

Construction-Based Historical-Comparative Reconstruction*

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1. Introduction

In the historical linguistic enterprise, different goals are associated with historical-comparative reconstruction. One goal is to contribute to increased knowledge of possible or real prehistoric stages of languages. Another is to aid in the investigation of mechanisms of language change (cf. Ferraresi and Goldbach 2008). A third one is to throw light on possible developmental paths of certain synchronic structures, not necessarily to reveal any principled mechanisms of language change but rather out of interest for the relevant synchronic structures and their evolutionary history (cf. Barðdal and Eythórsson 2011).

Historical-comparative reconstruction has traditionally focused on lexical, morphological and phonological comparisons, while syntactic reconstruction has either been systematically left unattended, regarded as fruitless or uninteresting, or even rebuked (cf. Watkins 1964, Jeffers 1976, Lightfoot 1979, 2006, Harrison 2003, Pires and Thomason 2008, Mengden 2008, *inter alia*). The reason for this is that syntactic structures have been regarded as fundamentally different from, for instance, morphological structures, in several respects. That is, syntactic structures are larger and more complex units than morphological units. Semantically they have not been regarded on par with morphological units either, in that their meaning is regarded as the sum of the meaning of the lexical parts that instantiate them, and because of this semantic compositionality they are not treatable as arbitrary form–meaning pairings like words (cf. Klein 2010). It has also been argued in the literature that syntactic structures are not inherited in the same way as the vocabulary (Lightfoot 1979 and later work), that there is no cognate material to compare when comparing sentences across daughter languages (Jeffers 1976), there is no regularity of syntactic change, as opposed to the regularity of phonological change (Lightfoot 2002, Pires and Thomason 2008), and that there is no arbitrariness found in syntax (Harrison 2003), all of which render syntactic reconstruction fundamentally different from phonological reconstruction (see further discussion in Section 3 below).

The goal of this chapter is to discuss what Construction Grammar has to offer to the enterprise of historical-comparative reconstruction. I will argue below that the basic premise of Construction Grammar, that the linguistic system consists of form–meaning pairings, namely constructions, arranged in a systematic way in a Constructicon, makes Construction Grammar an optimal theoretical framework for reconstructing syntax. Because words and larger syntactic structures are treated alike in Construction Grammar, i.e. as form–meaning pairings, the framework of Construction Grammar can easily be extended from its current area of coverage to historical-comparative reconstruction through the Comparative Method. There is a natural leap from synchronic form–meaning pairings to historical reconstruction,

* I am grateful to Eystein Dahl, Thórhallur Eythórsson, Thomas Smitherman, the editors, and an anonymous reviewer for comments and discussions which have substantially improved the quality of this chapter. I thank Misumi Sadler for her help with the Japanese data in Section 3, Laura Janda and Thomas Smitherman for help with the Old Russian data in Section 3, and Thórhallur Eythórsson, Eystein Dahl, Chiara Fedriani, Ilja Seržant and Thomas Smitherman for help with the data on ‘woe’ in Section 4.

based on form–meaning pairings. I argue that this leap is more credible for frameworks which assume that meaning and form are integrated with each other than for frameworks which separate meaning from form and view the two as distinct autonomous systems, as in the (early) generative tradition (Chomsky 1981). In that sense, Construction Grammar is a dynamic linguistic framework, easily extensible to new linguistic areas.

I begin by giving an outline of the basic premises of historical-comparative reconstruction and how the Comparative Method works in practice (Section 2). Then I discuss and refute some of the misconceptions of why syntactic reconstruction is untenable (Section 3). Finally, in Section 4, I show how Construction Grammar may contribute to historical-comparative syntactic reconstruction by reconstructing one particular argument structure construction for Proto-Indo-European, namely a subconstruction of argument structures with non-canonical subject marking, showing how such structures must be assumed to have existed in the Indo-European proto-language.

2. Traditional Historical-Comparative Reconstruction

Historical-comparative reconstruction has its roots in the 19th century Neogrammarian tradition and it has mostly focused on comparing lexical items, morphemes and sounds across related languages. The goal has been to reconstruct common proto-forms, from which the descendent forms can be derived.

The first task is to set up correspondence sets, i.e. equivalent material from more languages. The input for the correspondence sets can consist of sounds, morphemes or words. Consider Table 1 where three Indo-European cognates meaning ‘I carry’, ‘brother’ and ‘brow’ are listed (Mallory and Adams 2006: 41). Several correspondence sets can be deduced from the table but for the present purposes I will let it suffice to discuss the stem vowel which alternates between *-e-* and *-a-* for ‘I carry’, as is shown in Table 2.

Table 1: Comparison of three Indo-European words

	‘I carry’	‘brother’	‘brow’
Old Irish	<i>beru</i>	<i>brāthair</i>	<i>forbrū</i>
Latin	<i>ferō</i>	<i>frāter</i>	—
Old English	<i>bere</i>	<i>brōðor</i>	<i>brū</i>
Lithuanian	—	<i>broterėlis</i>	<i>bruvīs</i>
Old Church Slavic	<i>berq</i>	<i>bratrŭ</i>	<i>brŭvŭ</i>
Greek	<i>phérō</i>	<i>phrētēr</i>	<i>ophrŭs</i>
Sanskrit	<i>bhārāmi</i>	<i>bhrātár-</i>	<i>bhrŭ-</i>
Tocharian B	<i>parau</i>	<i>procer</i>	<i>pärwāne</i>

Table 2: Correspondence sets for the stem vowel of ‘I carry’

	Alt. 1		Alt. 2
Old Irish		Sanskrit	
Old Latin	<i>e</i>	Tocharian B	<i>a</i>
Old English			
Old Church Slavic			
Greek			

In this case the majority of the languages shows *-e-* and a minority shows *-a-* in their stems. As it has been presumed that Sanskrit has changed least from the common Indo-European proto-language, the early Indo-Europeanists reconstructed **a* here on the basis of the Sanskrit form. Later on, however, a comparison of the IE velars and their following vowels revealed a distinction of velars into *-k-* and *-c-* in Sanskrit, correlating with the quality of the vowel in Latin and Greek. That is, when a back vowel followed a velar in Latin and Greek, the velar was *-k-* in Sanskrit, whereas when a front vowel followed a velar in Latin and Greek, the velar showed up as *-c-*. This differentiation of velars in Sanskrit suggests an early distinction between front and back vowels, or between *-e-* and *-a-*, during an earlier prehistoric period of Sanskrit, supported by the comparative material, as the combinatory change of velars from *-k-* to *-c-* with front vowels is well known from the history of other languages. The vowels in Sanskrit would then have merged, leaving the velars intact.

This comparison of front and back vowels with velars suggests that it is in fact Sanskrit that has changed while the remaining Indo-European languages have not. A further comparison reveals that Sanskrit has *-a-* systematically where Latin and Greek have *-e-* and *-o-*. The result of this is that nowadays Indo-Europeanists reconstruct **e* for Latin and Greek *-e-* and Sanskrit *-a-*, **o* is reconstructed where Latin and Greek have *-o-* and Sanskrit *-a-*, while **a* is preserved for words where all three languages have *-a-* (Mallory and Adams 2006: 43–44).

The method that is used to arrive at these common proto-vowels and proto-forms, the Comparative Method, presupposes linguistic entities that have a form side and a meaning side, i.e. entities that are arbitrary form–function correspondences, like in this case ‘I carry’. This is because before reconstruction can be carried out, cognates must be determined and genetic relatedness established. Cognate lexical items are items that are inherited from a parent language, and thus show similarity in form and meaning across the daughter languages. Generally, lexical items in two or more languages that show similarity in form and meaning must either be inherited from an ancestor language or borrowed. In other words, two or more languages that share cognates are either genetically or areally related. This means that if Latin *ferō*, Greek *phérō* and Sanskrit *bhárāmi* did not all mean ‘I carry’, despite the similarity in form, they would not form any basis for reconstruction.

The argumentation above is based on the assumption that it is possible to distinguish between inherited and borrowed lexical items. This can be done in part on the basis of their form, as cognate items are the result of phonological developments, which may be different across different branches of genetically related languages, while borrowed items are phonological reflections of their source items in the giver language. Compare, for instance, English *shirt* and *skirt*, of which the former is inherited and conforms to known phonological rules in the history of English, [sk] > [ʃ], while the latter was borrowed from Old Norse *skyrta*. The lexeme *skirt* was first documented in English texts during the latter part of the thirteenth century (OED 1989), while the change from [sk] to [ʃ] took place in 10th century English (Minkova 2003: 130 ff).

Moreover, lexical items that are cognates are expected to show up with shared semantics, inherited from an earlier stage of the language, resulting in semantic similarities of cognates across related languages, or some recognized semantic extensions or relations. This may be contrasted with a lexical item that has been borrowed and incidentally shows phonological similarities with an already existing inherited vocabulary item. In such a case, one can look to the semantics, as there is no reason to assume that phonological similarity is concomitant with semantic similarity,

unless of course the phonological similarity is not accidental and we are, in fact, dealing with inherited vocabulary and not borrowing. If the lexical item has been recently borrowed, it should also closely reflect the original semantic content of the corresponding item in the source language.

Even borrowings between genetically related languages can be identified, as the example with *shirt* and *skirt* above shows. However, if such borrowings are ancient, it may be more difficult to tease inheritance and genetic borrowing apart, as the borrowed items will have undergone phonological changes which may make it more difficult to distinguish between them and inherited items. Also, borrowing between genetically related languages may involve cognate material, as in the case of *shirt* and *skirt*, which again makes it difficult to use semantics as criterial when distinguishing between genetic borrowings and inherited material (see also Bowerman 2008 on criteria for distinguishing between syntactic change and syntactic borrowing).

3. Is Syntactic Reconstruction Possible?

The debate on the reconstructability of syntax in the literature has first and foremost been focused on particular phenomena in the daughter languages where there is discrepancy between the daughters. The textbook example is the reconstruction of word order in Indo-European (cf. Delbrück 1893–1900, Watkins 1964), where the daughters vary between OV and VO word order. Another example is found in Harris and Campbell (1995: 352–353) where the Finnish Passive Construction is compared between Standard Finnish, in which the agent cannot be expressed, and American Finnish, where the agent is permitted, in particular if it is an institution. Similarly, Pires and Thomason (2008: 59–66) discuss the Romance future, which is synthetic in a subset of the Romance languages, but periphrastic in others. All these examples entail some language change.

However, syntax and syntactic structures are much less prone to change than phonetic and phonological structures, as discussed by Blust (1996), based on the ideas of Hermann Paul (1886). The same point, that there is a great amount of stability in syntax over time, has also been explicitly made by Barðdal and Eythórsson (2003), Janda and Joseph (2003), Keenan (2003) and Nichols (2003). I will be arguing below that reconstructing stability, or structures that are stable through time, is not a banality but a genuine contribution to historical linguistics and a contribution to our knowledge about earlier prehistoric stages of the languages investigated.

There are first and foremost three issues that have been discussed in the literature as pertaining to a principled distinction between syntax and phonology, highly relevant for the perceived lack of reconstructability of the former, as opposed to the latter. These three issues relate to the concepts of *cognate status*, *arbitrariness* and *regularity*. I will now discuss each in turn.

It has been argued by several historical linguists and syntacticians that syntactic structures cannot be reconstructed for proto-stages because of a principled distinction between syntax and phonology/morphology, amongst other things because there are no cognates involved in syntactic comparisons (Jeffers 1976, Winter 1984, inter alia). This is simply wrong. The term *cognate* in Latin means ‘of common descent, blood relative’ and has in historical linguistics been used to mean that a unit found in more than one daughter languages is ‘descendent from’ or inherited from a common proto-stage. Clearly not only word forms and morphemes may be inherited from an earlier language stage, but also larger and more complex structures like sentence structures.

This applies, for instance, to argument structure constructions, as these may well be inherited from a common proto-stage and thus be found in more than one of the daughter languages.

Given that argument structures may be inherited from earlier language stages, such argument structure constructions qualify as *cognate argument structure constructions*. Kikusawa (2003) argues for the appropriateness of the term *cognate structures* when dealing with larger and more complex units than morphological units in the history of the Indonesian languages. She shows in a careful manner which syntactic structures, inherited from an earlier stage, correspond to which syntactic structures in the modern languages. Barðdal and Eythórsson (2011) introduce the term *cognate argument structure constructions* and claim that such cognate constructions in the Indo-European daughter languages can easily be identified through the case marking of the direct arguments, as well as through a comparison of the lexical predicates instantiating them.

Table 3: Case and argument structure constructions in Old Norse-Icelandic

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 Latin (preliminary)

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 5: 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	Acc-Acc	Dat-Gen	Gen-PP
Nom-Gen	Acc-Gen	Dat-PP	Gen-S
Nom-PP	Acc-PP	Dat-S	
Nom-S	Acc-S		

Tables 3–5 list some of the argument structure constructions of two place predicates found in three ancient Indo-European languages, Old Norse-Icelandic, Latin and Ancient Greek. All three languages, for instance, have Nom-Acc, Nom-Dat and Nom-Gen constructions. All three have Nom-PP/S, Acc-PP/S, Dat-PP/S and Gen-PP/S. All three have Acc-Nom, Dat-Nom and Gen-Nom constructions. And, finally, all three

languages have a Dat-Gen construction. The only differences between the three languages are that only Old Norse-Icelandic has an Acc-Acc construction, not found in Latin and Ancient Greek, and Ancient Greek does not share the Acc-Gen construction with Old Norse-Icelandic and Latin.

To illustrate the nature of these data to the uninitiated reader, examples of the Dat-Nom construction in Old Norse-Icelandic, Latin and Ancient Greek are given in (1–3) below:

- (1) hvárt sem **mér** angrar **reykr** **eða bruni** *Old Norse-Icelandic*
 whether or me.DAT bothers smoke.NOM or fire.NOM
 ‘irrespective of whether I am bothered by smoke or fire’ (Njála 130)
- (2) num **tibi** **stultitia** accessit *Latin*
 PTC you.DAT stupidity.NOM comes-to.3SG
 ‘have you become a fool?’ (Plautus)
- (3) oute gar **moi Polykratēs** ēreske despozōn *Ancient Greek*
 and.not for I.DAT Polykrates.NOM pleased.3SG ruling.NOM
 ‘for I did not like Polykrates when he was ruling’ (Hdt. 3.142)

Let us now compare the case and argument structure constructions from Old Norse-Icelandic, Ancient Greek and Latin in Tables 3–5 above with an equivalent table from Japanese, which is also a Nominative–Accusative language where dative subjects are found. As Table 6 shows, there are no case and argument structure construction in Japanese with accusative or genitive subjects, but only nominative and dative subjects. In addition, Japanese does not have the same array of dative-subject constructions found in Old Norse-Icelandic, Latin and Ancient Greek. That is, intransitive structures with a dative subject and Dat-Gen are absent in Japanese.

Table 6: Case and argument structure constructions in Japanese

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

The large degree of conformity of argument structure constructions with two-place predicates between Old Norse-Icelandic, Ancient Greek and Latin is of course not surprising given that these languages are genetically related. Observe, however, that if one does not find this conformity surprising, that must be because one assumes that these argument structure constructions are in fact inherited from a common proto-stage. How else would one expect such conformity of argument structure constructions across genetically related languages? Let me add here that the case markers are also genetically related across these languages, i.e., they are also cognates.

There is, moreover, no doubt that not only the verb stem but also the case frame of cognate verbs in, for instance, Germanic are shared across the Germanic languages. For instance, the verb ‘help’, *hjálpa* in Icelandic and *helfen* in German, selects for the

Nom-Dat construction in both modern languages and selected for this case frame in all the Old Germanic languages.

The verb ‘like’ selected for the Dat-Nom case frame in Old Norse-Icelandic, Old English, Old High German and Gothic (cf. Eythórsson and Barðdal 2005, Barðdal and Eythórsson 2011). It has been documented in the literature that argument structure constructions may be borrowed across languages, especially together with their relevant verbs (see Barðdal 1999), but in this case, it is clear from the form of the verb, i.e. *lika* in Old Norse-Icelandic, *lician* in Old English, *lichên* in Old High German and *leikan* in Gothic, that we are dealing with inherited vocabulary and not borrowings. A cognate predicate *razlichnyi* ‘be different, stand out’, with the same case frame, Dat-Nom, is also found in Old Russian, suggesting an even earlier origin than Proto-Germanic.¹

- (4) Ne različno že **bogatyŭstvo ti** **oubožystvo** *Old Russian*
 NEG different PTCL wealth.NOM thee.DAT squalor.NOM
 ‘You are indifferent to wealth and squalor’ (Zlatostr.sl.39)

These examples with ‘help’ and ‘like’ show beyond doubt that not only morphemes and lexical items have cognates in related languages, but that case frames or argument structure constructions are also inherited from their parent language and can be identified as such. Hence, the argumentation that syntactic reconstruction is ruled out because of lack of cognate material lacks force entirely.

Turning now to arbitrariness, it is generally assumed that reconstruction involving arbitrariness, i.e. reconstruction based on arbitrary features, is the hallmark of good reconstruction. The logic behind this view is that an arbitrary form–meaning pairing is needed in order to ensure cognate status and rule out chance resemblances. This is basically how lexical items are reconstructed. Therefore, if arbitrariness is not found in syntax, as is claimed by Harrison (2003: 223), that would weaken the quality of the reconstruction, given this argumentation. However, this assumption is faulty for the following two reasons. To begin with, arbitrariness is first and foremost needed to establish genetic relatedness, as Harrison points out himself in a different section of his (2003: 216) article. This means that the arbitrariness requirement is simply not needed for syntactic reconstruction, because syntactic reconstruction is carried out after genetic relatedness has already been established anyway through phonological, morphological and lexical comparisons. With words or specific morphemes, however, the form–meaning pairing is entirely arbitrary and this is needed as a firm ground for establishing genetic relatedness.

Second, arbitrary form–meaning pairings are also found in syntax, contra Harrison’s claims. One of the major contributions of Construction Grammar to current linguistic research has been to document and show that substantial parts of our grammatical patterns are arbitrary in the sense that they are semantically non-compositional, as opposed to semantically compositional, where the meaning of the

¹ There is a phonological inconsistency between the Germanic *lik-* and the Old Russian *lich-*, as one would rather expect the form *lig-* in Old Russian, given the PIE root **(e)ig-*. This may suggest that the Old Russian verb is borrowed from Germanic, although such a borrowing must be assumed to have taken place already in Proto-Slavic, since it undergoes all historical Slavic waves of palatalization of velars, unlike more recent borrowings from Gothic. However, as the etymology of the Germanic *lik-* is unclear (cf. Bjorvand and Lindeman 2000: 533 who argue that the verb *like* is related to Old Norse-Icelandic *leika* ‘to play’, from PIE **leig-* ‘to leap’), this is not an example of a clear-cut cognate verb between Germanic and Slavic but only a potential one.

whole can be derived from the meaning of the parts (cf. Fillmore, Kay and O'Connor 1988, Nunberg, Sag and Wasow 1994, Goldberg 1995 and others). These have also been referred to in the literature as *semantically specific* vs. *semantically general* constructions (Tomasello 1998, Croft and Cruse 2004, Barðdal 2001, 2008, 2009, Barðdal and Eythórsson 2011, Barðdal, Kristoffersen and Sveen 2011). One example is the “*What’s X doing Y?*” construction, exemplified by the string “Waiter, what’s that fly doing in my soup?”, where the speaker’s intention is not to ask a real question, but rather to signal some incongruity (Kay and Fillmore 1999). This example shows that arbitrary form–meaning pairings are certainly found in syntax and are not confined to the lexicon.

Turning now to the last concept, regularity of phonological change, within the Indo-European paradigm this regularity is generally perceived of in terms of *sound laws*, which have been regarded as regular processes aiding in phonological and morphological reconstruction, not only by the Neogrammarians themselves, but also by the contemporary historical linguistic community. The regularity of the sound laws, however, is grossly overstated. First of all, not all words containing the right morphophonological structure needed as input for a particular sound law have undergone the phonological process. I 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]

Second, as observed already by Hoenigswald (1987), the sound laws are only regular *by definition*. That is, all irregularities and less regular processes are systematically excluded from this notion. The phonological processes where exceptions can be found are simply not labeled “regular” or defined as “sound laws”.

Third, the directionality of sound change is not a given, but must be decided upon through further examination of the language data. For instance, let us assume that we were starting working on a language family, previously unencumbered by the interference of field linguists and anthropologists, and hence undescribed. Let us assume that we find a systematic correspondence between /a/ and /o/ in the daughter languages, so that half of the languages have /a/ and the other half shows up with /o/ in the relevant cognates. It is impossible to decide on the basis of such data whether /a/ has changed into /o/ or /o/ into /a/ in the history of this language family. Both changes are entirely possible.

This hypothesized variation between /a/ and /o/ is exactly parallel to the situation with OV and VO word orders in Indo-European. Some of the ancient Indo-European languages have OV order, while others have VO order, and it is not clear on the basis of this simple correspondence set which order to reconstruct for Proto-Indo-European. It is only by investigating the context, the environment and whatever other relevant conditions that allow us to uncover which variant to reconstruct and which not, that we may be able to argue for a particular choice, and this is true for both phonological and syntactic change.

Clearly when it comes to *combinatory* changes, i.e. changes of sounds due to other sounds in their immediate phonological environment, like with the above-

mentioned velars in Sanskrit, such changes take place in a certain direction, while the directionality of *systemic* changes may be quite random. Therefore, the so-called “regularity” of phonological change is illusionary and all changes, be they phonological or syntactic, require a careful investigation of the relevant language data, a detailed examination of the conditions for the change, and a well-argued-for analysis of the choices for the reconstruction.

Finally, and quite importantly, Harrison (2003) points out that the sound laws are basically stand-ins for a similarity metric which is needed to estimate the relative similarity of forms in order to distinguish between cognates and non-cognates. As already discussed above, the Comparative Method is totally dependent on cognates, i.e. form–meaning pairings, in order to establish genetic relatedness. As cognate forms are seldom completely identical across related languages, one needs an independently motivated similarity metric to decide upon when two forms are similar enough to count as cognates and when not. Developing such a similarity metric is not an easy task. The sound laws, however, do this job instead. When comparing forms in two related languages, and the differences between them can be explained in terms of an established sound law, that in itself counts as a validation of the assumption that the two forms are in fact cognates. Therefore, because of the perceived existence of the sound laws and their role in identifying cognates, an independently motivated similarity metric is not needed. This is one of the reasons that the sound laws have become so important in phonological and morphological reconstruction.

However, any lack of corresponding syntactic laws does not mean that sound laws and the perceived regularity of sound change make phonological and morphological reconstruction different in principle from syntactic reconstruction. There are other means of establishing whether, for instance, argument structure constructions are cognates, like for instance whether they share a case frame where the case markers are cognates, i.e. that they are not only functional equivalents but also morphological cognates. It is also possible to identify developmental paths in syntax, exactly like in phonology, like for instance that partitive case is known to develop from either genitive case or a locative/ablative case and not vice versa (Harris and Campbell 1995: 362–363). And discourse markers often originate as adverbs with scope over lexical items, then they go on to have scope over larger phrases, and eventually whole utterances. (cf. Brinton and Traugott 2005: 136–140, Fischer 2007: 274ff.).

Yet another issue that needs to be taken into account is stability over time, which is much more profound in syntax than in phonology. In fact, the role of stability in syntax is presumably a vastly underestimated factor, which should, in turn, contribute to making syntactic reconstruction easier than phonological and lexical reconstruction. In that sense, stability may be regarded as a factor that compensates for lack of directionality. What is unclear at this point, however, given our present knowledge, is what the proportion is between structures that have changed and structures that have remained stable. If stability is the norm, as opposed to change being the norm, then syntactic reconstruction is possible in a “normal” case, in spite of lack of directionality.

In conclusion, the quality of any reconstruction is always entirely dependent on the quality of the input data and the details of our knowledge of the languages in question and their history. If syntactic reconstruction is less successful than phonological or morphological reconstructions, this is because of the nature of the syntactic input and the status of our additional knowledge about the languages in

question, and does not reflect any principled distinction between phonology and syntax, which supposedly makes syntax less reconstructable in principle.

To summarize the content of this section, I have argued that cognates are also found in syntax, for instance cognate argument structure constructions which are inherited from a common proto-stage, and are identifiable through the case marking of each argument structure and through a comparison of the lexical predicates instantiating them. I have also argued that arbitrary form–meaning pairings are found in syntax, exactly as in morphology, although not all form–meaning pairings in syntax are arbitrary. However, the issue of arbitrariness is a non-issue, as arbitrary form–meaning pairings are only needed when establishing genetic relatedness, and as genetic relatedness has usually already been established on other grounds when syntactic reconstruction starts there is no need for arbitrariness here. Finally, I have argued that the regularity of phonological change is grossly overstated, as all irregular and less regular phonological changes are excluded from the notion of sound laws by definition. Even though no equivalent “syntactic laws” have been identified, research on syntactic change uncovers more and more crosslinguistically identifiable developmental paths, which of course aid in reconstructing syntax. The last factor of importance here is stability, as syntactic structures tend to be much more stable diachronically than phonological structures, a factor that may compensate for the perceived lack of directionality in syntactic change, and make syntactic reconstruction a more desirable enterprise.

I now turn to the question of what Construction Grammar has to offer on historical-comparative reconstruction.

4. Reconstructing Grammar in CxG

In their examination of the validity of syntactic reconstruction, Pires and Thomason (2008: 43–44) discuss Harris and Campbell’s (1995) and Harris’ (2008) approach and criticize them for their imprecise definition of “syntactic patterns” and “types”. While I have no problems understanding what Harris and Campbell mean with the terms syntactic pattern and type (cf. also Gildea 1997, 1998, 2000), I would like to point out that a constructional approach to syntactic reconstruction does not encounter that problem, because of the various notational systems used to formalize the notion of construction within different versions of Construction Grammar. That is, Harris and Campbell’s notions of a sentence pattern would be regarded as an abstract form–meaning pairing of its own on a constructional approach, exactly like a lexical item is a form–meaning pairing of its own, only it is more complex and perhaps only partially lexically filled.

The clines from concrete lexically-filled to schematic and from atomic to complex are shown in Table 7 from Croft and Cruse (2004: 255), where it is argued that the difference between words and syntax is that words are atomic form–function pairings, while syntactic structures are complex and schematic form–function pairings (cf. also Goldberg, this volume). The difference between the two thus lies in their degree of complexity and schematicity, as well as whether the form–meaning pairing is totally arbitrary or not, but not in syntactic structures being fundamentally different linguistic entities than words. Therefore, on a constructional approach to syntactic reconstruction, there can be no principled distinction between lexical items and more complex syntactic structures, in that both qualify as form–meaning pairings, which is the *unit of comparanda* that the Comparative Method requires. In that sense,

Construction Grammar is easily and straightforwardly extended to the realm of historical-comparative syntax and syntactic reconstruction.

Table 7: The syntax–lexicon continuum

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

In the remainder of this chapter I will show how argument structure constructions may be reconstructed, focusing in particular on argument structure constructions with non-canonical subject marking in Indo-European (cf. also Barðdal and Eythórsson 2011). Copious amounts of ink have been spilled over the reconstruction of word order, while the reconstruction of argument structure constructions in Indo-European has not figured in this debate at all, although such reconstructions have successfully been worked out for other language families, like Kartvelian and Nach-Daghestanian (Harris and Campbell 1995, Harris 2008) and Indonesian (Kikusawa 2003). This is all the more surprising considering the fact that the reconstruction of argument structure constructions is based on morphological considerations. That is, it must in part be based on the reconstruction of the relevant predicates which instantiate the construction and in part on the case frame of the verb. The case markers, in turn, belong to a morphological paradigm which also consists of cognates. Therefore, the reconstruction of argument structure constructions is always partly based on morphological considerations, which is what both Watkins (1964) and Fox (2005: 105) emphasize as being important for reconstruction in general, and in particular for syntactic reconstruction if it is to be successful.

Observe, now, that the reconstruction of argument structure constructions would account for a substantial part of the syntax, or in other words, the grammar, of Proto-Indo-European. Therefore, consider the following attested examples from Old English, Old Norse-Icelandic and Middle High German:

- (5) **Wa** bið **þæm** þe seal ... *Old English*
 woe is them.DAT that shall
 ‘Woe have they that shall ...’ (Beowulf 183)
- (6) nú er **oss** **vei**, er vér erum hjalplausar *Old Norse-Icelandic*
 now is us.DAT woe, as we are helpless
 ‘now we have woe, as we are helpless’ (Ridd 65³⁴)
- (7) **im** nie würde **wê** *Middle High German*
 them.DAT not became woe
 ‘they did not have woe’ (Erec 66, 6693)

The lexical item ‘woe’ is originally an interjection or adverb, although it has developed nominal uses in many of the Germanic languages and adjectival uses in English and German (OED 1989, Kluge 2002). This interjection is found in all the major branches of the Indo-European languages, see Table 8., although the Armenian *vay* and New Testament Greek *ὀά*, *οὐά*, *οὐαί* are assumed to be later developments.²

Table 8: The lexical item ‘woe’ in Indo-European

Old English	<i>wā</i>
Old Saxon	<i>wē</i>
Old High German	<i>wē</i>
Old Norse-Icelandic	<i>vei</i>
Gothic	<i>wai</i>
Latin	<i>vae</i>
Old Church Slavic	<i>ouvy</i>
Latvian	<i>vai</i>
Old Irish	<i>fē</i>
Avestan	<i>auuoi</i>

The examples in (5–7) above constitute the input for the correspondence set given in Table 9, on which basis it is possible to reconstruct a compositional predicate with a dative experiencer, the verb ‘be’ and the adverb/interjection ‘woe’ for Proto-Germanic. The modern languages that have lost their case marking have preserved a lexicalized variant of the construction with ‘woe’ focalized in preverbal position and the experiencer in postverbal position (Modern English and Modern Norwegian). In contrast, Modern Icelandic and Modern German, which have both maintained their case marking, have preserved the construction with the dative case of the subject-like experiencer. As the experiencer is always in the dative case in all the Old Germanic languages where this construction is found, there is no doubt that this construction must be reconstructed for Proto-Germanic with dative case on the subject-like experiencer.

Table 9: Germanic correspondence set for the collocation [DAT-*is-woe*]

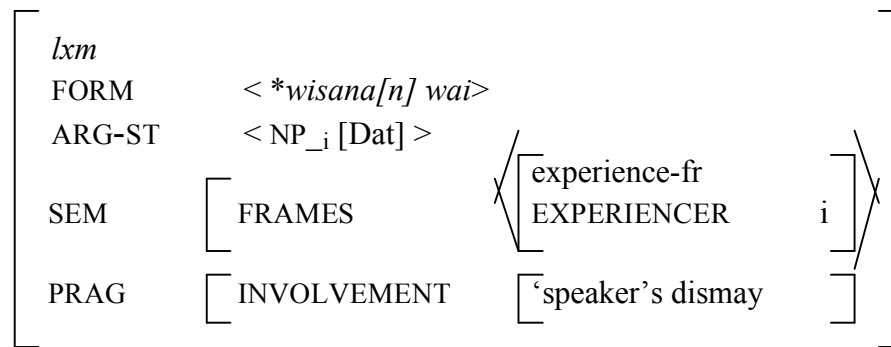
	Alt. 1	Alt. 2
Old Norse-Icelandic	[DAT- <i>is-woe</i>]	
Old English	[DAT- <i>is-woe</i>]	
Middle High German	[DAT- <i>is-woe</i>]	
Modern Icelandic	[DAT- <i>is-woe</i>]	
Modern English		[<i>woe-is-me</i>]
Modern Norwegian		[<i>ve-er-meg</i>]

Figure 1 gives a reconstruction of this construction for Proto-Germanic, using Sign-Based formalism (Sag 2011, Michaelis 2010, this volume). The figure represents a reconstructed lexical entry for the predicate ‘be woe’ and the entry is divided into four levels. The first level FORM gives the morphophonological form of the predicate, i.e. the infinitive of ‘be’, and ‘woe’. The second level ARG-ST gives the argument structure of the predicate and the third level SEM gives the semantics of the predicate

² This interjection is also found outside of Indo-European, for instance, in Semitic, which may suggest that it is even more ancient than PIE.

in terms of frame semantics (Fillmore 1982, 1985, Petrucci 1996). Here the relevant FRAME is the experiencer frame with only one participant, the experiencer role which is coindexed with the dative argument. As this construction was generally used when something bad happened to people, a fourth level expressing the pragmatic use of the construction may be added (following Fried and Östman 2005 and Fried 2009), labeled PRAG, with the value INVOLVEMENT. The INVOLVEMENT feature is realized informally as ‘speaker’s dismay’.

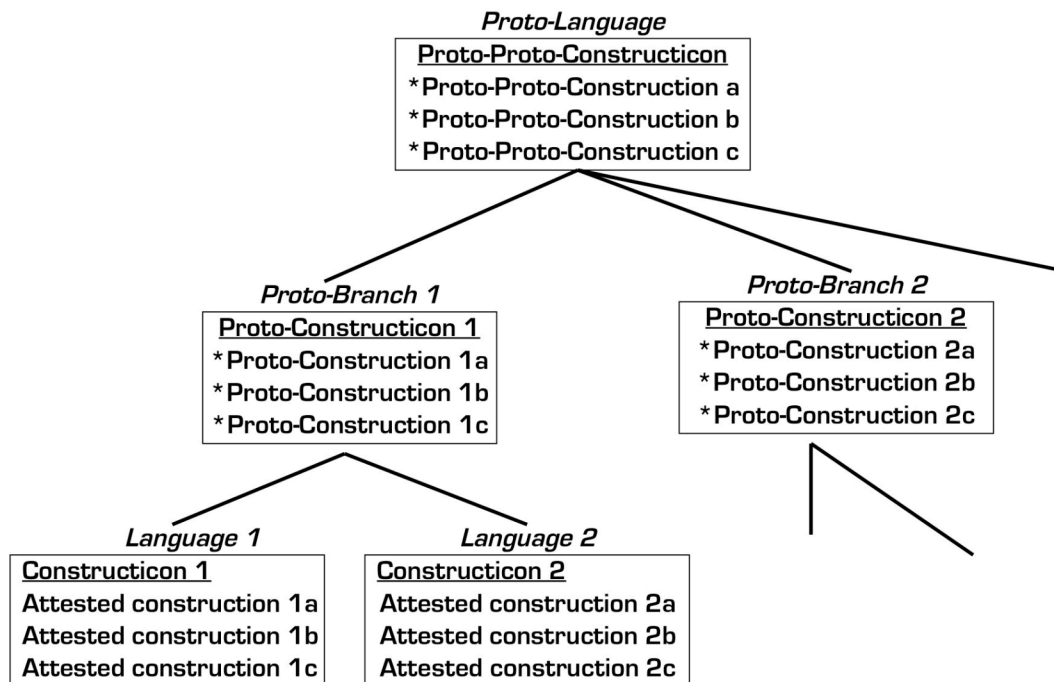
Figure 1: A reconstruction of the [DAT-*is-woe*] construction in Proto-Germanic



The variation in word order between the dative and ‘woe’, seen in (5) vs. (6–7) above, would be captured with a preposing construction of some sort, i.e. topicalization construction or focus construction, depending on our analysis of the semantic nature of the inverted word order. It is also implicit in my analysis that Proto-Germanic was a configurational language with a default word order and some non-default word orders, contra Hewson and Bubenik (2006) and Luraghi (2010), but following Rögnvaldsson (1995) and Smitherman and Barðdal (2009).

As already stated above, Figure 1 gives the Germanic *proto-construction* [DAT-*is-woe*], reconstructed on the basis of the earliest attestations in Germanic. When other proto-constructions of Proto-Germanic have also been reconstructed, on the basis of the earliest attestations in each language, they will together make up a *Proto-Constructicon*, i.e. a structured inventory of constructions, for Proto-Germanic. When such Proto-Constructicons have been reconstructed for all the branches of Indo-European, the proto-constructions in the Proto-Constructicons may be used as input for the correspondence sets needed to reconstruct proto-proto-constructions for Proto-Indo-European. At that point, we will have a Proto-Constructicon for Proto-Indo-European (cf. Barðdal and Eythórssón 2011). As Construction Grammar models grammars of languages in terms of Constructicons, which are structured inventories of constructions, reconstruction of the type that I have outlined here counts as reconstruction of *grammar* (see Figure 2).

Figure 2: Reconstruction of constructions and Constructicons (Barðdal and Eythórsson 2011: 19)



Moreover, in this particular case, it turns out that the [DAT-*is-woe*] construction is not confined to the Germanic languages, but is found in other Indo-European languages as well. The examples below are from Latin and Avestan:

(8) Immo **vae tibi** sit *Latin*
 then, woe you.DAT be.SUBJ
 ‘Then, woe shall you have’ (Casina 634)

(9) **aebii** anhaus **auuoi** anhat apamam *Avestan*
 them.DAT life.GEN woe be.SUBJ last
 ‘they will have woe, the end of their existence’ (Y. 45.3)

More research is of course needed on other Early Romance and Indo-Iranian languages, but the fact that the [DAT-*is-woe*] construction exists in Latin and Avestan, in addition to Early Germanic, allows us, for the sake of methodological illustration, to take a short-cut here and jump directly to the reconstruction of this construction in Proto-Indo-European. Table 10 gives the correspondence set for the [DAT-*is-woe*] construction from the three ancient Indo-European language branches discussed.

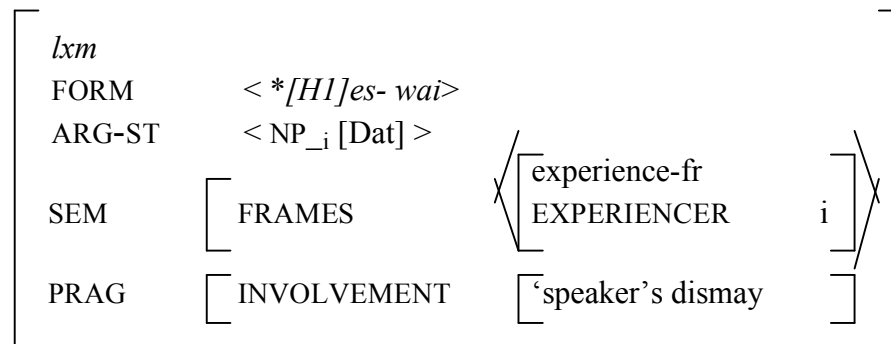
Table 10: Indo-European correspondence set for the collocation [DAT-*is-woe*]

	Alt. 1
Old Germanic	[DAT- <i>is-woe</i>]
Latin	[DAT- <i>is-woe</i>]
Avestan	[DAT- <i>is-woe</i>]

If all the values of the correspondence set are the same across the language branches being compared, like in this case with [DAT-*is-woe*] where there is systematically a

dative subject-like argument present in the argument structure, then an Indo-European proto-construction may be reconstructed on the basis of that, here given in Figure 3.

Figure 3: A reconstruction of the [DAT-*is-woe*] construction in Proto-Indo-European



Observe that I have here reconstructed a syntactic construction consisting of three elements, a dative subject-like argument, the verb ‘be’, here given with its reconstructed root, and the adverb/interjection ‘woe’ for Proto-Indo-European. There is, moreover, no discrepancy found between the daughter languages, as the form of the construction is the same across all three branches of Indo-European where the construction is found and the semantics involves an experiencer or an emotionally or physically affected participant. Again, the construction is used when something bad happens to people and expresses the speaker’s dismay. This reconstruction has therefore not involved any choices between variants in the correspondence set, as the correspondence set has shown a remarkable internal consistency across its members. This is in accordance with Paul’s (1886) observations that syntactic change is much slower in rate than phonological change. Although the reconstruction of stable syntactic and morphological features does not necessarily involve any language change, such reconstruction, I argue, is still a major contribution to historical-comparative linguistics, as it may reveal what kind of structures the proto-language consisted of. As such it may generate insights into specific research questions, as in this case the evolutionary history of non-canonical subject marking in the Indo-European languages.

While, it is of course difficult to generalize about a prehistoric language stage on the basis of a single predicate-specific construction, like in this case the [DAT-*is-woe*] construction, the present reconstruction may be taken to suggest that argument structure constructions where the subject-like argument is non-canonically case-marked may be reconstructed for Proto-Indo-European. It would at least be odd if the proto-language consisted of only one such construction. More research is needed, and is in fact being carried out, as to whether more non-canonically case-marked predicates are reconstructable for Proto-Indo-European, and even though this research is in its infancy, the outlook appears promising (cf. Barðdal and Smitherman in prep). Whether this dative subject-like argument behaves syntactically in the same way as ordinary nominative subjects in the early Indo-European languages remains, of course, to be investigated. Research on Old Germanic, however, suggests that the non-nominative subject-like argument behaved syntactically as a subject in Old and Early Germanic (Barðdal and Eythórsson 2003, Eythórsson and Barðdal 2005), and research on Old French has yielded similar results (Mathieu 2006). Notice that an intellectual exercise involving the syntactic behavior of the non-nominative subject-like argument presupposes reconstruction of grammatical relations (cf. Barðdal and

Eythórsson 2012), an enterprise that ought to be even more fraught with peril than “ordinary” syntactic reconstruction, if it had been suggested in the earlier literature at all.

5. Summary

Morphological and phonological reconstruction, based on the Comparative Method, presupposes arbitrary form–function pairings, i.e. cognates, when establishing genetic relatedness between languages. Syntactic reconstruction, in contrast, has been frowned upon by the linguistic community, because of a) lack of cognates, b) lack of arbitrary form–function pairings, and c) lack of regularity in syntactic change. On a further investigation, it turns out that these objections against syntactic reconstruction are entirely lacking in force.

Employing the theoretical framework of Construction Grammar, where both arbitrary and less arbitrary form–meaning pairings are regarded as the basic units of language, overcomes at least two of the aforementioned obstacles. First, on a constructional approach, complex and schematic constructions also count as form–meaning pairings, which in turn means that what is usually referred to as “syntactic structures” in the literature is here treated on par with lexical items. This makes complex and partially schematic constructions legitimate objects of the Comparative Method, as cognate argument structure constructions, at least in case languages, can easily be identified as inherited from a parent language, through cognate morphological case marking and a comparison of the lexical verbs instantiating the construction.

Second, arbitrariness is also found in syntax, as schematic and complex constructions are also form–meaning pairings. Within Construction Grammar it is assumed that there is a cline from totally arbitrary form–meaning pairings to semantically fully regular form–meaning pairings. However, arbitrariness is only a requirement when establishing genetic relatedness, and as syntactic reconstruction presupposes that genetic relatedness has already been established, the arbitrariness requirement becomes a non-issue under syntactic reconstruction.

Third, the perceived regularity of sound change is an illusion for several reasons; a) sound changes do not take place with all possible target items, b) there exist quasi-regular and irregular sound changes which are by definition excluded from the notion of sound law, c) only combinatory sound changes are regular, not the systemic ones, and finally, d) the importance of the sound laws is due to the fact that they provide a similarity metric for deciding upon whether lexical items in different languages are cognates or not. Moreover, developmental paths are also detectable in syntax, although they are more limited in scope than the sound laws because syntactic change takes place at a much slower rate than phonological change. The fact that syntactic structures are considerably more stable than sounds indeed compensates for the perceived lack of regularity in syntactic change, which in turn may be seen as a factor contributing to making syntactic reconstruction easier than phonological and lexical reconstruction.

Finally, I have shown here how construction-based reconstruction may be carried out, illustrating this with the [DAT-*is-woe*] construction in the early Germanic and the early Indo-European languages. Examples of this construction, with a dative subject-like argument, are readily found in Old English, Old Norse-Icelandic and Middle High German, and these data make up the input for a correspondence set, on which

basis a Proto-Germanic [DAT-*is-woe*] construction may be reconstructed, using the formalism of Sign-Based Construction Grammar. Clearly, if the [DAT-*is-woe*] construction is also found in the other earliest attested Indo-European languages, then a proto-[DAT-*is-woe*] construction may be reconstructed for more branches. Then, on the basis of the proto-constructions for each language branch, a proto-proto-construction may be reconstructed for Proto-Indo-European. In other words, when the argument structure constructions of each language branch have been identified and modeled in their respective Constructicons, they constitute the input data for correspondence sets for reconstructing proto-proto-constructions for Proto-Indo-European, also modeled in a Proto-Constructicon. This is how the Comparative Method may be used in conjunction with Construction Grammar to reconstruct larger and more complex units than lexical items. Since Constructicons are structured inventories of constructions, reconstructing constructions and Constructicons entails reconstruction of the grammar.

A further comparison of yet more early Indo-European languages has revealed instances of the [DAT-*is-woe*] construction in Latin and Avestan, in addition to the instances in the early Germanic languages. On the basis of these findings, a Proto-Indo-European [DAT-*is-woe*] construction has been reconstructed. The implication of such a reconstruction is that Proto-Indo-European had argument structure constructions where the subject argument was not in the nominative case, but was non-canonically marked. Further research is needed to verify that a more abstract oblique subject construction existed in Proto-Indo-European, although the data presented in this chapter provide clear innuendos that oblique subjects in the Modern Indo-European languages where such structures are found, like in Modern Icelandic, are not an innovation but an Indo-European inheritance.

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