a specific Germanic development, perhaps from the Acc-Gen construction. It is well known that there has been a development from genitive objects to accusative objects in Germanic (e.g. Barðdal 2001b, 2009, Jónsson & Eythórsson, to appear). In addition Dat-Gen is missing from Russian and Acc-Gen from Ancient Greek and Russian. It should also be mentioned that the Acc-Nom, Dat-Nom, and Gen-Nom patterns are generally listed under verbs taking nominative subjects in the handbooks.

Moreover, the argument structure constructions that are a logical possibility, but are missing from the tables, i.e. Acc-Dat, Dat-Dat, Gen-Acc, Gen-Dat, and Gen-Gen, do not seem to be found in any of the Indo-European language branches that we have investigated here. As we know of no universal principle which might exclude these patterns from human language, the common absence of these patterns is a significant fact suggesting historical relatedness. It should be pointed out that this is a testable hypothesis and the discovery of matching pattern gaps in Indo-European or other language families can falsify it.

Therefore, it is not only the fact that the case and the argument structure constructions in Latin, Ancient Greek, Lithuanian and Russian are a subset of the case and argument structure constructions in Germanic that constitutes evidence for historical relatedness but rather this fact together

with the systematic gaps found across these language branches that suggests historical relatedness. It is, of course, already known that the language branches just discussed are related. Therefore, the distribution of existing and lacking patterns discussed in Tables 4–8 must be reconstructed for a common proto-stage. The basis for such a reconstruction is the following:

- Oblique Subject Constructions are exceptions from the canonical patterns
- Dative, Genitive, and Nominative Object Constructions are also exceptions from the canonical patterns
- Common case and argument structure constructions occur in the ancient and archaic Indo-European languages
- The Oblique Subject Constructions involve common semantics
- The case and argument structure constructions exhibit common systematic gaps

Observe, moreover, that the majority of the case constructions listed in Tables 4–8 above are generally not found in the languages of the world. In other words, they are not *typologically motivated*. The only Indo-European case constructions that could be viewed as typologically motivated are the Nom-Acc and the Dat-first constructions. In other words, Nom-Acc is the prototypical pattern found in Nominative–Accusative languages and the Dat-first pattern is typically found with experiencer subject predicates cross-linguistically. The label *dative* in such cases is motivated by the fact that the morphological form of the experiencer subject is different from the ordinary subject and object forms and it corresponds to the morphological form used for recipients of ditransitive verbs. The case constructions Nom-Dat, Nom-Gen, Acc-Nom, Acc-Gen, Dat-Gen, and Gen-Nom, listed as existent in Tables 4–8 above, are extremely rare cross-linguistically, if not confined to Indo-European. The actuality of these case constructions in the Indo-European languages can therefore not be explained by reference to typological motivation and must be reconstructed as inherited from the proto-language.

More generally, of course, the concept of typological motivation does not speak against reconstructing the Nom-Acc and the Dat-first constructions for Proto-Indo-European, as there is no reason to assume that they have developed independently in the daughter languages. It would appear as strange, in fact as a major coincidence, if both the Nom-Acc and Dat-first constructions had developed independently in Ancient Greek, Latin, Slavic, Baltic, and Germanic in the transition period from Proto-Indo-European to the daughters, while the remaining case constructions in Tables 4–8 were being inherited from the proto-stage at the same time. If the Nom-

Acc and the Dat-first constructions represented independent developments in the daughter languages, motivated by typological preferences, one would not expect either of them to have developed at exactly the same time in the daughter languages, namely, during the transition period from Proto-Indo-European to the earliest attested daughter languages. Rather, on the assumption that they represent independent developments, one would expect these constructions to have developed at different times in different languages. Thus, if the Dat-first construction were not an inheritance but an independent development in the daughters, the Dat-first construction might have emerged in the earliest sources in one language but perhaps during a later period in another language. This does not seem to be the case, as a Dat-first construction seems to exist in all the earliest Indo-European languages.

Given a preliminary reconstruction of the case and argument structure constructions in Germanic, Latin, Ancient Greek, Baltic, and Slavic, on the basis of Tables 4–8 above, it is legitimate to ask what the consequences are for the typological status of Indo-European. First, taking the Nom-Acc construction and the Nom-only construction as a point of departure, disregarding the other patterns, as shown in Table 9, one will arrive at the conclusion that Proto-Indo-European must have been a Nominative–Accusative language.

| Nom            | Acc     | Dat     | Gen     |
|----------------|---------|---------|---------|
| <b>Nom</b>     | Acc     | Dat     | Gen     |
| <b>Nom-Acc</b> | Acc-Nom | Dat-Nom | Gen-Nom |
| Nom-Dat        | Acc-Acc | Dat-Gen | Gen-PP  |
| Nom-Gen        | Acc-Gen | Dat-PP  | Gen-S   |
| Nom-PP         | Acc-PP  | Dat-S   |         |
| Nom-S          | Acc-S   |         |         |

Table 9. *Nom-only and Nom-Acc as basis for typological classification.*

Second, taking the Nom-Acc and the Acc-only construction as a point of departure, disregarding the other patterns, as shown in Table 10, one will arrive at the conclusion that Proto-Indo-European must have been an Ergative–Absolutive language.

| Nom            | Acc        | Dat     | Gen     |
|----------------|------------|---------|---------|
| Nom            | <b>Acc</b> | Dat     | Gen     |
| <b>Nom-Acc</b> | Acc-Nom    | Dat-Nom | Gen-Nom |
| Nom-Dat        | Acc-Acc    | Dat-Gen | Gen-PP  |
| Nom-Gen        | Acc-Gen    | Dat-PP  | Gen-S   |
| Nom-PP         | Acc-PP     | Dat-S   |         |
| Nom-S          | Acc-S      |         |         |

Table 10. *Acc-only and Nom-Acc as basis for typological classification.*

Taking the Nom-Acc and both Nom-only and Acc-only as a point of departure, disregarding the other patterns, as shown in Table 11, one will arrive at the conclusion that Proto-Indo-European must have been a Stative-Active language.

| Nom            | Acc        | Dat     | Gen     |
|----------------|------------|---------|---------|
| <b>Nom</b>     | <b>Acc</b> | Dat     | Gen     |
| <b>Nom-Acc</b> | Acc-Nom    | Dat-Nom | Gen-Nom |
| Nom-Dat        | Acc-Acc    | Dat-Gen | Gen-PP  |
| Nom-Gen        | Acc-Gen    | Dat-PP  | Gen-S   |
| Nom-PP         | Acc-PP     | Dat-S   |         |
| Nom-S          | Acc-S      |         |         |

Table 11. *Nom-only, Acc-only, and Nom-Acc as basis for typological classification.*

Observe that both Nom-only and Acc-only are instantiated by non-experiencer verbs. One example of an Acc-only is the compositional predicate *snara af baki* ‘fall off horseback’ in Icelandic, which is not an experiencer predicate but a happenstance predicate, where the accusative subject argument is not in control of the event denoted by the predicate. The case and argument structure constructions in Tables 4–8 therefore suggest that A, the transitive subject, was associated with nominative, accusative, dative and genitive in Proto-Indo-European, at least if transitive here is taken to mean ‘two-place predicate’. The tables also suggest that S, the intransitive subject, and P, the transitive object, could each be associated with nominative, accusative, dative, or genitive. These facts suggest that Proto-Indo-European had semantic alignment, in the sense of Donohue (2008), and that it was not a clear-cut Accusative, Ergative, or Active language.

It has been argued in the literature that Proto-Indo-European was a Stative-Active language and that the case marking of subjects of

intransitive predicates was semantically motivated (see Klimov 1973, 1977, Schmidt 1979, Gamkrelidze & Ivanov 1995[1984], Lehmann 1989, and Bauer 2000). Earlier claims about alignment in Indo-European are, however, not based on facts of case marking but rather on the ancillary properties once assumed to occur together with languages of the Active type. These properties include lack of passive, lack of possessive ‘have’, lack of feminine gender, among others (see Drinka 1999 for a critical discussion). In other words, it has been argued in the literature that Proto-Indo-European was a Stative-Active language, not because of its case marking properties, but because of the existence of the above-mentioned ancillary properties.

However, this concept of stative–active languages, based on the ancillary properties, has been more or less debunked by the typological community (Wichmann 2008: 6), as all the relevant ancillary properties are common in other language types (Lazard 1986) and several of them have shown themselves to be areal (Nichols 1990). Also, many scholars have brought forward compelling arguments for the existence of Stative–Active languages without such properties (cf. Comrie 1976, Harris 1990, and Dixon 1994). In contrast to earlier claims about the alignment of Proto-Indo-European, our claims are based on case marking and case marking alone, and not on the ancillary properties (cf. Barðdal & Eythórsson 2009). The research presented here supports our earlier assumption that alignment in Proto-Indo-European was semantically motivated, although it clearly does not seem to fit any of the three major alignment type categories assumed in the literature. This suggests, in turn, that the traditional alignment typology and the terminology associated with it is heavily in a need of revision.

Observe that our conclusions on the alignment status of Proto-Indo-European are only preliminary, as we still have not obtained proper data on, for instance, Hittite and Sanskrit. However, non-systematicized observational data on Old Persian, the Indo-Iranian language most closely related to Avestan, suggests a richer array of case and argument structure constructions in that language (Haig 2008: 55–58), than typically assumed for Sanskrit (Hock 1990). It is therefore possible that Sanskrit may have lost some of the case patterns found in Tables 4–8, although more research is needed to substantiate such a hypothesis.

## 6 Summary

The emergence of the Comparative Method in the 19th century represents a major revolution in linguistics, as it constitutes one of the most powerful linguistic tools in establishing language relatedness. The Comparative

Method, however, has first and foremost been applied to phonological, morphological, and lexical entities, when reconstructing earlier layers of genetically related languages. Syntactic reconstruction, in contrast, has at best been regarded as a controversial enterprise in the literature and at worst as a stranded endeavor. There are several reasons for this, such as the lack of cognate material in sentences, lack of “syntactic laws” in historical syntax, lack of genetically related form, and finally an alleged qualitative distinction between the transmission of the vocabulary and the transmission of grammar. All of these objections have been shown above to be unsubstantiated.

The foundation of historical-comparative reconstruction is that correspondence sets consist of a form side and a meaning side. This is because cognates, i.e. objects descended from the same ancestor language, are decided upon on the basis of a correspondence between form and meaning across more languages. The languages in which such correspondence sets are found are regarded as genetically related while languages which do not exhibit such correspondence sets are generally not regarded as being genetically related. Correspondence sets, consisting of a form side and a meaning side, are thus a prerequisite for applying the Comparative Method. As syntactic structures have traditionally and generally not been regarded as exhibiting meaning in themselves, except for the combined meaning of the lexical parts, there cannot be any correspondence sets in syntax, under both the traditional and the generative approach.

The basic tenet within Construction Grammar is that constructions, i.e. form–meaning/function pairings, are the primitives of language. This includes constructions ranging from a morphemic level to an abstract level of schematic constructions. This is the reason that Construction Grammar provides a tool for reconstructing syntax, as syntactic structures are regarded as form–function pairings in Construction Grammar, exactly like words and morphemes. Argument structure constructions in Construction Grammar can, moreover, be divided into either semantically specific constructions, which are semantically non-compositional, or semantically general constructions, which are semantically compositional. The semantically general constructions, which are characterized by their overall semantics being derivable from the semantics of the parts, are in principle reconstructable for earlier historical stages. This is because the semantics of argument structure constructions is a derivative of the semantics of the predicates instantiating them. The semantics of an argument structure construction is, in other words, an abstraction of the semantics of the instantiating predicates. This means, in turn, that the semantics of argument structure constructions in “dead” languages, i.e. languages only attested in

historical documents, can be approached and modeled even though there are no living speakers to consult.

In this paper we have illustrated how syntactic reconstruction can be carried out, using as an example from Germanic the predicates which instantiate the Dative Subject Construction in Icelandic, Faroese, and German. Specifically, we have used the Germanic verb ‘like’ as a test case for a reconstruction for Proto-Germanic. The Dative Subject Construction can be divided into at least two subconstructions, one instantiated by experience-based predicates and the other by happenstance predicates. At least thirteen narrowly-circumscribed lexical semantic classes have been discerned when comparing the three languages, of which ten lexical semantic classes are found in German and six in Faroese. Internal reconstruction confirms that the semantic scope of the construction has contracted in both German and Faroese. A preliminary comparison with Ancient Greek also suggests that the semantic scope of the construction may be inherited from an earlier proto-stage. Therefore, a first attempt is presented at reconstructing a Dative Subject Construction for Proto-Germanic with the aid of the Sign-Based Construction Grammar formalism.

A further preliminary comparison of the case and argument structure constructions in Old Germanic, Latin, Ancient Greek, Lithuanian, and Russian reveals: a) a common distribution of case frames, b) common semantics, and c) common systematic gaps. This distribution of typologically rare case frames is unlikely to have developed independently in the daughter languages and must therefore be reconstructed for a common proto-stage. Further work is of course needed on a) the lexical predicates instantiating the non-canonically case marked constructions in all the ancient and archaic Indo-European language, b) the semantics of the predicates and hence the semantics of the argument structure constructions across the ancient and archaic Indo-European languages, and c) the development of the relevant etyma from the oldest sources to the more recent daughters. However, on the basis of the preliminary investigation carried out here, it is striking that the alignment system of Proto-Indo-European cannot be regarded as a typical Accusative system, a typical Ergative system, or a typical Active system. In fact, our conclusion is that the terminology of the traditional alignment typology is inadequate, as it does not capture the subsystems of semantic alignment underlying the different case and argument structure constructions that appear to be reconstructable for Proto-Germanic. It remains clear, however, that case alignment in Proto-Indo-European must have been semantically determined to some degree. Our preliminary conclusions about the alignment of case in Proto-Indo-European differs from earlier analysis in the literature on the alignment system in Proto-Indo-European in that it is based on facts of case

assignment in the daughter languages and not on the ancillary properties that have been assumed to accompany Stative-Active languages.

The ultimate goal of this paper has been to demonstrate that the tools of Construction Grammar provide us with a principled approach to reconstructing grammar, and hence “syntax,” based on form–function pairings. In particular, the SBCG formalism provides the precision and coverage needed to reconstruct grammar. The fact that Construction Grammar places constructions in the Constructicon, i.e. in the grammar, means that when constructions have been reconstructed for proto-stages, i.e. the lexical-class constructions, the lexical entries, and their constraints, then the grammar has also been reconstructed. In other words, the SBCG formalism allows us to state constraints on lexical items and larger grammatical units uniformly. This represents, we believe, the beginning of a renaissance for the Comparative Method in syntax and a major extension of Construction Grammar into a new and unexplored area of linguistics. Construction Grammar is the only current linguistic framework that treats lexical items and larger grammatical items uniformly, which allows for the reconstruction of not only syntactic structures, but also the grammars of earlier language stages, including syntactic functions. The dynamic nature and extensibility of Construction Grammar, in our opinion, makes it superior to other current linguistic frameworks. Our conclusion is supported by the work of Kinsella (2009) who demonstrates the inadequacy of the Minimalism Program for modeling language evolution and highlights instead the promising aspects of Construction Grammar and other cognitive-based theories of language.

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