The Quest for Cognates: A Reconstruction of Oblique Subject Constructions in Proto-Indo-European

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The Quest for Cognates:
A Reconstruction of Oblique Subject
Constructions in Proto-Indo-European

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Abstract

The enigma of the origin of non-canonical subject marking in the world's languages has been met with two competing hypotheses: the Object-to-Subject Hypothesis and the Oblique Subject/Semantic Alignment Hypothesis (cf. Eythórsson and Barðdal, 2005). The present article argues in favor of the Oblique Subject/Semantic Alignment Hypothesis, presenting five sets of cognate predicates in the early/archaic Indo-European daughter languages that occur in the Oblique Subject Construction. These cognate sets have not figured in the earlier literature. Not only are they stem cognates, but they also occur in a cognate compositional predicate and argument structure construction, with a dative subject, the verb 'be' and an adjective, a noun, or an adverb. The discovery of these cognate data sets immediately invalidates the axiomatic assumption that non-canonical subject marking must originate in an earlier object status of these arguments. The data, moreover, form the input of a correspondence set, on which basis we reconstruct predicate-specific oblique subject constructions, a partial predicate-specific oblique subject construction, as well as a more abstract schematic dative subject construction for Proto-Indo-European, using the formalism of Sign-based Construction Grammar. The evidence presented here thus suggests that oblique subjects are inherited from an early proto-stage and do not represent an individual development in the Indo-European daughter languages.

1. Introduction

The oblique subject construction is a complex syntactic construction in which the subject-like argument is not in the nominative case, but is non-canonically case marked. In those Modern Indo-European languages that still have the construction, this non-canonical case may be the accusative, dative or the genitive, for instance. Examples of the construction are easily found in the early and

archaic Indo-European languages, although the exact origin of the construction is well camouflaged by prehistory. To illustrate the construction, synonymous examples from five Indo-European branches, with the meaning 'need,' are given in (1) below:

(1)   a. Old Norse-Icelandic
          honum   *er*   *nauðsyn*
          him.DAT is need
          'he has a need'

      b. Latin
          mihi   *necesse*   *est*
          me.DAT necessary is
          'I have a need'

      c. Ancient Greek
          emoi   *dei*
          me.DAT needs
          'I need'

      d. Old Russian
          noužda *by*   ***jemou***
          need   be.SUBJ him.DAT
          'he would have a need'

      e. Lithuanian
          iiémus   *reikalíngi* *búwo*
          them.DAT necessary was
          'they had a need'

With the terms *oblique subject construction* and *dative subject construction*, we thus refer to constructions where the so-called logical subject is in an oblique case, for instance the dative. Our notion of oblique subject constructions also covers predicates where there is a nominative argument, like the nominative logical object of Dat-Nom predicates. Traditional grammar either regards these as being subjectless or posits that the nominative is the subject. Such an analysis is based on the assumption that subjects must be in the nominative case and that non-canonically case-marked subjects are a logical impossibility (cf. Barðdal, 2000).

Some hypotheses regarding the origin of the oblique subject construction are found in the literature, and these are broadly dividable into two main streams: those which assume that the constructions have developed from objects and those which do not make such an assumption. The former has been labeled the OBJECT-TO-SUBJECT Hypothesis and the latter the OBLIQUE SUBJECT Hypothesis (cf. Eythórsson and Barðdal, 2005).

In the present article, we will be arguing in favor of the Oblique Subject Hypothesis, since we believe that non-canonical subject marking of this type is

motivated by semantic considerations (cf. Barðdal, 2004) and not by the "object" character or an "object" origin of the subject-like argument. We present three different scenarios for the development of the construction and lay out the different predictions arising from each of these. First, if the construction is an independent development in the individual Indo-European branches, no cognates should necessarily be expected. Second, if the construction is a recent but common development in the Indo-European languages, then there is no reason why cognate predicates are not readily found across the branches. Third, if the construction is an early common development, not particularly many cognate predicates should be expected, since the construction will have had a longer time to have its vocabulary replaced in the different daughter languages.

The data we present are consistent with the last scenario, namely, that the oblique subject construction is an early common development: cognate stems in cognate argument structure constructions are difficult to come across, although in our investigations we have been able to locate a few through systematic comparisons. During this process, we have also discovered recurrent patterns in the meaning relation between predicates which are canonically and non-canonically marked. The data brought to the fore in the present article thus suggest that the dative subject construction is a common inheritance, which in turn invalidates the axiomatic default status of the Object-to-Subject Hypothesis regarding the origin of non-canonical subject marking in the languages of the world.

For several decades the consensus in the historical-linguistic community has been that syntactic reconstruction is at best controversial and at worst a fruitless endeavor (see Section 4 below). There are several reasons for this: i) lack of cognates, ii) lack of arbitrariness, iii) lack of regularity in syntactic change, iv) lack of continuous transmission from one generation to the next, and hence, v) the idea that syntactic structures are different in nature from simple lexical units like words. We take issue with all these views, although we concentrate on the issue of cognacy and the issue of lack of arbitrariness in the present article and refer the interested reader to Barðdal and Eythórsson (2012a) for a full argumentation on the remaining issues. We spend considerable effort arguing for arbitrary, as well as non-arbitrary, symbolic relations between syntactic form and semantic meaning, which ultimately renders syntactic structures equivalent to words, only more schematic and more complex than words.

On this basis, we suggest three different reconstructions. First, a reconstruction of a *predicate-specific* oblique subject construction with the verb 'be,' a dative subject and a resultative participial of a verb meaning 'know' for Proto-Indo-European, derived from the Proto-Indo-European stem *$ǵneh_3$-no/-to-*. Second, we suggest a *partial* reconstruction of a predicate-specific construction meaning 'need,' where only the argument structure and the meaning are reconstructed, on the basis of evidence from the ancient and most archaic Indo-European daughter

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languages. And, third, we suggest a reconstruction of more schematic *predicate-class-specific* dative subject construction of cognition verbs for Proto-Indo-European. These reconstructions are formalized with the feature structure matrices of Sign-based Construction Grammar (Sag, 2012), which proves itself an adequate tool for the enterprise. We conclude that oblique subject constructions must have existed in Proto-Indo-European, i.e., before the different Indo-European daughters branched off from each other.

We start, in Section 2, with a presentation of the two hypotheses regarding the origin of oblique subjects, including an overview of the different versions of the Object-to-Subject Hypothesis. We then present, in Section 3, five novel sets of cognate stems that we have found across different subsections of the Indo-European subbranches, cognate sets which have not been documented in the earlier literature. We also put forward some semantic generalizations about the relation between the meanings of a predicate when it is canonically marked vs. non-canonically marked. In Section 4 we suggest a reconstruction of a) the compositional oblique subject construction with a dative subject, the verb 'be' and a participial form of the verb 'know,' i.e., a predicate-specific construction, b) a partial reconstruction of 'need,' another predicate-specific construction, and c) a more general and schematic predicate-class-specific construction for cognition verbs. For this purpose we employ the formalism of Sign-based Construction Grammar. Section 5 is a summary of the main content and conclusions of this article.

2. The Oblique Subject Construction and Possible Evolutionary Paths

There are, broadly speaking, two competing hypotheses about the development of oblique subject constructions. These have been termed the Object-to-Subject Hypothesis (Cole et al., 1980) and the Oblique Subject Hypothesis (Eythórsson and Barðdal, 2005), a.k.a. the Semantic Alignment Hypothesis (Bauer, 2000; Barðdal and Eythórsson, 2009; Smitherman and Barðdal, 2009). Moreover, several different versions of the Object-to-Subject Hypothesis have been proposed in the literature (see Barðdal and Eythórsson, 2009, for a full overview):

- The Topicality Hypothesis (Haspelmath, 2001)
- The Semantic Development Hypothesis (Jespersen, 1927; Lightfoot, 1979, 2002, inter alia)
- The Null Subject Hypothesis (Falk, 1997; Hewson and Bubenik, 2006; Malchukov, 2008; Mithun, 2008)

Starting with the Topicality Hypothesis, Haspelmath (2001) suggests that Dat-Nom structures in the Indo-European languages have developed from Nom-Dat

structures, and that the dative was topicalized because of its animacy, resulting in the dative becoming more and more associated with subjecthood. Even though this suggested developmental path may perhaps be the right one for Dat-Nom, Acc-Nom and Gen-Nom argument structure constructions, this explanation does not hold for argument structures in which there is no nominative (cf. Eythórsson and Barðdal, 2005; Barðdal and Eythórsson, 2009), like the ones highlighted in the second, third and fourth column in Table 1. This means that argument structures like Acc-only, Dat-only, Gen-only, Acc-Gen, and Dat-Gen are left unexplained by the Topicality Hypothesis.

Table 1. Case and argument structure constructions in Germanic (cf. Barðdal, 2009)

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[a]
Nom-PP	Acc-PP	Dat-S	
Nom-S	Acc-S		

[a] 'S' stands for sentence.

Turning to the Semantic Development Hypothesis (Jespersen, 1927; Lightfoot, 1979, inter alia), the assumption is that, for instance, the verb *like* originally meant 'to be like somebody,' selecting for the Nom-Dat frame, but through a change in the semantics, the case frame was swapped from 'be like' through 'be pleasing' to 'like,' as shown in (2) below:

(2)   'NOM is like DAT' > 'NOM is pleasing to DAT' > 'DAT likes NOM'

We have two major conceptual problems with this alleged development. First of all, we do not find the assumption of a development from 'be like' to 'be pleasing to' convincing at all, as it entails a change from a symmetric meaning, where two units on each side of an equation are of the same kind, to a meaning where an experience is expressed. Such a shift in the meaning of 'be like somebody' appears as quite radical and, in fact, not particularly well motivated. This alleged meaning change would further entail a major change in the status of the dative argument, from the semantic role of some sort of a Theme or Content to an Experiencer. Or, in other words, it would entail a reduction of a Theme/Content argument from the argument structure, and a concomitant insertion or an integration of an Experiencer argument into the argument structure. We are not claiming that such changes cannot take place; they simply remain unsubstantiated at present.

A further argument against the Semantic Development Hypothesis, as pertaining to 'like,' comes from Bjorvand and Lindeman's (2000: 533) etymological

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analysis of this Germanic predicate. Bjorvand and Lindeman argue that the verb *like* is related to Old Norse-Icelandic *leika* 'to play', from PIE **leig-* 'to leap', which then means that 'like' and 'be like somebody' are two seemingly unrelated etymons. Concurring with these authors, we find it likely that both verbs, 'be like' and 'like', might have developed independently of each other, perhaps from the same Germanic root, **laik-/līk-* 'image, likeness'. Either way, etymological considerations do not give support to the suggested meaning extension from 'to be like somebody' to 'to like' in Germanic.

The second conceptual problem we have with this analysis is that it is based on the assumption that there has been a systematic "swapping" of arguments from Nom-Dat to Dat-Nom. We find it more likely that, instead of having their arguments "swapped," verbs get attracted by a different argument structure construction when they develop a new meaning. That is, when verbs change their meanings they adopt the argument structure of other verbs with similar meanings, through analogical extension, in this case to a dative subject construction that already existed in the language (cf. Barðdal, 2008: 78–96; 2011, Elvira 2011).

In this context, let us review some evidence from Indo-Aryan, given in Table 2, adapted from Deo (2003).

Table 2. The development from Sanskrit to Old Marathi to Modern Marathi

SANSKRIT		OLD MARATHI		MODERN MARATHI	
ROOT GLOSS	CASE	GLOSS	CASE	GLOSS	CASE
smṛ 'recall'	N-A	'recall'	N-A	'remember'	N-A D-N
ut-kal 'expel'	N-A	'solve'	N-A	'solve'	N-A D-N
sādh 'obtain'	N-A	'obtain'	N-A	'obtain'	N-A D-N
pra-ir 'propel'	N-A	'direct'	N-A	'bear'	N-A D-N
saṁ-jñā 'know'	N-A	'understand'	N-A D-N	'understand'	N-A D-N
budh 'perceive'	N-A	'realize'	N-A D-N	'realize'	N-A D-N
sūc 'reveal'	N-A	'reveal'	N-A D-N	'occur to'	D-N
kal 'perceive'	N-A	'realize'	N-A D-N	'realize'	D-N
bhāv-aya 'imagine'	N-A	'appear'	N-A D-N	'appear'	D-N
mān-aya 'think'	N-A	'suit'	N-A D-N	'suit'	D-N

If the Semantic Development Hypothesis were correct and core arguments had generally swapped places in relation to a change in predicates' semantics, one would expect more recently-documented argument structures to be a mirror image of some older argument structures. That is, instead of a development from Nom-Acc to Dat-Nom, one would expect Acc-Nom. This, however, is not the case. Also, the Dat-Nom case frames found in Old Marathi do not seem to have developed from a corresponding Nom-Dat case frame in Sanskrit, as evident from the fact that the verbs meaning 'understand', 'realize', 'reveal', 'appear', and

'suit' in Old Marathi were not Nom-Dat verbs in Sanskrit but Nom-Acc verbs. In the same way, the verbs meaning 'remember,' 'solve,' 'obtain,' and 'bear' in Modern Marathi did not develop their Dat-Nom case frames from corresponding Nom-Dat case frames in Old Marathi, at least not if the story that Deo presents is true. Given her findings, the Indo-Aryan data do not support the Semantic Development Hypothesis either. Rather, the distribution of the case frames in Table 2 suggests that the Dat-Nom case frame spread irrespective of the original case frame of the predicate. In that sense, the Indo-Aryan data may rather support the alternative hypothesis that verbs acquire different argument structures when their meaning changes, in analogy with existing predicates with the same or a similar meaning (cf. Barðdal, 2008, Elvira 2011).

Yet another variant of the Object-to-Subject Hypothesis is the Null Subject Hypothesis, on which it is assumed that a nominative null subject has been omitted in structures like the following:

(3) a. *Mér er kalt.*   Icelandic

(3   b. *Mir   ist kalt.*   German
        me.DAT is   cold
        'I'm freezing.'

This is the traditional analysis found within Indo-European linguistics for the existence of constructions without a nominative subject (Hewson and Bubenik, 2006). A null-subject analysis has also been suggested by Falk (1997) for similar structures in the history of Old Swedish, by Malchukov (2008) for Native American and Papuan languages, and by Mithun (2008) for Native American languages in general; and this is the standard assumption for structures of this sort in Modern High German (Grewendorf, 1989: 145–164; Cardinaletti, 1990; Haider, 1991; Sigurðsson, 1992: 17–22; Vikner, 1995; Schütze, 1997; Haeberli, 2002).

The main problem with the Null Subject Hypothesis is that it assumes that a nominative null subject has been systematically omitted in all occurrences of an argument structure in all the early and ancient Indo-European languages. This is problematic because there are no signs of a deleted subject, no signs of ellipsis, and no signs of an 'it' ever being an elliptic part of the argument structure, neither in the earliest texts nor in later texts. In that sense, these structures are different from clear cases of ellipsis or pro-drop, since elliptical or dropped arguments can be retrieved in certain contexts.

Compare the following two examples from Modern German, where the grammaticality of (4) shows that an expletive *es* 'it' with weather verbs may be left unexpressed in control constructions. Examples of this type are generally interpreted in the literature as showing that there is in fact an *es* argument here, and since it can be left unexpressed in control infinitives, it is clearly functioning as a

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subject.

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(4)   *Vermutlich, weil   es zu kalt ist, ___   um zu   regnen.*
        presumably because it too cold is   PRO.NOM in order.to rain.INF
        'Presumably, because it is to cold for it to rain'

Consider now the ungrammatical example in (5):

(5)   **Es ist nicht gut,   ___   mir   kalt zu sein.*
        it is not   good PRO.NOM me.DAT cold to be.INF
        Intended meaning: 'It is not good to feel cold.' or
        'It is not good for me to feel cold.'

Observe that if the dative in *mir ist kalt* in Modern German were an object, and if these structures have a null subject, then this null subject should be able to be the unexpressed argument and the dative object *mir* should be able to occur overtly in the sentence, like ordinary objects do in control constructions. This, however, is not the case; the ungrammaticality of (5) shows that there is no null subject to be left unexpressed with oblique subject predicates.[1] Hence, it seems not only counterintuitive, but also against scientific method, to postulate an argument as a part of the argument structure if it is never actually there. Therefore, this analysis is not motivated by the data (cf. Smitherman and Barðdal, 2009).

In contrast to the Object-to-Subject Hypothesis, Eythórsson and Barðdal (2005) put forward the Oblique Subject Hypothesis, which assumes that oblique subjects have been syntactic subjects from very early on—perhaps even from before the point of dispersal of the daughters—with the non-canonical case marking being motivated by semantic factors (cf. Langacker, 1991; Smith, 2001; Barðdal, 2004). The hypothesis is based on investigations of subject-like obliques in Old Icelandic, Old Swedish, Early Middle English (Barðdal and Eythórsson, 2003; Eythórsson and Barðdal, 2005), Old French (Mathieu, 2006), and Gothic, Old English, Old Saxon and Old High German (Barðdal and Eythórsson, 2012b). These investigations clearly show that non-canonically marked, subject-like arguments behaved syntactically as subjects even in the oldest attested periods of these languages.

Similar research is now being carried out for more ancient and archaic Indo-European languages, like Grillborzer (2010) for Old Russian, Fedriani (2009) and Dahl (in prep.) for Latin, Danesi (in prep.) for Old Indo-Iranian, and Dewey (in prep.) for Early West Germanic, again showing that the subject-like oblique

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[1] The fact that an *es* can occur in these structures in Modern German is a modern phenomenon, a part of a general rise of *es* in different kind of syntactic structures in Early Modern German, including structures with a subject (Lenerz, 1977). Thus, this development in Early Modern German and Modern German has no bearing on the origin of oblique subjects in Indo-European, which, as we argue here, must be regarded as a feature of Proto-Indo-European that can be reconstructed for a common proto-stage.

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behaves syntactically as a subject and not as an object. Even in Gothic, a control infinitive with a subject-like accusative being left unexpressed has recently been documented (Barðdal and Eythórsson, 2012b), again supporting the Oblique Subject Hypothesis for the earliest Germanic languages. The Semantic Alignment Hypothesis is a continuation of the earlier Oblique Subject Hypothesis; under this hypothesis, the proto-language is assumed to have had patterns of semantic alignment, in the sense of Donohue (2008).

In order to investigate the credibility of the Oblique Subject/Semantic Alignment hypothesis, we have started the quest for cognates across the early and archaic Indo-European daughter languages that exhibit oblique subject constructions. Any further credit to the Oblique Subject/Semantic Alignment Hypotheses undermines the validity of the Object-to-Subject Hypothesis as an unquestionable default hypothesis explaining the existence of non-canonical subject marking in the languages of the world.

3. Cognacy

In order to deal with the cognacy issue, we first present a general discussion (Section 3.1) on whether the oblique subject construction can be regarded as inherited or not, and what kind of scenarios one would expect given the different options. We then proceed to present the cognate stems we have encountered, in Section 3.2, which in fact speak for a common inheritance. Finally, in Section 3.3, we present some observations about the metaphorical meaning found to hold between the canonical uses of a given verb and its non-canonical variant—metaphorical extensions that may represent recurring patterns in the Indo-European languages.

3.1. *The Origin of the Oblique Subject Construction in Indo-European*

It has been noted by several scholars that not many cognate predicates seem to be found instantiating the oblique subject construction across the early and archaic Indo-European languages. This lack of cognates has been taken to run counter to the hypothesis that the construction is inherited from Proto-Indo-European. Consider, for instance, the following quote from Bauer (2000):

> The only impersonal verb of this type ... in Latin with a cognate in another Indo-European language may well be *decet* ['be proper'] which is related to Greek *dokei moi* 'it seems to me.'   (Bauer, 2000: 146)

Notice that the semantic relation between Latin *decet* and Ancient Greek *dokei*, i.e. between 'be proper' and 'seem,' is also found between Icelandic *sæma* 'be proper' and English *seem*, which are also cognates. It is a well-known fact that

seem was borrowed into Old or Early Middle English from Old Norse (OED, 2004), although the meaning of *sœma* in Old Norse-Icelandic has always been 'be proper, befit,' which in turn means that the development from 'be proper, befit' to 'seem' is an English development. Thus, the semantic relation between Latin *decet* and Ancient Greek *dokei* has a parallel in another Indo-European etyma, namely one that is derived from the Proto-Germanic root **som-*.

Because of this notable lack of cognates mentioned above, we have started a systematic search for cognates across the early and archaic Indo-European languages. Even though this work is still in its infancy, we have found the following:

– At present, 189 PIE roots that cooccur with an oblique subject have been found across at least two subbranches of Indo-European.
– Approximately 85 PIE roots are found across at least three subbranches of Indo-European.
– 29 PIE roots are found across four or more subbranches of Indo-European.

In order to be as conservative as possible, we consider Balto-Slavic as one subbranch, and Greek and Albanian are not considered separately due to a high degree of contact influence between the two.

Of course, not all the common roots we have documented are found in the same type of predicates, since different types of predicates may instantiate the oblique subject construction in general. These are, for instance:

– simple verbs;
– compositional predicates with the verb 'be' together with adjectives, nouns, adverbs or PPs;
– predicates formed by different verb formation processes, including preverbs, Aktionsart suffixes, etc.

In other words, these cognates are not necessarily all cognate stems, but rather cognate roots. At present we estimate that approximately *a dozen of our cognate roots are also cognate stems*. We will give examples of a subset of these below.

The question that now arises is how likely it is that we are not dealing with inheritance, but that these constructions have emerged independently of each other. If they have developed independently of each other, there is no reason to expect any more apparent cognate roots than would be expected by coincidence, nor would there be any particular tendency for overlap in semantic fields. We do know, however, that there is a major overlap in semantic fields between the early languages, shown by a preliminary study of five early and archaic Indo-European languages, i.e., Latin, Ancient Greek, Old Norse-Icelandic, Old Russian and Old Lithuanian (Barðdal et al., 2012). This overlap in semantic fields extends far

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beyond the traditional sphere of the experiencer role, as oblique subjects are found with several predicates denoting happenstance events, ontological states, and other predicates whose meaning involves a lack of control.

It also appears reasonable that a recent inheritance would entail a high number of cognates and an early inheritance should most likely result in relatively few cognates, given that vocabularies are constantly being renewed. According to the most recent research on lexical replacement, this is inherently correlated with usage frequencies, in that highly frequent words are replaced at a much slower rate than low-frequency words. This means that random cognate sets found across the modern Indo-European languages may vary from one set, for the numeral 'two,' to nine cognate sets for the noun 'bird,' and up to 46 cognate sets for the adjective 'dirty,' depending on the usage frequency of each word (Pagel, 2009: 410). In fact, the average chance that a word will be replaced with a non-cognate with time is 50% for every interval of 2,000–2,500 years (Pagel, 2009: 410). Notice that nouns and verbs change much faster than this, while numerals and deictic adverbs change much more slowly (Pagel, Atkinson, and Meade, 2007).

Given these estimations about the rates of vocabulary replacement, one would certainly not expect particularly many cognates to be found in the Oblique Subject Construction across the Indo-European subbranches, and especially not on the assumption that this may be an ancient category in these languages. Indeed, the fact that cognate roots are found across different pockets of the Indo-European subbranches seem to us to suggest inheritance—though not necessarily a very recent one, as recent inheritance should result in systematic sets of cognates, rather than sporadic instances. A third scenario might be that Oblique Subject Constructions have developed independently of each other in the Indo-European subbranches. On such an assumption, this category of argument structure constructions is even more recent than what we hypothesize, meaning that one would not necessarily expect any cognates at all, or at least not more than expected by pure chance; nor would one necessarily expect any semantic overlap at all between semantic fields.

One could possibly argue now that oblique subjects tend to be experiencers in the world's languages, so one might in fact expect oblique subject predicates to instantiate that semantic field, irrespective of whether they are inherited or have developed independently. In this respect, recall Watkins' (1995) influential book on how to kill a dragon in the Indo-European languages. There is no doubt that most cultures, particularly ancient cultures, can pride themselves on their inventory of dragon myths, suggesting that dragon myths may be a cultural universal. Hence, the reconstruction of a dragon myth for Proto-Indo-European may appear a bootless venture. What Watkins shows, however, is that the Indo-European dragon myths have their own characteristics, a poetic formula,

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including particular linguistic forms, which are specific for Indo-European. This makes it possible to reconstruct a poetic formula for the Proto-Indo-European culture. In Barðdal et al. (2012) we deal with this "universality" issue in particular and point out that oblique subject predicates in the Indo-European languages stretch far outside the field of experience, showing idiosyncratic properties across the daughters which are unlikely to be the result of anything but common ancestry (cf. Barðdal et al. for details).

Going back to the question of if it is possible to calculate whether there are more cognate roots found in the dataset than would be expected based on pure chance, there is a good reason to be skeptical about an approach based on traditional null hypothesis testing of the number or proportion of cognate roots or stems. This is because these languages are known *a priori* to be genetically related, so it is not obvious that the observations are truly independent—a factor which would potentially distort the results. Furthermore, determining the proportions involved is difficult given that our study is based on dictionary data. Deciding on the correct sample size to which to compare the number of roots is a non-trivial exercise in a case like the present one, and the choices made would probably have a large impact on the results.

A possible alternative to null hypothesis testing is to use Bayesian phylogenetic inference models (Atkinson et al., 2005). However, this would imply a major and fundamental methodological reorientation that is outside the scope of the present work. Thus, it is not obvious that a quantitative approach based on null hypothesis testing would yield reliable results in this case. We believe that phylogenetic modeling is potentially a valuable quantitative approach to the problem. However, such models should rest on a theoretically plausible linguistic foundation. Our best bet at present would be if similar results can be achieved with a qualitative/theoretical approach, which can later be tested through quantitative modeling approaches.

3.2. *Cognate Stems*

Let us now consider some of the cognate roots and stems that we have encountered. To demonstrate the nature of the cognate root data, we begin by giving one example where only the roots are cognates (6). Then we present two mixed examples, where a subset of the cognate roots also represents cognate stems (7–8), and finally we give three examples of cognate stems (9–11) across different subbranches of the Indo-European languages. All five cognate sets are novel and have not been presented in the earlier literature as adducing grounds to the sustainability of the Oblique Subject Hypothesis.

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Indo-Iranian–Slavic: PIE root: ***leuk-*** 'shine'

(6) a. Vedic Sanskrit
      yáthā tád ṛṣibhyo yajñáḥ   ***prārocata***
      such then seers.DAT sacrifice.NOM pleased
      'How then the seers were pleased with the sacrifice'   (ŚB 11.2.3.7)

      b. Old Russian
      *Vnezapu **lučisja** imъ*   *boi*   *velikъ*
      suddenly occurred them.DAT battle.NOM great.NOM
      'Suddenly they fell into/came upon a great battle'   (Sof.vr. 7010g.(2:268))

In (6) we have two verbs derived from the Proto-Indo-European root **leuk-*,
reconstructed with the meaning 'shine.' In Sanskrit the root *roc-* and the thematic
vowel *-a-* make up the stem, which means 'please.' The Old Russian stem consists
of the root *luč-* and the verb class suffix *-i*, and the verb has a happenstance mean-
ing, namely to 'come upon.'[2] This is an example of cognate roots, not cognate
stems, across two branches, i.e. Indo-Iranian and Slavic.

   Let us now view some mixed examples of cognate roots and cognate stems:

Italic–Greek–Germanic: PIE root: ***selh₂-*** 'luck, fortune'

(7) a. Latin
      quorum mihi   *et* ***solacium**... est*
      of.which me.DAT and fortune   is
      'and of which I am ... relieved'   (Plin. *Ep.* 3.1)

      b. Biblical Greek
      eipen de   *autois* ***hileōs***   *humin* ...
      said PTCL them.DAT fortunate(ly) you.DAT
      'And he said 'may you be in peace ...''   (Genesis 43:23, TR)

      c. Old English
      ***selre** us*   *is*
      content us.DAT is
      'we are content'   (Ælfric's *Lives of Saints*)

In example (7) we find the predicate-specific construction DAT-*is-fortune*, i.e.,
a compositional predicate with a dative subject, the verb 'be' and a noun in
(7a), the verb 'be' and an adverb used as an adjective in (7b), and the verb 'be'
and an adjective in (7c), all derived from the Proto-Indo-European root **selh₂-*,
which means 'luck' or 'fortune.' In (7c) the root and the stem are historically the

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[2] Henning Andersen (p.c.) views *lučisja* as being descended, not from *leuk but *loNk 'link,
connection.' On such an interpretation it is, of course, not cognate with the Vedic example in
(6a).

same, *sel-*. The morpheme *-re* in (7c) is originally a comparative suffix which has lexicalized on the stem in more recent times.

Observe that the Ancient Greek form *hileōs* is descended from an Attic variant of the root *hila-/hilā-* (< *$selh_2$-* and reduplicating *si-$sleh_2$-*) with regular *a*-coloring for *h_2*. The form *hileōs* is an adverbial form of the regular adjectival *hileos*, which is a dialectal variation on *hilaos/hilāos* (< *si-$sleh_2$-(w-)os*). There is thus no doubt that the Ancient Greek and the Germanic forms contain not only cognate roots but also cognate stems, in the sense that they both come from the same basic derived category.

Germanic–Slavic–Baltic: PIE stem: ***terp-/tr̥p-*** 'be in need' (**ter-*: 'rub, press, cross')[3]

(8) a. Old English
    *Unc   is his hyldo   **þearf***
    us.DAT is his favor.GEN need
    'We are in need of his grace'   (*Jun.Man.* 664)

    b. Old Russian
    *něstъ   mi   **trebě** vъ cerkovъ   xoditi.*
    are.not me.DAT need to church.ACC go.INF
    'I don't need to go to church'
          (*Čtenie o ziti I o pogublenii blazennuju strastorterptsju Borisa i Gleba* 11th c.)

    c. Old Prussian
    *ka   tenneimons **enterpon**   ast prei tenneison Deiwutiskan*
    what they.DAT advantageous is to their bliss
    'what they find advantageous for their blessedness'
                      (Luther's *Small Catechism* 16–18)

In example (8) we find the predicate-specific construction DAT-*is-need*. Both of the examples from Old English and Old Russian are instances of the composi-

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[3] There is an Ancient Greek verb *tarbeō* 'be frightened' which may also be a descendant of the PIE stem **terp-*, also occurring with a dative subject:

(i) *oude ti   thumō   **tarbei**   oude phobeitai*
    nor anything soul.DAT frightened nor fears
    'her spirit is not at all terrified nor does it flee'   (Hom, *Il 21.575*)

The etymology of this Greek stem is doubtful. The PIE roots/stems **$terg^w$-* (<**ter-g^w-*?) 'frighten' (Rix, 2001: 632; Pokorny, 2002: 1076–1077) and **term-/*trem-* 'tremble' are also plausible sources. However, even if this is not a stem cognate, it may still be based on the PIE root **$ter(h_1)$-*, which is also the likely foundation for a North European cognate set based on **tr-eud-* 'push,' with a meaning of facing a heavy burden (necessity or difficulty), also instantiating the oblique subject construction.

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tional construction with a dative subject, the verb 'be' and a noun, exactly as in (7) above. The Old Prussian example, in contrast, has an adjective in the compositional construction and not a noun. The Germanic and the Slavic nouns are not only root cognates but also stem cognates, as both contain the reconstructed PIE root *ter-* and an additional derivational affix *-p-*. Observe, therefore, that both examples (7–8) above, i.e., both DAT-*is-fortune* and DAT-*is-need*, are examples of cognate roots that are also cognate stems, although in each case it is only a subset of the relevant roots that are also cognate stems.

Let us now consider three more cognate sets, the first with reflections in three daughter languages and the remaining two with reflections in four daughter languages each. In all three cases, we are dealing with not only root cognates but also stem cognates.

Germanic–Latin–Ancient Greek: PIE stem: ***sweh₂d-u-*** 'sweet'

(9) a. Old English
    *& him   **swete** wæron to aræfnenne*
    and him.DAT sweet were to perform.INF
    'and he enjoyed performing'   (Blick. *Hom.* 17:74–75)

   b. Latin
    *quod **suave** est aliis*
    which sweet is others.DAT
    'which others like/find sweet'   (Lucr. 4.662)

   c. Homeric Greek
    *ouk an emoi ge   meta phresin **hēdu** genoito zōemen*
    not PTCL me.DAT at.any.rate with souls.DAT sweet becomes.3SG.OPT.live.INF
    'Then in my heart, I would not find it at all sweet to live'   (Hom, *Od.* 24.435)

In (9) we find three different instances of what appears to be a *cognate argument structure construction*, i.e. the DAT-*is-sweet* construction, found across three different branches of Indo-European: Germanic, Latin, and Greek. In other words, it is not only the adjective 'sweet' that is cognate here, but the predicate structure is also exactly identical, with a dative subject, the verb 'be' and an adjective. Since predicate structures are also inherited from an earlier stage (cf. Barðdal and Eythórsson, 2012a; Barðdal, 2013) and are not invented anew with every generation of speakers, predicate structure of course also qualifies as cognate material.

Notice also that identifying cognates in syntax may be considerably easier than in the lexicon, since syntactic changes happen at a much slower rate than, for instance, phonological changes (cf. Blust, 1996; Barðdal, 2013). Some of the modern Indo-European languages still have the predicate structure that we are dealing with here, i.e., a dative subject, the verb 'be' and an adjective, a noun, or an

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adverb. Given that such predicate structures are found throughout the history of these languages, and at the earliest stages of the Indo-European languages, as our examples show, there is no reason to believe that this predicate structure is not inherited. When a predicate and argument structure construction is, moreover, instantiated by the same lexical stem, it is overwhelmingly likely that both are inherited from an earlier proto-stage, and are thus cognates.

To summarize, it is not only the lexical material that is cognate, but also the predicate structure, an instance of what Walkden (2009: 33) has termed "the Double Cognacy Condition" in phonological reconstruction. Walkden points out that a correspondence set must be drawn from a morphological context which is itself cognate, in order to secure the quality of the phonological reconstruction. This means that the words which serve as basis for a phonological reconstruction must also be cognate. There is no doubt, given what we know about the history of the Indo-European languages, that our predicate and argument structure construction is the context, while the lexical stem is the reconstructed item, in Walkden's terminology. This shows very clearly that the Double Cognacy Condition applies in syntax as well as in phonology, and that the co-occurrence of a cognate predicate structure and a cognate lexical stem provides an even firmer ground for reconstruction.[4]

Our data set in (9) with the DAT-*is-sweet* construction is the second example presented here where all the cognate roots are also cognate stems. Two more examples of cognate stems will now be given:

Germanic–Baltic–Italic–Indo-Iranian: PIE root/stem: ***wai** 'woe'

(10) a. Old Norse-Icelandic
    *nú   er oss   **vei**, er vér erum hjalplausar*
    now is us.DAT woe, as we are   helpless
    'now we have woe, as we are helpless'   (Ridd 65[34])

    b. Latin
    *immo **uae** tibi   sit*
    truly woe you.DAT is.3SG.SBJ
    'Truly, you shall have woe!'   (Plaut, *Cas.* 633)

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[4] Walkden himself argues that the Double Cognacy Condition does not hold for syntactic reconstruction, as, on his view, sentences cannot be cognates. For an argument against this view of syntax, see Barðdal and Eythórsson (2012a, b) and Barðdal (2013). Predicate structure is a property of syntax and syntactic structure, and thus provides a proper syntactic context for the Double Cognacy Condition. However, this is beyond the scope of Walkden (2009), since this work is not focused on predicate and argument structure.

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c. Modern Latvian
Vai ka tev bus.
woe how you.DAT be.FUT
'Oh how it will be terrible for you!'

d. Gatha Avestan
aēibiiō aŋhōuš **auuōi** *aŋhat apəməm*
them.DAT life.GEN woe were.3SG.SBJ last
'They shall have woe at the end of (their) life' (Yasna 45.3)

This example of the DAT-*is-woe* construction, which we have already discussed in much greater detail elsewhere (Barðdal et al., 2011), consists of the adverbial interjection 'woe,' the verb 'be' and a dative subject. This cognate argument structure construction, including the cognate item 'woe,' is found across four Indo-European subbranches, of which one is Indo-Iranian. In this case the root and stem coincide. Again, not only the lexical stem is cognate, but the predicate itself and its predicate structure are also cognate, with a dative, a verb 'be,' and an adverb, again fulfilling the double cognacy requirement.

We would like to draw the readers' attention to the fact that 'woe' itself is not a noun, but an adverb in the examples in (10) above, even though it has developed nominal properties in the history of English and German and thus counts as a noun in these languages. In the early and archaic Indo-European languages, however, it shows no signs of nominal syntax, clearly behaving syntactically as an adverb or an interjection. It occurs first and foremost outside the clause proper or in the DAT-*is-woe* construction above. It is also quite likely that *wai* is onomatopoetic in origin, which in turn explains its lack of nominal syntax; moreover, in addition to the Indo-European languages, it is also found in Semitic, as well as in languages which have been in close contact with Indo-European and Semitic (Bomhard, 2001). Despite this potential onomatopoetic origin, Pokorny (1959: 1110) and later etymologists reconstruct this adverbial interjection *wai* for Proto-Indo-Europan, on the basis of the evidence in the daughter languages. So, even though 'woe' may be found in geographically adjacent language families, this fact in itself does not prevent it from being inherited from a proto-stage into the Indo-European daughter languages. Therefore, it is of course also reconstructable. What we are reconstructing here is not *wai* itself, which has already been reconstructed for Proto-Indo-European as mentioned above, but *DAT-*is-woe*: i.e., a syntactic construction occurring with a dative subject and the verb 'be,' where 'be woe' is a compositional predicate and the dative-marked expression is the subject of this predicate. This reconstruction is supported by data from at least four branches of Indo-European.

Consider now our last example of cognate stems, also found across four sub-branches of Indo-European:

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Greek–Italic–Slavic–Germanic: PIE stem: ***g'neh₃-no/-to-*** 'know of,' 'understand'

(11) a. Greek
    gnōston *oun* *estō*   *humin*   *andres* *adelphoi*
    known   then   is.3SG.IMP   you.DAT   men   brothers
    'Be it known unto you, therefore, men and brethren'   (Acts 13:38, TR)

    b. Latin
      notum *igitur*   *sit*   *vobis*   *viri* *fratres*
      known   therefore   is.3SG.SUBJ   you.DAT   men   brothers
      'Be it known unto you, therefore, men and brethren'   (Acts 13:38)

    c. Old Church Slavonic
      ix   *že*   *tebě*   *věra*   **znana** *est*
      their   indeed   thee.DAT   faith.NOM   known   is
      'of whose faith you know' or 'you are familiar with their faith'   (Can.Miss. 166a: 27)

    d. Old Saxon
      Thô   *uuarð*   *managun*   **cûð** ...
      then   was   many.DAT   known
      'Then many became aware ...'   (*Heliand* 386)

Our last example in (11), DAT-*is-known*, is exactly parallel to the examples in (7–10), i.e., it displays the same compositional construction, although here it occurs with a dative subject, the verb 'be' and the resultative participial of the verb 'know,' instead of a proper adjective, adverb or noun. As is evident from the examples, this predicate-specific construction is documented in four Indo-European subbranches and the participial of 'know' is not only a root cognate, but also a stem cognate, again fulfilling the double cognacy requirement.

In fact, the examples in (7–11) not only fulfill the double cognacy requirement, they may even be regarded as manifesting triple cognacy. This is because a) the lexical stems which instantiate these predicates are cognates, b) the predicate structure, DAT-IS-ADJECTIVE, DAT-IS-ADVERB, DAT-IS-PARTICIPIAL, is also cognate for each set, and finally c) the argument structure, Dat-Nom, is cognate (for the cognacy of different case frames in the Indo-European languages, cf. Barðdal and Eythórsson, 2012a; Barðdal, 2013). This is true for all the examples in (7–11) above, as they instantiate the DAT-*is-fortune*, DAT-*is-need*, DAT-*is-sweet*, DAT-*is-woe*, and DAT-*is-known* predicate-specific constructions, respectively.

Lühr (2011: 237) argues that impersonal verbs, i.e., verbs with which the subject-like argument is not in the nominative case, seem to be scarce in Homeric Greek, Old Indo-Iranian and Hittite, and thus in the early Indo-European languages.

> ... the use of impersonal constructions in Homer is not very common ... That fits well
> with the findings in Old Indo-Iranian and Hittite ... it seems that the early Indo-Europe-
> an languages hardly had any impersonal verbs at all.   (Lühr, 2011: 237, translation JB)

It seems that Lühr is specifically discussing simple verbs and not compositional predicates, which are well documented across the early and archaic Indo-European languages, as evident from the examples above. But apart from that, it is of course not entirely true that no simple verbs are found in the early languages, as the following examples from Homeric Greek, Hittite and Sanskrit show:

(12) a. Homeric Greek
    *houneka moi   **tukhe** polla*
    because me.DAT befell many.things
    'because I happened to experience many things'   (Hom. *Il.* 11.684)

    b. Hittite
    *(nu)]-ssi   mahhan kāsti   kāninti   **nakk[(esta)***
    conj-it.DAT when   hunger.DAT/LOC thirst.DAT/LOC troubled
    'when they [the population] started to suffer hunger and thirst'
        (KUB 14.15 iii 45–46, text and translation from Luraghi, 2010, our glosses)

    c. Sanskrit
    *... tébhya eṣá   lokò   **'chandayat***
    them.DAT this.NOM world.NOM appear.good.IMP.3SG
    'They liked this world'   (ŚB, 8, 3, 1, 2)

With that said, there may of course have been fewer oblique subject predicates in the early languages than in the modern ones, meaning that the early languages were perhaps dominated by compositional predicates in the oblique subject construction. However, our impression is that there are several examples of simple verbs found in the oblique subject construction in these early languages. The question is, however, whether the alleged lack of simple verbs has any significance at all with respect to the inheritance of the general oblique subject construction. As long as some examples are found, we are inclined to answer that question in the negative.

3.3. *Metaphorical Meanings*

Finally, before we proceed to the syntactic reconstruction in Section 4, a clear generalization about the relation between the meaning of oblique subject predicates and their nominative counterparts may be put forward. The most well-known, and uncontroversial, correlation between the two meanings would be the use of copular/existential verbs to indicate possession. The use of the dative for possession is attested across virtually all branches of Indo-European

(Benveniste, 1960) and may occur as a full argument structure construction with the verb 'be' in most of these. This may be conceptualized in the following way:

(13) a. Nom + Nom + *$h_1$es-   Canonical
     'X.ɴᴏᴍ exists' or 'X.ɴᴏᴍ is Y.ɴᴏᴍ'

   b. Dat + Nom + *$h_1$es-ti   Non-canonical
     'X.ᴅᴀᴛ has Y.ɴᴏᴍ'

In (13a) the Indo-European copular/existential verb *$h_1$es- 'be' conjugates in agreement with a nominative subject when indicating existence or copular identity, while in (13b) it agrees with a nominative object, of course usually a 3rd person referent when indicating possession, with the nominative element appearing in a later position in the argument structure. Other verbs used like copulae in the Indo-European branches may be used similarly, e.g., *$bheuh_2$-, and more rarely *$steh_2$-.

Notice that it is of course not only the verb 'be' that denotes possession but 'be' together with the dative possessor. This use of ᴅᴀᴛ-*be* to express possession is rooted in the experiential domain of existence, identified as location or concomitance schemas by Heine (1997) and Stassen (2005). The possessed object is identified as existing concomitant with or at the location of the possessor (Perniss and Zeshan, 2008). This conceptualization of possession is extremely common throughout the languages of the world.

There are, moreover, many other patterns that appear to be common across several Indo-European branches, as shown in Table 3 (cf. Smitherman, 2011). A relatively uncontroversial correlation of the meaning in canonical and non-canonical constructions is found when a verb of motion, like 'go,' appears in conjunction with a noun, often itself deverbal and indicating a state or experience, or a verbal infinitive of the same semantics. The motivation for non-canonical case marking with a motion verb is either the inception into a state, emotion or experience, or the indication of an immediate happening experienced by the non-canonically case-marked argument (cf. Fedriani's, 2011, ɪɴᴄᴇᴘᴛɪᴏɴ ᴏꜰ ᴘsʏᴄʜᴏʟᴏɢɪᴄᴀʟ sᴛᴀᴛᴇs ᴀʀᴇ ᴇɴᴅᴘᴏɪɴᴛs ᴏꜰ ᴛᴇʟɪᴄ ᴍᴏᴠᴇᴍᴇɴᴛs metaphor, based on the early work of Lakoff and Johnson, 1980, and Kövecses, 2000).

Reflexes of various Proto-Indo-European motion verbs are attested in oblique subject constructions across many Indo-European branches. Examples of an inceptive meaning with oblique subjects across three branches are given in (14) below.

Table 3. Some common semantic correspondences of canonical and non-canonical constructions attested in the Indo-European daughter languages

Canonical	Non-canonical
'be'	'have'
$*h_1es$-, $*bheuh_2$-, $(*steh_2$-)	
'know/find.out'	'know.of, be familiar with'
$*g'neh_3$-, $*woid$-	
'shine'	'seem'; possibly 'befall'
$*leuk$-, $*b^heh_2$-, $*k'wei$-, $*h_2ei$-	
'sweet'	'enjoy, like'
$*sweh_2d$-u-	
'rub'; 'press'	'need'; 'difficulty'
$*ter(h_1)$-, $*g'(^h)er$-, $*h_2eng^h$	
'burn'	'be angry'; 'suffer'
$*d^heg^{wh}$-, $*kenk$-	
'freeze'	'fear'; 'hate'
$*g'el(h_1)$-d-, $*mer(H)$-g'-	
'bend, twist'	'pain'; 'confusion'
$*g(')euh_1$-, $*(s)keu$-, $*wer$-	
'blow'; 'swell'	'pain'
$*Beu$-, $*d^hem$-, $*d^heu$-	
'come, go'	'inception/happenstance'
$*h_1ei$-, $*g^wem$-, $*h_{1/2}er$-, $*per(h_3)$-	

(14) a. Ancient Greek

*kai nun oduna   m'   oduna   **bainei**[5]*
and now pain.NOM me.ACC pain.NOM goes
'And now, pain, I am overcome by pain'   (Eur, *Hippolytus* 1371)

b. Old Norse-Icelandic

*Þá   mun flestum mönnum … í   hug   **koma** dráp …*
then will most   men.DAT   in mind.ACC come murder.NOM
'Then most people will … remember the killing …'   (*Ljósvetninga Saga*, Ch. 32)

c. Latin

***venit** enim mihi   in mentem   oris   tui*
comes CONJ me.DAT in mind.ACC face.GEN your
'for I remember your expression'   (Cic., *Rosc. Am.* 34,95)

Observe now that the Ancient Greek *bainei*, Latin *venit* and Old Norse-Icelandic *koma* are all cognates, derived from the Proto-Indo-European root $*g^wem$-. The

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5) We are assuming that the first *oduna* 'pain' is emphatically uttered in the beginning of the verse.

relationship between the basic and the derived meaning may be conceptualized
in the following way:

(15) a. Nom + *g^wem-   Canonical
         'X.ɴᴏᴍ goes/comes'

     b. Acc/Dat + Nom + *g^w(e)m-(ye-)ti   Non-canonical
         'X.ᴀᴄᴄ/ᴅᴀᴛ ɪɴᴄᴇᴘᴛɪᴏɴ into Y.ɴᴏᴍ'

Observe that motion verbs meaning 'go, come' are intransitives with no object
and hence no case-marked object, either in the accusative or in the dative. There
are of course some instances found in the daughter languages of the verb 'go'
occurring with an accusative adverbial with the accusative referring to a place of
destination. The examples in (14) are certainly not of that type, meaning that the
case marking cannot be traced to an existing argument structure of these verbs.
Notice also that for the oblique subject construction in (14a) in Ancient Greek,
both accusative and dative subjects are attested. In Germanic and Italic datives
seem to be overwhelmingly favored.

In many instances, the appearance of a predicate in a non-canonical construc-
tion does not greatly alter the semantics of the clause, but does indicate a degree
of reduction in agentivity or volitionality. Such is the case especially with many
participial adjectives. Note the following three schematic constructions for verbs
of knowledge (PIE *$g'neh_3$- and *woid-) below (cf. examples 11 above):

(16) a. Nom + Acc + *$g'neh_3$-ti   Canonical (verbal)
         'X.ɴᴏᴍ knows Y.ᴀᴄᴄ' or 'X.ɴᴏᴍ finds out Y.ᴀᴄᴄ'

     b. Nom + *$g'nh_3$-to-s + *$h_1$es-   Canonical (participial)
         'X.ɴᴏᴍ is known'

     c. Dat + Nom + *$g'nh_3$-to-m + *$h_1$es-ti   Non-canonical
         'X.ᴅᴀᴛ knows/knows of/is aware of/understands Y.ɴᴏᴍ'

In this case, the verb itself may only be attested canonically but the participial
form may be used as a neuter impersonal with a 3rd person 'be.' Although the
meanings of the verbal construction with a nominative subject in (16a) and the
non-canonical construction with a participle and dative subject in (16c) overlap
in the semantic domain of 'knowledge,' the former may also indicate the active
pursuit of knowledge, whereas the latter is stative and cannot be selected to
indicate any volitional participation by the subject referent in attaining some
understanding.

Finally, we have observed a larger category of semantic correspondences that
appear to be metaphorical (see Table 3). Good examples include Proto-Indo-
European roots that can be reconstructed with the meaning of 'burn' in a canon-
ical construction, indicating some sort of suffering in a non-canonical construc-

tion. Another set of examples comprises etyma meaning 'bend' or 'press' indicating physical pain. Again, the oblique subject construction indicates a less active/dynamic meaning than the canonical argument structure construction, irrespective of whether the latter is transitive or intransitive, active or inactive. This relation may be conceptualized as in (17–18) below for the PUSH/PRESS–PAIN and BURN–SUFFER metaphors:

(17) a. Nom + Acc/Dat + *treud-(e)ti*   Canonical
        'X.NOM pushes Y.ACC/DAT'

     b. Dat/Acc + *treud-(e)ti*   Non-canonical
        'X.ACC/DAT feels pressured'

(18) a. Nom + *kenk-ti*   Canonical
        'X.NOM is burning'

     b. Dat/Acc + *kenk-ti*   Non-canonical
        'X.ACC/DAT is in pain'

There is little difficulty in reconstructing the patterns of such metaphorical extensions represented by a change in argument structure for Proto-Indo-European. It is far more complicated to reconstruct specific Proto-Indo-European stems for particular patterns. For example, oblique subject predicates with roots descended from Proto-Indo-European etyma reconstructed to mean 'burn' when used canonically are found across at least five Indo-European branches, with at least five cognate sets represented. The 'suffer' metaphor is attested for predicates relating to four of these etyma in four branches. This means that the distribution of the pattern among particular branches and roots/stems does not permit a clear etymological reconstruction of the BURN–SUFFER metaphor for a given Proto-Indo-European root or stem.

Nonetheless, some of these patterns can be reasonably well reconstructed and, as the present research develops, we believe that more particular Proto-Indo-European stems may be reconstructed to have had specific meanings in an oblique subject construction which are distinct from their meaning in the canonical construction. At present, we will let it suffice to reconstruct cognate lexical stems in cognate contexts, i.e., in the same predicate and argument structure construction (see next section). This suggests that oblique subject constructions in Proto-Indo-European are as old as at least the late proto-language, and that the motivation of the oblique case marking is primarily semantic (cf. Barðdal, 2004; Barðdal and Eythórsson, 2009). Non-canonically subject-marked argument structure constructions may have developed from canonical constructions: for instance, by the expansion of the existing dative of possession construction from concrete possessum nouns to abstract nouns denoting feelings and experience, as suggested by Fedriani (2011), or through the syntactic development of

quasi-human-universal metaphorical expressions. Either way, it is most prudent to assume that the construction emerged before the total dispersal of the Indo-European languages.

4. Reconstructing Proto-Indo-European Argument Structures

For several decades, syntactic reconstruction has been regarded as a highly controversial enterprise at best, and at worst a stranded endeavor within the historical linguistic community (cf. Watkins, 1964; Jeffers, 1976; Lightfoot, 1979, 2002, 2006; Harrison, 2003; Pires and Thomason, 2008; Mengden, 2008; Walkden, 2009, 2013; inter alia). The reason is that syntactic structures have not been viewed as being on a par with lexical items. Rather, they have been considered "bare structures" devoid of meaning, and not form–function correspondences. In other words, the meaning that has been attributed to sentences has been taken to be the sum of the meaning of the lexical parts (Klein, 2010). On such a view, sentences or syntactic structures do not qualify as simple form–meaning correspondences like words; hence, there cannot be any reconstruction.

Construction Grammar provides us with a more nuanced view of form–meaning or form–function correspondences. It presupposes that there is not only a symbolic link between simple form–meaning correspondences, as in the case of lexical items, but also between more complex form–meaning correspondences. Consider, for instance, the argument structure of the Old English compositional predicate 'be known' from example (11d) above, reproduced below for convenience:

(11d) Old Saxon
    Thô   uuarð managu   cûð ...
    then   was   many.DAT known
    'Then many became aware ...'   (*Heliand* 386)

On, for instance, a Radical Construction Grammar analysis (Croft, 2001; Croft and Cruse, 2004: 257–262; Barðdal, 2006: 74–78), there is a symbolic link between each syntactic element and its corresponding semantic component, and there is also a symbolic link between the entire SYN-field and the entire SEM-field, as illustrated in Fig. 1 (where *s* stands for a symbolic link). In other words, there is a symbolic relation between the form and the meaning of each and every lexical item, and in addition, there is also a symbolic relation between the whole semantic structure and the whole syntactic structure. Therefore, under this view, larger and more complex linguistic structures are also form–meaning correspondences, exactly like words, and should as such also be reconstructable. The only difference is that they are complex form–meaning correspondences rather than simple ones.
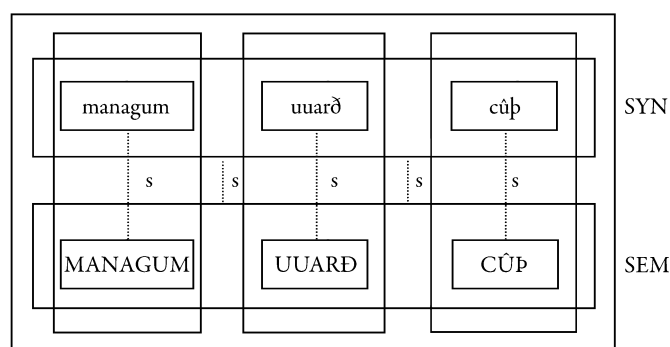
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Figure 1. The symbolic relations between parts of constructions

In contrast, in historical-comparative linguistics, the focus has been on the symbolic relation found, for instance, between *managum* and MANAGUM in the first vertical box in Fig. 1, the symbolic relation between *uuarð* and UUARÐ in the second vertical box, etc. The totality of the meanings for all the words then yields the lower horizontal box in Fig. 1, labeled SEM. What Construction Grammar adds to this equation is the symbolic link between the whole SYN and the SEM parts (here given twice for visual reasons only), which represents the symbolic relation between the form and the meaning parts of a construction. This is how syntactic objects become larger and more complex form–meaning correspondences in Construction Grammar.

Of course, in some cases the relation between the form and the meaning is an arbitrary one, like with idioms and other semantically specific constructions, while in other cases the meaning is not arbitrary, but is a sum of the meaning of the parts. Either way, syntactic objects count as form–meaning correspondences, and are as such legitimate objects of the Comparative Method.

Several other arguments against syntactic reconstruction have been brought forward in the literature, such as lack of ARBITRARINESS in syntax, lack of COG-NATES, lack of REGULARITY, and the problem of DISCONTINUOUS TRANSMIS-SION. However, in addition to the early work of Harris and Campbell (1995) arguing for the reconstructability of syntax, more recent work has also supported the claim that syntactic reconstruction is not only possible but also quite feasible (Gildea, 1998; Campbell and Harris, 2003; Kikusawa, 2003; Harris, 2008; Bowern, 2008; Eythórsson and Barðdal, 2011; Willis, 2011; Barðdal and Eythórsson, 2012a, 2012b; Barðdal, 2013). We will begin with a discussion of arbitrariness and use the remainder of this article to continue with the argument that there need not be any lack of cognates in syntax. For a discussion of the lack of regularity in syntactic change and discontinuous transmission, we refer the interested reader to the publications cited above.

Starting with the ARBITRARINESS requirement, Harrison (2003: 23) points out that arbitrariness is only required when establishing genetic relatedness, i.e., it is only needed for reconstructions that aim to show that one language is related to another one. In our terminology, this means that, since we are comparing languages for which genetic relatedness has already been established, the existence of a symbolic link between the form and the meaning is sufficient. That is, it is irrelevant whether this link is arbitrary or not (in other words, whether it is derivable from the semantics of the parts or not). Hence, the demand for an arbitrary link between form and meaning is unwarranted in syntactic reconstruction. Notice, however, that in our case, it is in fact arbitrary which lexical predicates, for instance from the semantic field of experience, instantiate the oblique subject construction and which do not, meaning that there is, after all, a certain degree of arbitrariness in our reconstruction anyway.

Turning to the issue of COGNACY in syntax, that is, the alleged lack of cognates, we believe that this is also a non-issue. Kikusawa (2003), for instance, introduces the concept of *cognate structures*, i.e., structures that are inherited from an earlier common proto-stage. Barðdal and Eythórsson (2012a–b) also elaborate on the concept of *cognate argument structure constructions*, i.e., argument structure constructions that are inherited into the daughter languages from a common ancestor. For languages with case marking, it may be easier to identify cognate argument structure constructions than for languages without morphological case. In the Indo-European languages, for instance, the morphological case markers are also cognate with each other. Some of the functions of the cases have of course merged (cf. Luraghi, 1987; Barðdal and Kulikov, 2009; Kulikov, 2013), but the history of these mergers is relatively well known, at least for the best-studied languages of the Indo-European language family.

Consider, now, the following examples from Early Germanic of the verb 'lust' (cf. Barðdal and Eythórsson, 2012b), which all exhibit the same case and argument structure construction, namely Acc-Gen:

(19) a. Old High German
     nu **dih** *es* *so wel lustit*
     now you.ACC it.GEN so well desires
     'now that you desire it so well'   (*Hildebrandslied* 59)

   b. Old Saxon
     that **ina** *bigan bi* *thero* *mennisko*
     that him.ACC began because.of the.DAT humanity.DAT

     môses *lustean*
     food.GEN desire.INF
     'that because of his humanity, he began to desire food'   (*Heliand* 1060)

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c. Old English

Hine _nānes_ _þinges_ _ne_ _lyste_ _on_ _ðisse_ _worulde_
him.ACC no.GEN thing.GEN not desire on this world
'He desired nothing in this world' (Boeth. *Cons.Phil.* 35,6)

d. Old Norse-Icelandic

_er_ **_þig_** _lysti_ **_þessa_**
when you.ACC desired that.GEN
'when you desire that' (*Ljósvetninga Saga*, Ch. 19)

Examples of the verb 'lust' in the Acc-Gen case frame constitute the input for the correspondence set in Table 4. The correspondence set, in turn, reveals that there is absolute identity among the daughters, and hence a verb-specific argument structure construction may be reconstructed for Proto-Germanic (cf. Barðdal and Eythórsson, 2012b).

Table 4. Correspondence set for the ACC-*lusts*-GEN argument structure construction

	Alt 1
Old English	ACC-*lusts*-GEN
Old Saxon	ACC-*lusts*-GEN
Old High German	ACC-*lusts*-GEN
Old Norse-Icelandic	ACC-*lusts*-GEN

Clearly, there is an abundance of cognates found in the oblique subject construction across the early Germanic daughters. This is expected since the time span for Proto-Germanic is very different from the time span for Proto-Indo-European. That is, Proto-Germanic is much younger than Proto-Indo-European. For the importance of testing syntactic reconstruction on younger and better-understood families, see also Harris (2008: 90) and Walkden (2009: 44).

Moreover, as we showed in Section 3 above, cognate stems in the oblique subject construction are certainly found across the Indo-European branches; and they lend themselves readily to reconstruction. Consider, for instance, the Proto-Indo-European stem *$g'neh_3$-no/-to-* 'know of,' 'understand,' which is found with a dative 'knower' and a nominative 'knowee' in Greek, Italic, Slavic and Germanic, as shown in (11) above. The correspondence set for this predicate-specific construction is represented in Table 5, and a predicate-specific argument structure construction, DAT-*is-known*, may thus be reconstructed for Proto-Indo-European, as suggested in Fig. 2 below.
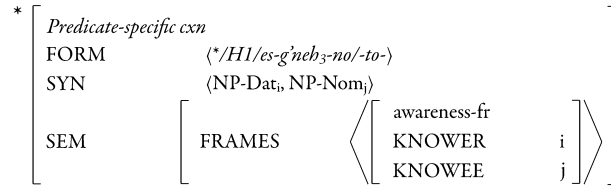
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Figure 2. A reconstruction of the predicate-specific
DAT-NOM-*is-known* construction in Proto-Indo-European

Table 5. Correspondence set for the DAT-(NOM-)*is-known* argument structure construction

	Alt 1
Ancient Greek	DAT-NOM-*is-known*
Latin	DAT-NOM-*is-known*
Old Church Slavonic	DAT-NOM-*is-known*
Old Saxon	DAT-NOM-*is-known*

Exactly as with the Proto-Germanic correspondence set of 'lust' above, a complete identity is found between the input data that form the basis for the correspondence set for the DAT-NOM-*is-known* construction in Proto-Indo-European. The predicate-specific construction is here represented with the formalism of Sign-based Construction Grammar (Sag, 2012; Michaelis, 2010, 2012), and it consists of three levels: i) the level which specifies the lexical form of the predicate, ii) the SYN field, which specifies the number of arguments and their case marking, and iii) the SEM field, which gives the semantics of the construction.

The semantics is specified in terms of semantic frames (Fillmore, 1982, 1985; Petruck, 1996), in this case the Awareness Frame, which entails that there is a cognizing entity, the knower, and a content, the knowee, which the knower is aware of. Notice that the predicate-specific participant roles of knower and knowee are here indexed with *i* and *j* respectively, and coindexed with the two arguments of the argument structure. Specifically, the dative is coindexed with the knower and the nominative with the knowee.

We have here specified the order of the arguments in such a way that the dative precedes the nominative in the word order (as they would in an ordered list), but since the opposite word order is also found, we believe that this predicate-specific *is-known* construction in the Proto-Indo-European daughter languages alternates between two argument structure constructions, the Dat-Nom and the Nom-Dat constructions. Such alternating predicates have been documented in several Germanic daughter languages, like Old English (Allen, 1995), Modern Icelandic (Barðdal, 2001) and Modern Faroese (Barnes, 1986), and even today,

the North-Germanic cognate *vera kunnugt* 'be known' is an alternating predicate in Modern Icelandic. Under this analysis, one of the word orders is not a topicalization of the other, but exists in its own right as a full-fledged argument structure construction, with the leftmost argument of the argument structure, be it the dative or the nominative, behaving syntactically as a subject with regard to the syntactic properties of subjects (cf. Barðdal, Eythórsson, and Dewey, in prep.). We will not pursue the argument for such an analysis here, but let it suffice to mention these facts from Germanic, which in turn underscore the possibility of an analogous analysis for the early and archaic Indo-European languages.

In addition to the predicate-specific DAT-*is-known* construction, it is also possible to reconstruct other predicate-specific constructions for Proto-Indo-European on the basis of the data presented here. A reconstruction of the predicate-specific DAT-*is-sweet* and DAT-*is-woe* constructions may be carried out along the same lines as the reconstruction of the predicate-specific DAT-*is-known* construction. Since the predicate-specific DAT-*is-fortune* and DAT-*is-need* constructions are only found in two Indo-European subbranches each, Greek and Germanic vs. Germanic and Slavic, the evidence for their reconstructability is not as strong as for the three other predicate-specific constructions. Hence we will not reconstruct these at present. Observe also that all our reconstructions so far are based on documented lexical stems, found across at least three different branches of the early and/or archaic Indo-European daughters.

Moreover, not only is it possible to reconstruct predicate-specific constructions for an earlier proto-stage, as we have already shown, but it is also possible to reconstruct *partial* predicate-specific constructions and even more schematic predicate-class-specific constructions on the basis of a wider set of data. Consider again the data in (1) above involving 'need.' These data may be taken as input into the correspondence set given in Table 6, which differs from our earlier correspondence sets in that the lexical predicates do not share a stem and the predicate structure is not the same: here, we have a compositional predicate vs. a simple verb. A reconstruction on the basis of the correspondence set would therefore only be partial, i.e., only based on the case frame and the meaning, not on the predicate type or the lexical stem. Such a partial reconstruction is shown in Fig. 3. Notice that the FORM field is empty, while the SYN field, i.e., the argument structure, and the SEM field, given again in terms of frame semantics, are specified.

Table 6. Correspondence set for a partial predicate-specific argument structure construction

	Alt 1
Old Norse-Icelandic	DAT-*er-nauðsyn*
Latin	DAT-*necesse-est*
Ancient Greek	DAT-*dei*

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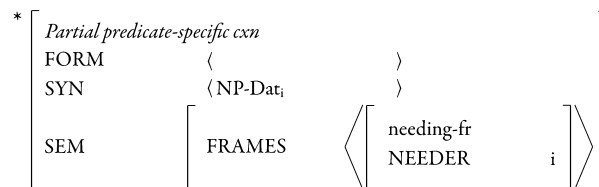Old Russian   DAT-*noužda-by*

Figure 3. A reconstruction of a partial predicate-specific
argument structure construction in Proto-Indo-European

Basically, what the reconstruction in Fig. 3 amounts to is a claim that Proto-Indo-European had a predicate meaning 'need,' which selected for a dative subject, while the form of this predicate and its structure is unknown and can hence not be reconstructed. Only the meaning and case frame are reconstructable given the present data. Many more such partial reconstructions can be suggested on the basis of the data available to us from the earliest stages of the Indo-European daughter languages, but we will let it suffice to illustrate our point with the reconstruction in Fig. 3 for a verb 'need' with an unknown form.

Finally, we would like to suggest not only a reconstruction of predicate-specific constructions but also predicate-class-specific constructions. Consider the following examples from Latin, Ancient Greek, Gothic, Old Norse-Icelandic and Old Russian:

(20) a. Latin
 *non **fuerat** mihi **dubium**   quin ...*
 not was   I.DAT doubt.NOM that
 'I had no doubt that ...'   (Cic. *Att* 3.6)

 b. Latin
 *neque cuiquam   facile **succurrat***
 not   anyone.DAT easily comes.to.mind.SBJ
 'nor is it easy for us to conjecture'   (Svet. *Tit*. 10.2)

(21) a. Ancient Greek
 *hēmin d'ou   tis toude   **noos**   kai mētis   ameinōn*
 we.DAT as.not a   this.GEN sense.NOM and wisdom.NOM better
 'We won't have a better idea and wisdom than this one'   (Hom, *Il.* 15.509)

 b. Ancient Greek
 ōs emoi   dokei
 as I.DAT thinks
 'As I think/believe'   (Aesch. *Seven* 369)

(22)   Gothic
 *jah   **þuhta** im   ei ...*
 because thought they.DAT that
 'because they thought that ...'   (*Luke* 19.11)

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(23) Old Norse-Icelandic
      *er   mér   **bauð** **hugur**   **um**,   að   þeir ...*
      which I.DAT invited apprehension about that they
      'which I had an apprehension of, that they ...'   (*Egils saga*, Ch. 6)

(24) a. Old Russian
      *Ne   **pride** mi   vъ oumъ*
      not came me.DAT in mind.ACC
      'It did not enter my mind' or 'I did not think of it'   (*Paterikъ Sinaijskij* 11th c. 274)

    b. Old Russian
      Vъslovesisę jemu   vъ pravdu
      reckoned   him.DAT in truth.ACC
      'He took it to be true'   (*Pandekt Antioxa po spiskamъ* 14th–15th c)

Observe that all the predicates in (20–24) above select for a dative subject, although the form of the object argument varies. In the cases above where the object is expressed, it can take on the form of a subordinate clause (20a–b, 22) or a nominative (21a–b, 23). We would therefore like to suggest a correspondence set as given in Table 7, and a reconstruction like the one in Fig. 4. We leave the form of the object out of the reconstruction because of the diversity found in its marking.

Table 7. Correspondence set for a predicate-class-specific argument structure construction

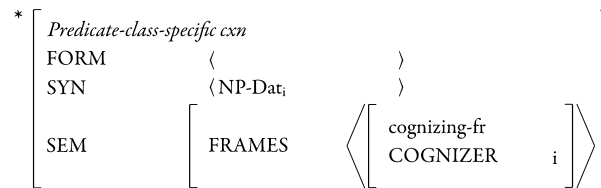|	Alt 1
Latin	DAT-*has.wisdom*
Latin	DAT-*conjectures*
Ancient Greek	DAT-*has.idea*
Ancient Greek	DAT-*thinks*
Gothic	DAT-*thinks*
Old Norse-Icelandic	DAT-*apprehends*
Old Russian	DAT-*gets.idea*
Old Russian	DAT-*considers*

Figure 4. A reconstruction of a predicate-class-specific
argument structure construction in Proto-Indo-European

The examples in (20–24) and the correspondence set in Table 7 illustrate rather nicely that the early/archaic Indo-European daughter languages exhibit several predicates that are cognition predicates, where the dative subject is a cognizer and the cognized entity is realized as a sentence, a nominative argument, or it may be left unexpressed. The examples in (20–24) are only a fraction of all the predicates that we have found which can be classified as cognition verbs. On the basis of all these predicates, we feel confident in suggesting a reconstruction of a more schematic predicate-class-specific construction, in this case a class of verbs of cognition which realize the Cognition Frame with a cognizer and an entity that the cognizer cognizes on.

The rationale behind this reconstruction is not grounded in the exact nature of these predicates themselves, but rather in the fact that there are predicates of this type found in all the Indo-European daughter languages that we have investigated, i.e. Germanic, Italic, Greek, Slavic and Baltic (cf. the list in Barðdal et al., 2012). One may argue, and rightly so, that a certain amount of renewal within a predicate-specific construction is expected. Hence, the predicates in (20–24) need not be inherited from a common proto-stage, but may represent individual renewals within these constructions. This is entirely possible and even likely. This argument, moreover, brings to the fore our reason for the reconstruction in Fig. 4: irrespective of whether specific individual predicates are inherited or represent a renewal, the underlying schematic Dative Subject Construction is inherited and, in all essentials, remains the same from the proto-stage into the daughter languages. This is the reason why we suggest a reconstruction of a schematic argument structure construction, in this case a predicate-class-specific construction of cognition verbs, where the form and the predicate structure is not specified, but the argument structure and the type of verb class is.

To conclude, not only is syntactic reconstruction a viable enterprise, but it is also possible to reconstruct constructions for Proto-Indo-European in which the subject-like argument is non-canonically case-marked. Such a reconstruction includes a) predicate-specific constructions, b) partial predicate-specific constructions where only the meaning and the argument structure is reconstructed, and c) more schematic constructions like predicate-class-specific constructions, which are higher-level constructions in the grammar of Proto-Indo-European. The formalism of Sign-based Construction Grammar turns out to be adequate for this endeavor.

5. Summary

Hypotheses about the emergence of oblique subjects may, broadly speaking, be divided into two main categories: those which assume a development from object status to subject status and those which assume that no such development

has taken place and that non-canonical case marking is motivated by semantic factors. We have referred to these two as the OBJECT-TO-SUBJECT Hypothesis and the OBLIQUE SUBJECT/SEMANTIC ALIGNMENT Hypothesis. We have argued for the sustainability of the OBLIQUE SUBJECT/SEMANTIC ALIGNMENT Hypothesis on the basis of the cognate data set presented here. This in turn undermines the axiomatic default status of the OBJECT-TO-SUBJECT Hypothesis when it comes to the emergence of non-canonical subject marking in the languages of the world.

In order to corroborate the validity of the OBLIQUE SUBJECT/SEMANTIC ALIGNMENT Hypothesis, we have started the quest for cognates across the early and archaic Indo-European daughter languages. At the present stage of our research, we have encountered dozens, even hundreds, of roots that occur with an oblique subject and make up cognate sets across two, three or four Indo-European subbranches, although these roots are not systematically distributed across the same branches but are found in different pockets of the Indo-European daughters. The number of cognate stems is approximately one dozen at present, and so far we have only harvested data systematically from Germanic, Italic, Greek, Slavic and Baltic. Here we have presented five different cognate stems found across two, three and four Indo-European subbranches. In addition, these cognate stems are found in the same predicate type, namely the compositional Dative Subject Construction consisting of the verb 'be' together with a noun, an adjective or an adverb. In other words, not only are the lexical stems cognate, but the more schematic predicate type and the argument structure are also cognate. Our reconstruction is thus based not only on cognate lexical stems, but it also fulfills the Double Cognacy Condition found in phonology: reconstruction of a unit must be based both on the reflexes of that unit in the preserved material and on a context which is itself cognate.

Regarding the age of the Oblique Subject Construction in the Indo-European languages, four scenarios are a priori possible: a) the category is an early feature of the Indo-European languages, b) it is a recent feature of the Indo-European languages, c) it is an independent development in the Indo-European daughters, d) the category arose in one language and then spread to the others through areal contact. If the construction has emerged through independent development, then no cognates should be found at all, unless they have been borrowed after the category came into existence. It is clear, however, that the lexical forms of 'woe,' 'sweet' and 'known' in the different branches exclude borrowing from one branch to another. An independent development is thus not corroborated by the data. A recent common development, shortly before the dispersal of the Indo-European languages, should entail a substantial number of cognates, it seems, while an early common development, long before the dispersal of the Indo-European languages, should entail few, if any, cognates, because of the differences in time

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elapsed between the two scenarios. If the Oblique Subject Construction was a recent common development, we should expect to find more cognates than we have found so far. Moreover, if the category had spread through borrowing, one would also expect to find a considerable amount of cognates, which should be recognizable as borrowings through their phonological shape. In conclusion, thus, the data are most compatible with the hypothesis that the Oblique Subject Construction is an early common inheritance in the Indo-European languages, i.e., from long before the individual Indo-European languages branched off from each other.

We have also laid out some generalizations about the relation between the meaning of a verb in a canonical nominative construction and its meaning in the non-canonically case-marked Oblique Subject Construction. We have found three apparent patterns: a) verbs of motion are used to indicate inception or inchoative meaning, b) dynamic verbs are reduced in agency and are used to indicate states, and c) metaphorical extensions of verbs meaning 'burn' and 'press/ bend' are used to indicate 'suffering' or 'pain.' These appear to be recurring patterns found across different subbranches of the Indo-European languages with different etyma, perhaps of universal nature.

Finally, we have rejected the common view that syntactic reconstruction is impossible because larger syntactic units are not simple form–meaning correspondences like words. On a constructional approach, larger syntactic units are also form–meaning correspondences; they are just complex, rather than simple, form–meaning correspondences. We have thus argued for the possibility of reconstructing complex syntactic constructions, and presented one attempt at reconstructing an Oblique Subject Construction for Proto-Indo-European on the basis of attestations in four of the Indo-European subbranches: Ancient Greek, Latin, Slavic and Germanic. The relevant predicate-specific reconstruction contains the participial form of the verb 'know' from the Proto-Indo-European lexical stem *$g'neh_3$-no/-to-*, a dative subject and the verb 'be,' i.e., the compositional Dative Subject Construction. This reconstruction is based on a) the same inherited lexical stem, b) the same predicate structure, and c) the same argument structure. This reconstruction fulfills not only the Double Cognacy Condition, but there is in fact triple cognacy involved. Similar reconstructions may be carried out for the predicate-specific DAT-*is-sweet* and DAT-*is-woe* constructions, as we have identified their lexical stems and identical predicate and argument structures for them across three and four daughters, respectively. These cognate sets are novel and have not figured in the earlier literature as adducing grounds for the sustainability of the Oblique Subject Construction for Proto-Indo-European.

We have, furthermore, suggested a partial reconstruction based on argument structure and the meaning 'need,' where the phonological form and the internal

structure of the predicate is unspecified. Finally, we have put forward a reconstruction of a more schematic construction, namely, a predicate-class-specific construction of cognition predicates which have the same argument structure: they all occur in a Dative Subject Construction. This last reconstruction is based on an abundance of predicates in the early/archaic daughter languages that denote cognition, all with the cognizer in the dative case. We have also shown that the formalism of Sign-based Construction Grammar is an adequate tool for modeling this particular aspect of the grammar of Proto-Indo-European.

Acknowledgments

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