

Between the Historical Languages and the Reconstructed Language: An Alternative Approach to the Gerundive + “Dative of Agent” Construction in Indo-European*

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Abstract

It is argued by Hettrich (1990) that the “dative of agent” construction in the Indo-European languages most likely continues a construction inherited from Proto-Indo-European. In two recent proposals (Danesi 2013, Luraghi 2016), it is argued that the “dative of agent” contains no agent at all, although the two proposals differ with regard to the reconstructability of the “dative of agent” construction. Luraghi argues that it is an independent secondary development from an original beneficiary function (cf. Hettrich 1990), while Danesi maintains that the construction is reconstructable for an earlier proto-stage. Elaborating on Danesi’s approach, we analyze gerundives with the “dative of agent” in six different Indo-European languages that bridge the east–west divide, namely, Sanskrit, Avestan, Ancient Greek, Latin, Tocharian, and Lithuanian. Scrutiny of the data reveals similarities at a morphosyntactic level, a semantic level (i.e. modal meaning and low degree of transitivity), and also, to some extent, at an etymological level. An analysis involving a modal reading of the predicate, with a dative subject and a nominative object, is better equipped to account for the particulars of the “gerundive + nominative + dative” construction than the traditional agentive/passive analysis. The proposal is couched within the theoretical framework of Construction Grammar, in which the basic unit of language is the Construction, i.e. a form–function correspondence, and no principled distinction between lexical items and complex syntactic structures is assumed. As these structures are by definition units of *comparanda*, required by the Comparative Method, they can be successfully utilized in the reconstruction of a proto-construction for Proto-Indo-European.

Keywords: dative of agent, gerundives, non-canonical case-marking, syntactic reconstruction, construction grammar

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1. Introduction

This article tackles two separate issues within historical syntax of Indo-European: first, the so-called “dative of agent” construction that co-occurs with gerundive forms in many of the Indo-European subbranches, and second, the issue of reconstruction of syntax.

The “dative of agent” is a function of the dative case that is most notably documented for non-finite forms such as gerundives, i.e. verbal adjectives that have also been described as “future passive participles” (on dative of agent, cf. Green 1913, Hettrich 1990, 2014, George 2005, Luraghi 2016; for “future passive participle”, cf. Smyth 1963: 81 for Greek, Macdonnell 1916: 186 for Vedic Sanskrit, for example). Verbal adjectives are, as the name implies, adjectives derived from verbs. Gerundives agree with the nouns they are predicates of, and this noun typically corresponds to an argument of the root verb; hence, gerundives show behavior characteristic of both verbs and adjectives. To concretize, in the Latin example in (1) below, the nominative noun is *res* ‘affair’ and the gerundive agreeing with it is *agitanda* ‘which is to be moved’. A corresponding finite verb with *agitari* ‘move’ in the active diathesis would have *res* as its object in the accusative case, while the subject would be in the canonical nominative.

- (1) non agitanda res erit
 not move.GER.NOM affair.NOM be.3SG.FUT
 ‘Must not the matter be agitated?’ (Cic. Verr. 2.5.179)

Moreover, in constructions involving gerundives, a specific modal meaning expressing the speaker’s stance is found, indicating necessity for the event to happen in the future, i.e. an event that should or ought to be carried out (cf. also Danesi, Johnson & Barðdal 2016).

Gerundives can occur with a single argument in the nominative as in (1) above, with a single argument in the dative as in (2a) below, or with multiple arguments, of which one may be the nominative and the other dative as in (2b) below. These last two will be referred to with the combined label of GER+(NOM+)DAT construction in the remainder of this article (for a discussion of different subconstructions of the more schematic GER+(NOM)+(DAT) construction, see Section 4.1 below).

- (2) a. Latin
 alieno more vivendum est **mihi**
 of.another.ABL manner.ABL live.GER.NEUT be.PRES.3SG me.DAT
 ‘I must live according to the mood of another’ (Ter. *And.* 1, 1, 125)
- b. Latin
 Haec precipua colenda est **nobis**
 this.NOM.F especially cultivate.GER.NOM.F be.3SG we.DAT
 ‘This virtue we must especially cultivate’ (Cic. *De Or.* 2. 148)

While the relationship between the different subconstructions of the GER construction are certainly of linguistic interest, we focus on the constructions with a dative argument (2a–b) in this article.

The GER constructions all express deontic modality, involving notions like duty, obligation, prohibition, and permission. Expressions of deontic modality typically

evaluate the content of an utterance, based on the judgment of an individual or some moral/social convention (cf., for instance, Palmer 2001). Such utterances differ from epistemic expressions, which instead evaluate a statement's truth validity. Both types of modal expressions, deontic and epistemic, share the same structure throughout the Indo-European language family (Hettrich 1990: 64ff).

While the constructions described above have traditionally been analyzed as passive-like, and following this, the dative has been analyzed as a demoted agent, we argue that both the modality and the dative argument's semantic role is a property of the construction as a whole, a construction which we analyze as a sub-type of the ordinary *Oblique Subject Construction* which is found more widely across the Indo-European language family (cf. Conti 2009, Luraghi 2010, Barðdal et al. 2012, 2013, Dahl & Fedriani 2012, Matasović 2013, Danesi 2014, Fedriani 2014, Viti 2016, inter alia).

Given the occurrence of the GER+(NOM+)DAT construction across six different Indo-European languages (and five different branches) and its categorization as an oblique subject construction, such a construction can and should be reconstructed for Proto-Indo-European. However, in the field of historical linguistics, syntactic reconstruction is only just beginning to receive due attention, as up until the mid-1990s, such a task was met with severe skepticism. Unlike the lexicon, syntax does not provide well-defined entities for comparison. The Comparative Method operates on the principle that units that are to be compared, i.e. *comparanda*, are arbitrary pairings of form and meaning which, as such, must be directly inherited from an earlier proto-stage. Since syntactic structures are traditionally considered to lack a meaning component of their own (for claims to that effect and a criticism thereof, see Harrison 2003 and Klein 2010, respectively), identifying cognate entities seems like an unattainable enterprise (see however Barðdal & Eythórsson 2017). Consequently, syntactic structures were largely excluded from historical-comparative frameworks, except, perhaps, as an extension of lexical reconstruction in instances of "archaic" frozen syntax (Watkins 1976, Jeffers 1976, Winter 1984, among others).

During the last two decades or so, syntactic reconstruction has been a field coming into its own, in contrast to historical-comparative research for the last 150–200 years which has more or less focused on lexical and phonological reconstruction. Three different schools of research on syntactic reconstruction can be identified within historical linguistics today (cf. Eythórsson & Barðdal 2016). These are:

- the traditional Indo-Europeanist school (for instance, Lühr 2008, Hock 2013, Keydana 2013, Kulikov & Lavidas 2013, Cotticelli Kurras & Rizza 2013, Viti 2014)
- the generativist school (Hale 1987a–b, Garrett 1990, Willis 2011, Walkden 2014)
- the construction grammar school (Barðdal & Eythórsson 2012a–b, 2017, Barðdal 2013, 2015, Barðdal & Smitherman 2013, Barðdal et al. 2013, Danesi et al. 2017).

The problem for the first two strands of research above is that these are not necessarily well equipped for the enterprise of carrying out syntactic reconstruction; the Indo-European paradigm lacks a formal representational system to model its reconstructions, while the representational system of the generative paradigm is not built to adequately explicate the meaning part of the form-meaning correspondences underlying the use of the Comparative Method.

We argue, in line with the nascent but ever-growing research interest in syntactic reconstruction, that comparison among syntactic structures and subsequent

reconstruction is possible and worth more attention, following Harris & Campbell (1995), Gildea (1998), Kikusawa (2002), Bowern (2008), Barðdal & Eythórsson (2012a–b), Barðdal (2015), Barðdal et al. (2013) and Eythórsson & Barðdal (2016). More specifically, we argue that on a Construction Grammar analysis, the GER+(NOM+)DAT structure must be regarded as a construction, i.e. a form–meaning pairing of its own, resulting in the dematerializing of the *comparanda* problem for syntactic reconstruction, as there is no meaningful difference between the syntax and lexicon modules in that framework. That is, since constructions are form–meaning correspondences in synchronic Construction Grammar, the leap to historical form–meaning correspondences is minimal. Construction Grammar, in addition, disposes of a comprehensive representational formalism in which all aspects of grammar can be explicated, in turn allowing for the precise modeling of the form–meaning correspondences needed to lay out the details of an unabridged reconstruction.

Moreover, the strength of our reconstruction is bolstered by the fact that the structures in (2) share important morphosyntactic *and* semantic properties; at the very least, such forms are not ordinary passives in each language and thus cannot be derived by extending the passive analysis. In other words, such structures are *exceptional* with regard to the morphosyntax (in the expression of modality) and the syntax (in the use of a non-canonical argument structure) of the language, as well as being semantically *specific* in their meaning. The modal meaning entailed by the verbal adjective further motivates the argument structure of this construction, i.e. the use of the dative case for the so-called “agent”. In contrast, the alleged demotion of an agent of a passive does neither provide a satisfactory account of the argument structure of the GER construction nor of this particular use of the dative case.

In this article we thus propose a construction of the type GER+(NOM+)DAT for Proto-Indo-European that expresses deontic modality of obligation/necessity through the combination of a verbal adjective and a dative argument. While Hettrich (1990) proposes that the “dative of agent” continues a Proto-Indo-European construction, we refine his analysis to more accurately accommodate the facts of the data, which are neither consistent with a passive reading of the gerundive, nor, following from the passive reading, an independent agent reading of the dative argument. However, unlike Luraghi (2016), we take the function of the dative in the individual languages to be inherited from Proto-Indo-European, rather than involving parallel independent developments of the beneficiary function of the dative evolving into the obliged referent in modal contexts in as many as five branches of Indo-European.

In Section 2 we present the facts of the GER+(NOM+)DAT construction across Latin, Greek, Sanskrit, Avestan, Tocharian, and Lithuanian. We compare these facts with the traditional analysis in Section 3, showing that they are indeed incompatible with a traditional passive analysis, although we argue, like Hettrich but contra Luraghi, that such a construction can be reconstructed, albeit in a different manner. We also argue against two additional analyses suggested in the literature, namely the possessive and the benefactive analyses. In Section 4 we propose instead a novel reconstruction of the GER+(NOM+)DAT that aligns the construction with ordinary oblique subject constructions observed across the early Indo-European daughter languages. Our analysis is presented in Sign-Based Construction Grammar, employing the SBCG formalism. Finally, Section 5 contains a summary of the content and conclusions of this article.

2. Gerundives in six early/archaic Indo-European languages

In this section we investigate gerundives and their characteristics in Latin, Ancient Greek, Sanskrit, Avestan, Tocharian, and Lithuanian, respectively. These languages are chosen first and foremost because they all have a verbal adjective that combines with a dative argument, but fortuitously they also span the traditional east–west division within Indo-European dialectology, which in turn lends support to the reconstruction for Proto-Indo-European that we propose in Section 4 below. Furthermore, the first five languages are considered either “classical” or “ancient” Indo-European languages while the last, Lithuanian, is regarded as particularly conservative; the characterization of the languages as more ancient or conservative also serves as a point of departure for the proposed reconstruction in Section 4.

Traditionally, gerundives are referred to as “future passive participles”, cf. the early grammar handbooks, e.g. Smyth (1963: 81) on Greek, where this form is labeled as the “future passive participle” and Macdonnell (1916: 186) specifically on Vedic Sanskrit, where the terms “gerundive” and “future passive participle” are used interchangeably. The term “future passive participle” is still used in recent studies on the gerundive in classical languages, e.g. Jasanoff (2006: 195). Also, the term “dative of agent” is used to describe a dative argument with passive forms in, for instance, Goodwin (1900: 252). Hence, the traditional analysis of gerundives is indeed that of a passive, though Goodwin (1900: 252) notes that this dative, in Greek at least, is also used to indicate the “agent’s interest in the result of the completed action ...”.

We take issue with the passive analysis of the GER+(NOM+)DAT construction and show below that agents of passives are generally not marked with a dative case in the six languages discussed, but with other morphosyntactic means, such as with instrumentals or prepositional phrases; this in turn rules out a passive analysis. Thus, we compare the use of the dative with the case marking of agents in passive constructions in the six languages discussed below.

In contrast, in each language discussed below, the GER+(NOM+)DAT construction expresses deontic modality, i.e. either obligation or necessity. The locus of modality is not attributable to any specific lexical item or category found in the construction, but rather must be attributed to the construction as a whole. That is, the GER+(NOM+)DAT construction is semantically non-compositional. We explore the nature of the non-compositionality of the GER+(NOM+)DAT construction in each of the languages under investigation in the following subsections (for a discussion of whether the modal meaning may be derived from the gerundive suffix, see Sections 3.1 and 4.1 below).

A note on terminology is in order here. As mentioned above, the dative argument is traditionally labeled “dative of agent” (cf. Green 1913, Hettrich 1990, 2014, George 2005, Luraghi 2016). In what follows, we argue that this label is not accurate, as a) agents are not typically dative in the languages described and b) the argument itself does not even express an agent. In order to avoid any potential terminological confusion accompanying the use of terms for established thematic roles in describing the dative in the GER+(NOM+)DAT construction, we prefer to use the term “protagonist” to portray the main participant of the verbal event. Our terminological choice highlights the fact that this argument is the focus of the intended action around which the event is framed, and, what is more, such a term is not inherently linked to any semantic or syntactic role or morphological case.

2.1 Latin

A major morphological characteristic of the GER+(NOM+)DAT construction is that the main participant, or the protagonist, of the verbal event is expressed in the dative case (Kühner & Stegmann 1955: 730, Menge 2000: 734). The examples in (3) show the GER+(NOM+)DAT construction with the so-called “dative of agent”, where the gerundive agrees with the (nominative) object of the verbal event, and not with the dative.

- (3) a. **Consolandus** **hic** **mihist**
 console.GER.NOM.M this.NOM.M me.DAT+be.PRES.3SG
 ‘I must console this man’ (Pl. *Bacch.* 625)
- b. **Caesari** **universa** **uno** **tempore**
 Caesar.DAT all.together.NEUT.PL one.ABL time.ABL
agenda **erat**
 do.GER.NEUT.PL be.IMPF.3SG
 ‘Caesar had to do all the things at one time’ (Caes. *Gall.* 2, 20)
- c. **gerendus** **est** **tibi** **mos**
 bear.GER.NOM.M be.PRES.3SG you.DAT custom.NOM.M.SG
adulescentibus, **Crasse**
 young.DAT.PL Crassus.VOC
 ‘You, O Crassus, must comply with the wishes of young men’
 (Cic. *De Or.* 1. 105)

The “dative of agent” also occurs in the construction without a nominative, as in (4), where the gerundive is in the default neuter form, the object is in the case required by the root verb when such a verb is transitive, and the protagonist of the event is in the dative:

- (4) **suo** **cuique** **iudicio** **est** **utendum**
 own.ABL each.one.DAT judgment.ABL be.PRES.3SG use.GER.NEUT
 ‘Each man must use his own judgment’ (Cic. *Nat. Deor.* 3.1.)

The dative argument is traditionally labeled “dative of agent” in Latin (see for example the classic school grammars by Allen & Greenough 1903: 233–234 and Bennett 1914: 166ff, the traditional grammar Leumann-Hoffman-Szantyr 1972: 96–97, and the recent typological/descriptive discussions such as Van Hoescke 2011: 15). However, as mentioned previously, this label is a misnomer—dative case is generally not used to express the agent in Latin. Rather, the agent of passives is regularly expressed by means of prepositional phrases, most commonly *a* or *ab*, together with a noun phrase in the ablative case, as shown in (5), or by the bare ablative if it denotes an inanimate referent.

- (5) **Pompeius ... a** **Catone** **aspere ...** **est** **accusatus**
 Pompey.NOM by Cato.ABL harshly be.PRES.3SG accused.PPP
 ‘Pompey was harshly accused ... by Cato’ (Cic. *Fam.* 1.5b)

The agentive phrase with *a/ab* and an ablative can co-occur with a gerundive, but only in order to avoid ambiguity in contexts in which the dative could also express a beneficiary argument, as in (6). The phrase *ab eo* is used in place of the dative *ei*, because in this context the utterance with the dative could mean ‘for him who ...’.

- (6) Supplicatio **ab** **eo** qui ante dixit
 supplication.NOM.F by him.ABL who.NOM before speak.PF.3SG
 decernenda non fuit
 decree.GER.NOM.F not be.PF.3SG
 ‘The supplication should not have been decreed by him who spoke before’
 (Cic. *Phil.* 14.11)

Thus, the “dative of agent” and the agentive prepositional phrase with *a/ab* are not interchangeable, although they show some functional similarities. Basic passive sentences select for the ablative case following a preposition, while gerundives select for datives. The differences in distribution of case markers for such “agents” across the two constructions is given in Table 1.

Table 1: The Distribution of Case Markers for “Agents” in the GER+(NOM+)DAT construction and the passive construction in Latin

	Gerundives	Passives
Latin	DAT	<i>a</i> +ABL <i>ab</i> +ABL ABL

Furthermore, the so-called “dative of agent” is restricted almost entirely to the GER+(NOM+)DAT construction. It is occasionally attested with perfect passive participles, but again, not for marking agentivity but to signal the non-agentive role of the protagonist (Gildersleeve & Lodge 1984). This is especially true when used in an adjectival sense, as in (7) below:

- (7) puella ... amata **nobis** quantum amabitur
 girl.NOM loved.PPP.NOM.F us.DAT as.much.as love.FUT.PASS.3SG
 nulla
 nobody.NOM.F
 ‘The girl [who was] loved by us as no one will be loved’ (Cat., VIII, 5)

In example (7), the dative with the past perfect participle *amata* ‘loved’ is semantically closer to an experiencer, rather than an agent, in that it denotes the person who feels love for the girl and to whom the girl is dear. In that sense, this is not an example of the GER+(NOM+)DAT construction expressing obligation or necessity.

Hence, we argue that the dative that occurs in the GER+(NOM+)DAT construction has been improperly labeled as “dative of agent”. This dative designates the main participant of the verbal act, the protagonist, who is *affected* by the obligation, necessity, or desire to perform the event denoted. It is neither a possessor, experiencer nor beneficiary.

To summarize the content of this section so far:

- Latin gerundives have a modal meaning of obligation and/or necessity;
- Latin has a specific device, i.e. the dative case, for marking the protagonist of events denoted by these gerundives;
- The dative is not a general device for marking the agent in Latin.

To conclude, the GER+(NOM+)DAT construction is not interchangeable with a passive construction.

Instead, the dative in the Latin GER+(NOM+)DAT construction is semantically more similar to the subject-like dative of modal predicates, e.g. *oportet* ‘it is necessary’, *licet* ‘it is permitted’, *necesse est* ‘it is necessary’, *opus est* ‘it is necessary’, etc., where an *a/ab* phrase containing the demoted agent is also excluded. That is, the dative can only occur as a direct argument of the predicate in such examples in Latin, without being intermediated by a preposition. Compare the dative usage in the GER+(NOM+)DAT constructions above with that of the dative argument in (8) below:

(8)	huius	nobis	exempla	permulta	opus
	this.GEN	us.DAT	examples.NOM	very.many.NOM.PL	need.NOM
	sunt				
	be.PRES.3PL				
	‘We need very many examples of this’ (Cic. <i>Inv.</i> 2. 19. 57)				

In example (8), the dative argument *nobis* ‘us’ is more subject-like from a semantic standpoint than the nominative argument *exempla* ‘examples’, in spite of the fact that *exempla* has the canonical subject case marking, nominative. That is, the participant who feels need, the protagonist, is in the dative case, and the object of the needing event is in the nominative case. The verbal predicate in (8) is compositional, namely *opus sunt* ‘be in need’, which may be an intransitive/one-place predicate, occurring only with a nominative subject, or a transitive/two-place predicate, occurring with two arguments, i.e. a dative subject and a nominative object (for further discussion on such alternations, see Section 4.1 below). This is exactly parallel to the case marking of the arguments of the GER+NOM+DAT construction where the dative marks the obliged participant, the protagonist, and the nominative marks the object of the obligation. The similarity between these two constructions is striking and forms the basis of our analysis in Section 4 below.

2.2 Greek

The analogous Ancient Greek form corresponding to the Latin gerundive is the verbal adjective in *-τέος*. As in Latin, this form expresses necessity and the participant who is obliged to perform the event, the protagonist, is expressed with the dative case, exactly as in Latin. The examples in (9) below exemplify this use of the dative in the GER+(NOM+)DAT construction where the gerundive agrees with the nominative object of the verbal predicate and the protagonist is marked in the dative case.

- (9) a.

ώφελητέα	σοι	ἡ	πόλις
serve.GER.NOM.F	you.DAT	the.NOM.F	city.NOM.F
έστί			
be.PRES.3SG			

‘you must benefit the city’ (Xen. Mem. 3.6.3)
- b.

ἡμῖν ...	πάντα	ποιητέα
us.DAT	all.NEUT.PL	do.GER.NEUT.PL

‘We must do everything’ (Xen. An. 3, 1, 35)
- c.

ποταμός	δ’	εἰ	μέν	τις	καὶ
river.NOM	PTC	whether	PTC	PRON.NOM	and
ἄλλος	ἄρα	ἡμῖν	έστι		
another.NOM	PTC	us.DAT	be.PRES.3SG		
διαβατέος	οὐκ	οἶδα			
cross.GER.NOM	not	know.PERF.1SG			

‘Whether we must cross any other river I do not know’ (Xen. An. 2, 4, 6)

In contrast, the examples in (10) illustrate the so-called “dative of agent” in the construction without a nominative:

- (10) a.

φημι		δὴ	διχῆ	βοηθητέον	εἶναι
say.PRES.1SG	PTC	in.two.ways		assist.GER.NEUT	be.INF
τοῖς	πράγμασιν	ὑμῖν			
the.DAT.PL	act.DAT.PL	you.DAT.PL			

‘I say that you must give assistance to the circumstances in two ways’
(Dem. 1. 17)
- b.

οὔτε	μεθεκτέον	τῶν	πραγμάτων
and.not	have.a.share.GER.NEUT	the.GEN.PL	government.GEN.PL
πλέοσιν	ἢ	πεντακισχιλίους	(εἶη)
more.DAT.PL	than	five.thousand.DAT.PL	be.OPT.3SG

‘And no more than five thousand should have a share in the government’
(Thuc. 8. 65)
- c.

τὸν	θάνατον	ἡμῖν	μετ’	εὐδοξίας
the.ACC	death.ACC	us.DAT	PREP	honor.GEN
αἰρετέον	έστί			
choose.GER.NEUT	be.PRES.3SG			

‘We must choose the death with honor’ (Isoc. 6. 91)

Unlike Latin, the GER construction in Greek sometimes has an accusative argument in place of the dative, shown in (11) below:

- (11)

ίτεον	ἄν	εἶη	θεασομένους,	ἔφη
go.GER.NEUT	PTC	be.OPT.3SG	look.on.ACC.M.PL	say.AOR.3SG
ὁ	Σωκράτης			
the.NOM	Socrates.NOM			

‘Socrates said: “We should go and see”’ (Xen. Mem. 3.11.1)

However, neither the accusative nor the dative are the ordinary cases of a demoted agent of passives in Ancient Greek. Rather, demoted agents are usually expressed by means of prepositional phrases, mainly *ὑπό* + genitive, as shown in (12).

- (12) ὑπ' Ἀχαιῶν/ ροτροπάδην φοβέοντο μελαινάων ἀπὸ
 by Achaens.GEN with.headlong.speed fear.3PL black.GEN.PL away
 νηῶν
 ships.GEN
 'By the Achaeans they were put to flight with headlong speed, away from the
 black ships' (Hom. *Il.* 16.304)

In fact, the accusative is *never* used to express an agent, and the “dative of agent” has a very limited distribution in Ancient Greek (see also Barðdal & Danesi 2014). There are sporadic attestations found in Homer, as example (13) shows.

- (13) ἀνάσσονται δ' ἑμοὶ αὐτῷ
 rule.PRES.MP.3PL PTC me.DAT self.DAT
 '(The cities) are ruled by myself' (Hom. *Od.* 4.777)

And after Homer, this usage of the dative occurs almost exclusively with the perfect and pluperfect passive, cf. example (14).

- (14) πολλὰί θεραπεῖαι καὶ παντοδαπαὶ τοῖς
 many.NOM cures.NOM and of.every.kind.NOM the.DAT
 ἰατροῖς εὔρηται
 physicians.DAT find.PERF.MP.3PL
 'Many and various cures have been discovered by the physicians' (Hip. 8.39)

It has been argued that this anomalous use of the dative in the passive may have arisen with the perfect because the perfect is stative and not eventive. The perfect would then form an opposition with the present and the aorist which are eventive and dynamic and mark the agent in the nominative case (George 2005: 79ff; on the expression of the agent in Ancient Greek, see Luraghi 1986, 1995, 2000, Conti 1999, among others). See also Daues (2006) on the mediopassive in Homeric Greek where passives are analyzed as being functionally “extreme middles”. This entails that the reading of the mediopassive as either passive or middle is derived from the transitivity of the lexical verb. On such an analysis, the dative in (13–14) could be an extension of the dative in Dat-Nom constructions with middle verbs. However, irrespective of how this aberrant use of the dative for demoted agents arose, this is not a productive pattern in Ancient Greek.

The differences in distribution of case markers for “agents” across the GER+(NOM+)DAT construction and the passive in Ancient Greek is given in Table 2.

Table 2: The Distribution of Case Markers for “Agents” in the GER+(NOM+)DAT construction and the passive construction in Ancient Greek

	Gerundives	Passives
Ancient Greek	DAT ACC	ὑπό+GEN DAT (sporadic in Homer)

To summarize, the behavior of the gerundive in Ancient Greek is very similar to the behavior of the gerundive in Latin. The combination with dative and the fact that the gerundive itself is indifferent to voice suggest that the GER+(NOM+)DAT construction should not be analyzed as a passive construction at all. Again, the dative argument in the GER+NOM+DAT construction is not an agent, as traditionally argued, but is instead similar to the subject-like dative found in constructions with modal predicates, e.g. μένει ‘it remains’ as in (15) below.

- (15) τοῖς πᾶσιν ἀνθρώποισι κατθανεῖν μένει
 the.DAT.PL all.DAT.PL men.DAT die.AOR.INF remain.PRES.3SG
 ‘All men are expected to die’ (Eur. Fragments 733; Stob. Flor. 124. 29)

The verb μένει means ‘to be doomed to do something’ when occurring with a dative and infinitive; ἀνάγκη ἐστί means ‘it is necessary’ or ‘to be obliged to do something’ when occurring with a dative and an infinitive, and likewise χρή ἐστί means ‘there is need’ or ‘to have the need to do something’ when it occurs with an accusative and an infinitive, and finally ἐπαμμένει means ‘it awaits’ or ‘to be destined to do something’ when occurring with a dative and an infinitive. In ordinary finite uses without the dative, the verb μένει simply means to ‘remain’:

- (16) στήλη μένει ἔμπεδον
 stone.NOM.SG remain.PRES.3SG in.the.ground
 ‘stone remains in the ground’ (Il.17.434)

The modal meaning is therefore not an inherent part of the meaning of this lexical item, but is only found when this verb is used with a dative combined with an infinitive, which in turn shows that both the modal meaning and the dative come from the construction itself. It is well known that modal constructions often have dative subjects and this is certainly the case in Ancient Greek (cf. Danesi, Johnson, & Barðdal 2016).

In addition, Greek grammar handbooks (cf. Goodwin 1900, Smyth 1963) agree that the gerundive is *interchangeable* with the impersonal δεῖ ‘there is need’ together with an infinitive, as shown in example (17) below:

- (17) θεοῖσι προσβαλεῖν χθονί/ ἄλλην δεήσει
 gods.DAT put.to.INF hearth:ACC other.ACC.SG be.needful.FUT.3SG
 γαῖαν
 world.ACC
 ‘The gods will have to add another earth to our world’ (Eur. Hipp. 941)

- (e) The suffix *-tavyà*; gerundives in *-tavyà* begin to appear only in the Atharvaveda. They are probably derived with the suffix *-ya-* added to an infinitival noun in *-tu*, e.g. *jan-i-tavyà-* ‘to be born’, *hiṃs-i-tavyà-* ‘to be injured’.
- (f) The suffix *-anīya*; gerundives in *-anīya* also begin to appear in the Atharvaveda. They are derived with the suffix *-īya* added to a nominalized verb in *-ana*, e.g. *ā-mantr-anīya-* ‘worthy to be addressed’ *ā-mántr-aṇa* ‘the act of addressing someone’

Although the GER+(NOM+)DAT construction is passive-like in the sense that it shows orientation towards the patient—the gerundive agrees with the *patient*, not the agent, of the event—Hock (1985–1986) argues that it is inexact to assume a passive value for the early Vedic gerundive, and we indeed concur with Hock. In the Ṛgveda the gerundive is patient-oriented with transitive verbs, while with intransitive verbs gerundives show no passive syntax, and are referred to as “active gerundives” by Hock (1985–1986) who also observes that both constructions continue to be used until the time of Pāṇini, although the patient-orientation pattern had become more regular.

Turning now to the “agent” of the event expressed by the gerundive, it may be realized in the dative, instrumental, or genitive. The dative with the gerundive is attested only in the Ṛgveda. This dative argument has been described as one of “agency” in the literature (Delbrück 1888: 396ff, Brugmann-Delbrück 1893–1911: II/2, 558–559, Green 1913: 52ff). Classical examples of this usage are given in (19).

- (19) a. **údyata-sruce** bhavasi śraváyyaḥ
 raised-ladle.DAT be.PRES.2SG invoke.GER.NOM.SG.M
 ‘You (Agni) are to be invoked by him who lifts the ladle’ (RV I 31, 5b)
- b. dakṣáyyo yó **dásvate**
 satisfy.GER.NOM.SG.M REL.NOM.SG.M sacrificer.DAT
 dáma á
 house.LOC PTC
 ‘He who is to be satisfied by the sacrificer in his house’ (RV II 4, 3d)

With respect to the distribution of the “agent” cases, Hettrich (2014) has recently shown that the instrumental is typically used in the realis mood, the dative is preferred in other moods, and the genitive occurs typically with participles without being particularly associated with deontic modality. It is well known from Indo-Aryan studies that the genitive invades the territory of the dative in both Sanskrit and Avestan (cf. Joseph 2012, 2013), and that the genitive takes over the functions of the dative in ditransitive constructions, as well as in oblique subject constructions. Whether or not the variation between the dative and genitive in GER constructions is a part of this general development cannot be ruled out.

Turning to passive clauses, the instrumental is the most frequently used case marker of the agent in passives in Sanskrit, although the genitive, and in a few cases the ablative, are also found (see Jamison 1979, Andersen 1986, Luraghi 1986, Hettrich 1990, Oberlies 2003, Lühr 2004).

- (20) a. uṣá ucchántī ribhyate vásiṣṭhaiḥ
 Uṣas.NOMshining.PART.PRS.F.SG rasp.to.PRES.PASS.3SGVasiṣṭha.INS.PL
 ‘The shining Uṣas is being rasped to by the Vasiṣṭhas’ (RV VII 76, 7b,
 translation after Jamison 2000 and Kulikov 2012: 498–499)
- b. patyuḥ krītā
 husband.GEN.SG.M buy.PPP.NOM.SG.F
 ‘bought by her husband’ (MS I. 10. 11; Jamison 1979: 133)
- c. tvat-to vā tava vāmātyair bhidyate jātu
 you-ABL or your or.ministers.INS keep.secret.PRES.PASS.3SG always
 mantritam
 advice.NOM
 ‘Is [your] advice always kept secret by yourself or by your ministers?’
 (MBh 2.5.14, cited from Oberlies 2003: 103)

However, a dative encoding of the agent of passives is unattested in the *Ṛgveda*: Delbrück (1893/I: 300) notes that he has been unable to find the “dative of agent” with a finite passive verb. The only evidence for a dative of agent in Vedic are cases where the agent is realized by a clitic personal form, as in example (21); in such cases, the dative and genitive are syncretically encoded and thus the form is not unambiguously dative.

- (21) mátsy ápāyi te
 rejoice.AOR.2SG.IMPER drink.AOR.PASS.3SG you.DAT/GEN
 mádaḥ
 exhilarating.drink.NOM
 ‘Enjoy! You have drunk the exhilarating drink’ (RV I 175 1a; Gaedicke 1880: 134)

Other instances of the “dative of agent” can rather be interpreted as a benefactive dative, as in example (22), where the clitic pronoun *me* ‘me’, already ambiguous between dative and genitive, can be interpreted either as an experiencer/beneficiary, as in Geldner’s translation, or as an agent (Havers 1911: 10). Geldner’s translation also captures the fact that morphological passives of verbs of perception normally change their meaning to anticausative, instead of the expected passive meaning (cf. Kulikov 2011).

- (22) prá me pánthā deva-yānā adṛśrann
 PTC me.DAT/GEN path.NOM.PL god-going see.AOR.PASS.3PL
 ‘For/to me the paths leading to the Gods have become visible’ (benefactive, after Geldner 1952–1957), or: ‘By me the paths leading to the Gods were seen’ (agent, after Havers 1911: 10) (RV VII 76, 2)

Likewise, in (23), the dative *mānuṣāya* ‘man(kind)’ is interpreted as a dative of interest by Delbrück (1888: 145), while Gaedicke (1880: 134) admits to the possibility of reading *mānuṣāya* as a dative agent: ‘die Götter sind gepriesen dem Menschen = es preist der Mensch die Götter’.

- (23) devá stavante mánuṣāya sūrāyaḥ
 god.NOM.PL praise.PRES.3PL.MID man.DAT lords/benefactors.NOM
 ‘Gods are praised as lords/benefactors for men’ or:
 ‘Gods are praised by men as lords’ (RV 10, 65, 4d)

In sum, the canonical cases for the expression of agents of passives are the genitive and the instrumental, although some examples of ablatives are also found. The dative, however, is confined to gerundives, i.e. the GER+(NOM+)DAT construction, and this construction is documented only in the Ṛgveda. In later texts it is unattested. Indeed, the combination of the gerundive with the dative, along with the fact that the gerundive itself is neither active nor passive, suggests that the construction should not be analyzed as a passive construction. The differences in distribution of case markers for “agents” across the GER+(NOM+)DAT construction and the passive is given in Table 3.

Table 3: The Distribution of Case Markers for “Agents” in the GER+(NOM+)DAT construction and the passive construction in Sanskrit.

	Gerundives	Passives
Sanskrit	DAT (only in RV) INS GEN	INS GEN (ABL)

Gerundives share with passives the fact that they are patient-oriented, namely, they mark the patient of the event (or the goal in the case of motion verbs) with the nominative, but they differ from passives in that active gerundives are attested at least in the Ṛgveda. Furthermore, gerundives cannot be considered functionally identical to passives in that they possess a specific semantic value of necessity and obligation, which is absent from ordinary passives (Hock 1983).

To summarize the content of this section so far:

- Sanskrit gerundives have a modal meaning of obligation and/or necessity;
- Sanskrit has a specific device, i.e. the dative case (in addition to the genitive and instrumental), for marking the protagonist of the event denoted by these gerundives;
- The dative is not a general device for expressing the agent in Sanskrit.

To conclude, exactly as in Latin and Ancient Greek, the GER+(NOM+)DAT construction is not interchangeable with a passive construction in Sanskrit.

2.4 Avestan

The Avestan situation is, perhaps unsurprisingly, quite similar to the one in Vedic Sanskrit. Avestan gerundives are primarily formed with the suffix *-θa-* (*yuxθa-* ‘to be harnessed’), *-θβa-* (*staoθβa-* ‘to be praised’), or *-iia-* (*yesniia-* ‘worthy of sacrifice’) (Skjærvø 2003: 130–131). These suffixes convey the following related meanings: a) the event expressed by the verb must be carried out, b) is allowed to occur, or c) is worthy

of being carried out (Kanga 1891: 267). Avestan gerundives are patient-oriented but also neutral with respect to voice; they can be interpreted as active or passive depending on the context. The deontic modality reading, however, is unassailable in such examples (see below).

As in Latin, Greek, and Vedic Sanskrit, the protagonist of the GER+(NOM+)DAT construction is regularly expressed in the dative, as show in (24) below (cf. Skjærvø 2003: 132):

- (24) a. yesniiam. Aṇuhe. **astuuaitē.**
to.be.adored.ACC existence.DAT bony.DAT
‘(Ardvi Sura Anahita) is to be adored by the Bony Existence’ (Yt. 5.1)
- b. tāca. Vohū ... yā. ...
these.NEUT goods.NEUT which.NEUT
frāīiaštūua. **naire.** ašaone.
to.be.worshipped.NEUT.PL man.DAT faithful.DAT
‘(We sacrifice to) all these good things which are to be worshipped by the faithful man’ (Yt. 13. 153)
- c. aguštā. vacā. sānghāmahī.
not.to.be.heard.NEUT.PL words.NEUT.PL proclaim.PRES.1PL
aēibiio.
those.DAT
‘We proclaim words to not be heard by those’ (Y.31.1)

The agent of passives, however, is consistently expressed with the instrumental in Avestan, as shown in (25) below (cf. Jamison 1979: 129ff.):

- (25) a. **yāiš.** gərəhmā. ašaṭ.
REL.INS.PL Grehma.and.his.people.NOM.PL Right.ABL.SG
varatā.
prefer.AO.INJ.M.3SG
‘By whom Grehma with his people was preferred to the Right’ (Y. 32, 12)
- b. parštēm. zī. **θβā.¹**
asked.PPP.NEUT. PTC you.INS
‘(The question) asked by you’ (Y. 43. 10)

The agent may also be expressed with the genitive, as in example (26); this occurs in particular with the verbal participle in *-ta-* (cf. Reichelt 1909: 259, Jamison 1979: 129 ff.).

¹ The Avestan form *θβā* is syncretic with the accusative. Jamison (1979: 138), however, reports that Humbach translates this as a true instrumental agent, while Insler (1975) suggests “asked of you by us”. We follow Humbach’s and Jamison’s analysis of *θβā* as instrumental, as it is unclear to us how a past participle could select for an accusative object or how such an accusative should be interpreted semantically.

- (26) a. kahe. nō. iða. naṃa.
 PR.INT/INDEF.DAT.SG us.GEN here name.NOM
 āyairiiāṭ.
 praise.3SG.INJ.P
 ‘By whom will our name be praised’ (Yt. 13, 50; Reichelt 1911:117)
- b. fraṅrasiiānəm ... pairiṣṣvaxtəm. aiiṅhahe.
 Frangrasyan.ACC surround.PPP.ACC.M.SG iron.GEN
 ‘Frangrasyan who was surrounded by iron’ (Y. 11, 7; Reichelt 1911:171)

The use of the dative, however, appears to be restricted to the gerundive. There are sporadic and doubtful occurrences of the dative with the past passive participle in *-ta-*, as in example (27). However, the function of the dative is actually ambiguous here. It could be read as a “dative of agent” (‘conceived by another man’), but it is more likely a dative of interest (‘conceived to/for another man’).

- (27) yā aom puθrəm. baraiti.
 REL.NOM.F.SG there child:ACC bring.PRES.3SG
aniiahmāi. aršānāi. varštəm.
 another.DAT man.DAT produce.PPP.ACC.M.SG
 ‘She who brings the child conceived by another man’ or: ‘conceived for another man’
 (Yt. 17. 58)

The combination of the gerundive with dative, together with the fact that the gerundive itself is neither active nor passive, suggests that the Avestan example in (27) should not be analyzed as a passive construction. Gerundives share with passives the fact that they are patient-oriented, but they differ from passives in that they are neutral with respect to voice and, in addition, possess a specific semantic value of necessity and obligation, which is not an inherent part of passives.

The differences in the distribution of case markers for “agents” across the GER+(NOM+)DAT construction and the passive is given in Table 4.

Table 4: The Distribution of Case Markers for “Agents” in the GER+(NOM+)DAT construction and the passive construction in Avestan.

	Gerundives	Passives
Avestan	DAT	INS GEN

This section has illustrated the use of gerundives in Avestan, showing that:

- Avestan gerundives have a modal meaning of obligation and/or necessity;
- Avestan has a specific device, i.e. the dative case, for marking the protagonist of the event denoted by these gerundives;
- The dative is not a general device for expressing the agent in Avestan.

In sum, exactly like in Latin, Ancient Greek, and Sanskrit, the combination of the dative and the gerundive is not interchangeable with a passive construction.

2.5 Tocharian

In both Tocharian A and B, an *l*-suffix is used to derive gerundives, either from present stems (Gerundive I) or from subjunctive stems (Gerundive II). Gerundive I expresses necessity, while Gerundive II expresses possibility. Both can be employed attributively or predicatively. In the latter case, the copula in the present can be omitted (Bubenik 1997: 139). Gerundive I corresponds in many respects to Latin and Greek gerundives, but Gerundive II is less comparable with the other Indo-European gerundives: it is a secondary derivation (from the subjunctive stem) and specifically grammaticalizes the meaning of potentiality.

For Gerundive I in Tocharian, the verbal argument that refers to the protagonist is assigned genitive case, as in the examples in (28) below. This is unsurprising given the fact that in Tocharian the genitive has taken over the functions of the dative (cf. Krause & Thomas 1960: 82, Adams 2011).

- (28) a. **kũse** **wesāñ** tannem yamaşälle
 what.NOM.M=N we.GEN thereby do.GER.NOM.M.SG
 ‘Thereby what should we do?’ (Toch. B: Š 102.6a5; Werner 1951: 20)
- b. **sañkästeryāñce** trānkäl
 Sañghasthavirī.GEN.F.SG speak.GER.NOM.M.SG
 ‘Sañghasthavirī must speak’ (Toch. A: Nr. 414a1; Werner 1951: 19)

In Gerundive II, like in Gerundive I, the protagonist of the event is marked in the genitive case:

- (29) a. **wsālu** **yetweyntu** waşlam **şeñc-ām**
 clothes.NOM.PL decoration.NOM.PL.F cover.GERII.NOM.PL.F them.GEN
 ‘They can wear clothes and decorations’
 (Toch. A; Krause & Thomas 1960/I: 187)
- b. --- **wrasaśşi** mā kālpāl naş
 man.GEN.PL not reach.GERII.NOM.M.SG be.PRES.3SG
 ‘--- men cannot reach/ ---is not reachable by men’
 (Toch. A: Nr. 14b3; Werner 1951: 30)

The genitive is one of the cases used for the agent in Tocharian, although this use is restricted to particular linguistic contexts, mainly found with non-finite verb forms, i.e. preterite participles, gerundives, and infinitives, and very rarely with finite passive forms (Krause & Thomas 1960: 82–83). Hence, the genitive is used to mark the agent in passive-like constructions in Tocharian, but not in the passive proper. Furthermore, the infinitive is almost interchangeable with the gerundive of necessity (Bubenik 1997: 137), cf. example (30) below:

- (30) te päkşälle şälype lipätsi
 this.NOM cook.GER.NOM fat.NOM remain.INF
 ‘This has to be cooked, the fat (must) remain’ (Krause & Thomas 1960: 184)

As for preterite participles, since they are unmarked for voice, an active interpretation has been proposed in those cases where the agent is expressed (Bubenik 1997: 136), as in (31) below, although other readings are also plausible:

- (31) ñi se pilko ste
 I.GEN this.NOM.SG.M sight.NOM.SG.M view.NOM.SG.M
 prākr=eñku
 be.PRES.3SG=firmly+seize.PART.PRET.NOM.M.SG
 ‘I have firmly adopted this view’ (Bubenik 1997: 136) or ‘This view of mine is firmly adopted’ or ‘As for me, this view is firmly adopted’

The genitive therefore has a limited distribution in Tocharian constructions, while the cases commonly employed to mark the agent in passive constructions are the perlative and the instrumental. Tocharian B uses the perlative in all contexts since it lacks an instrumental case, while Tocharian A uses the perlative with animate agents and the instrumental with inanimate agents, as in (32) below:

- (32) mā **poryo** tskāmsamtär ...
 not fire.INS.SG burn.PRES.MID/PASS.3PL
 mā **lāñcsā** pārtsi yāteñc
 not king.PERL.PL take.away.INF can.PRES.3PL
 ‘They cannot be burnt by the fire ... they cannot be taken away by the kings’
 (Krause & Thomas 1960: 82–83, Bubenik 2006: 319)

It is clear from this overview that Tocharian is quite similar to the other Indo-European languages examined. The only difference is that the “agent” of gerundives in Tocharian is not marked with the dative but with the genitive. However, since the dative and the genitive merged in Tocharian and the genitive form replaced the dative form, it appears reasonable to assume that the “genitive of agent” continues an earlier “dative of agent” construction. The differences in the distribution of case markers for “agents” across the GER+(NOM+)DAT construction and the passive are given in Table 5.

Table 5: The Distribution of Case Markers for “Agents” in the GER+(NOM+)DAT construction and the passive construction in Tocharian.

	Gerundives	Passives
Tocharian	GEN	PER INS (only in Tocharian A)

In sum, Tocharian gerundives have a modal meaning of obligation and/or necessity and seem to be neutral with respect to voice (their interpretation depends on the context). Tocharian has a specific device, i.e. the genitive, for expressing the so-called “agent” of these gerundives. The genitive, as a means of expressing the agent in Tocharian, has a limited distribution, as the canonical marking of the agent in passive constructions involves the perlative and the instrumental.

This section has illustrated the use of gerundives in Tocharian, showing that:

- Tocharian gerundives have a modal meaning of obligation and/or necessity;
- Tocharian has a specific device, i.e. the genitive case, for marking the protagonist of the event denoted by these gerundives;
- The genitive is not a general device for expressing the agent in Tocharian;
- The genitive has also taken over the functions of the dative, which disappeared in Tocharian.

Exactly like in Latin, Ancient Greek, Sanskrit and Avestan, the combination of the genitive and the gerundive is not interchangeable with a passive construction in Tocharian.

2.6 Lithuanian

Lithuanian grammars list the “participle of necessity” among its past participles (Kurschat 1876: 286, Schleicher 1896: 100, Leskien 1919: 201, Senn 1966: 380, Ambrazas 1997: 328). This participle is often compared to the Latin and Greek gerundive (e.g. Leskien 1919: 189; Senn 1966: 380), and they turn out to be very similar indeed. The Lithuanian participle of necessity is a verbal adjective derived from the infinitival stem with the suffix *-tinas*. It occurs with both transitive and intransitive verbs, expresses necessity, and can be employed attributively or predicatively.

The protagonist, the participant obliged to carry out the event denoted by the gerundive, is assigned dative case, cf. (33).

- (33) a. tiẽ mėtai yrà **visiems**
 that.NOM.PL.M year.NOM.PL.M be.PRES.3SG all.DAT.PL
 atminti
 remember.GER.NOM.PL.M
 ‘Everybody should remember those years’

(Senn 1966: 416, Bauer 2000: 217)

- b. šitas dalykas ir **táu**
 this.NOM.SG.M thing.NOM.SG.M and you.DAT.SG
 žinótinās
 know.GER.NOM.SG.M
 ‘And you should remember this thing’ (Senn 1966: 416, Bauer 2000: 217)

In Lithuanian, as in the languages examined earlier, the case used for the “agent” of gerundives/participles of necessity is not the case that is normally used for expressing the agent of regular passives. The opposition between the active voice and the passive voice is expressed mainly by participles. Both periphrastic forms with active participles and simple finite verb forms signify active voice, while the passive voice is expressed by periphrastic passive forms containing the passive participles and the copula *búti* ‘be’. The example in (34a) shows a transitive active sentence, with (34b) representing its passive variant (Ambrazas 1997: 276).

- (34) a. mótina myléjo dūkterį
 mother.NOM love.PAST.3SG daughter.ACC.SG
 ‘The mother loved her daughter’

- b. duktė́ bũvo (mótinós)
 daughter.NOM.SG be.PAST.3SG mother.GEN.SG
 mylimà
 love.PPP.NOM.SG.F
 ‘The daughter was loved (by her mother)’

In passive constructions, the agent is usually marked in the genitive, as in example (34b). In the oldest texts agents are also found governed by prepositional phrases, for instance *peř* together with an accusative and *nuog* (= *nuõ*) together with a genitive’ (Senn 1966: 376), exemplified in (35a–b), respectively.

- (35) a. pastatitas **nuog Pona** **Christusa**
 establish.PPP.NOM.SG.M by Lord.GEN.SG.M Christ.GEN.SG.M
 ‘Established by Christ, the Lord’
 (Old Lithuanian example; Schmalstieg 1987: 180)

- b. paraschits **per Daktara** **Martina**
 write.PPP.NOM.SG by doctor.ACC.SG Martin.ACC.SG
Lutera
 Luther.ACC.SG
 ‘written by Dr. Martin Luther’
 (Vilentas’ *Catechism*, title page, 6; Schmalstieg 1987: 288)

Although the agent of passive constructions is usually marked in the genitive or is governed by prepositional phrases, the dative is also found, both in the modern language and in older texts, with present passive participles. It is remarkable, however, that this combination of the dative with a present passive participle is possible *only* when the participle expresses the meaning of possibility associated with a generalized event (Schmalstieg 1987: 24–25, Ambrazas 1997: 355), cf. example (36).

- (36) buday pikti regimi wisiemus
 manners.NOM.PL evil.NOM.PL see.PART.PRES.PASS.NOM.PL all.DAT.PL
 ‘Evil manners visible to all’
 (Sirvydas’ *Punktay sakimu* I 253 29, Schmalstieg 1987: 25)

The dative is also found in constructions with an infinitive, again to express the notion of possibility, necessity, or obligation (Senn 1966: 469, Schmalstieg 1978: 224, Ambrazas 1997: 374), as in the examples in (37) below:

- (37) a. kã **mán** darýti?
 what.ACC.SG **I.DAT** do.INF
 ‘What shall I do? (Senn 1966: 469)
- b. nesutrãukti **mán** jũ
 not+compress.INF **I.DAT** they.GEN
 ‘I cannot compress them’ (Senn 1966: 469)

The differences in the distribution of case markers for “agents” across the GER+(NOM+)DAT construction and passives is given in Table 6.

Table 6: The Distribution of Case Markers for “Agents” in the GER+(NOM+)DAT construction and the passive construction in Lithuanian

	Gerundives	Passives
Lithuanian	DAT	GEN peř+ACC (in oldest texts) nuõ+GEN (in oldest texts) DAT (only with present passive participles expressing possibility)

It is thus clear that the distribution of the “dative of agent” in Lithuanian is restricted to only *modal* contexts, involving necessity or possibility. These facts suggest that the combination of the dative and the gerundive is not interchangeable with a passive construction. The dative does not express an agent but is similar to the dative subject of modal predicates like *reikėti* ‘need’, as in (38) below, where the protagonist is in the dative, while the object needed is in the genitive.

- (38) **man** reĩkia kaĩbario
I.DAT need.PRES.3SG room.GEN
‘I need a room’ (Schmalstieg 1987: 220)

This section has illustrated the use of gerundives in Lithuanian, showing that:

- Lithuanian gerundives have a modal meaning of obligation and/or necessity;
- Lithuanian has a specific device, i.e. the dative case, for marking the protagonist of the event denoted by these gerundives;
- The dative is not a general device for expressing the agent in Lithuanian.

In sum, exactly like in Latin, Ancient Greek, Sanskrit, Avestan, and Tocharian above, the combination of the dative and the gerundive is not interchangeable with a passive construction.

3. Against alternative accounts

In the following, we discuss three earlier analyses of the DAT in the GER+(NOM+)DAT construction: a) the traditionalist (passive) account, b) the possessive account, and c) the benefactive account. We reject all three and suggest instead an account based on Danesi’s (2013) analysis where the GER+(NOM+)DAT construction is regarded as a subconstruction of the ordinary Oblique Subject Construction found across the Indo-European languages, ancient, medieval, and modern.

3.1 The traditionalist (passive) account

On the traditional account of the GER+(NOM+)DAT construction, it is assumed that the modal reading accompanying the construction is obtained from a passive-like form combined with an overtly expressed demoted agent (Green 1913, Hettrich 1990, George

2005). Even the traditional grammar definition of the gerundive as a “future passive participle” highlights the perceived passivity of the verbal adjective. The gerundive is in general regarded as passive in nature: it requires only one argument which is patient- or theme-like, exactly like with passives, while the protagonist may be left unexpressed (or not, as in GER+(NOM+)DAT).

It is implicit in the passive analysis of the GER construction that it must stand in a systematic relation to the corresponding construction without the dative (see 1 above). This is indeed reminiscent of passives and the non-compulsory occurrence of the demoted agent. However, consider the examples in (39–41) below:

(39) English

- a. **I** lack *food*
- b. *Food* is lacking.

(40) Latvian (Berg-Olsen 2009: 185, 187)

- a. **Vīnai** trūkst *pieredze*.
she.DAT lacks *experience.NOM*
'She lacks experience.'
- b. ... ka *kaut kas* pietrūkst.
that *some thing.NOM* lacks
'... that something is lacking'

(41) Icelandic

- a. **Henni** er *þetta* leyfilegt.
she.DAT is *this.NOM* allowed
'She is allowed this.'
- b. *Þetta* er leyfilegt.
this.NOM is allowed
'This is allowed.'

The examples above are from Modern English, Modern Latvian, and Modern Icelandic, respectively, and they show clearly that two-place argument structure constructions may systematically alternate with corresponding one-place argument structure construction, where the object of the transitive corresponds with the subject of the intransitive variant, without the need for a passive analysis. Instead, it is well known from the study of argument structure that argument structure constructions may appear in a systematic relation to other argument structure constructions, depending on how the event is construed (cf. Croft 1998, 2012, Barðdal 2001, 2015). In (40–41) a systematic alternation between DAT-NOM and NOM is presented from Latvian and Icelandic, respectively. The occurrence of the gerundive with or without the dative argument does therefore not necessarily call for a passive analysis with an optional demoted agent.

Furthermore, we have established the following facts for Latin, Ancient Greek, Sanskrit, Avestan, Tocharian, and Lithuanian:

- Gerundives have a modal meaning of obligation and/or necessity;
- Each language has a specific device, i.e. the dative or a functionally equivalent case, for marking the protagonist of the event denoted by these gerundives;

- This specific device is not a general device for expressing the agent in passives in each of these six languages.

Given these facts, a passive analysis of the GER+(NOM+)DAT construction is far from satisfying for the following reasons. First, the “dative of agent” is in a different morphological case than the usual demoted agent of passives in all the languages investigated above. Second, it has been shown that when passives exhibit modal properties crosslinguistically, the relevant modality is usually potentiality (Narrog 2010). As is made very clear above, however, the GER+(NOM+)DAT construction expresses necessity and obligation, but not potentiality.

In conclusion, the GER+(NOM+)DAT construction is structurally and semantically very different from a passive construction. In fact, the passive analysis of the GER+(NOM+)DAT construction appears quite simplistic and not properly rooted in the actual properties of the construction itself. The passive analysis should therefore be abandoned as such, and following this, the traditional description of the dative argument as being “dative of agent”.

An attempt to rescue the passive account could perhaps be made through an analysis of the GER+(NOM+)DAT construction as a special type of passive. On such an analysis the passive and the modal semantics might be taken to be derived directly from the gerundive suffix, since *-ndus* in Latin, for instance, clearly does not belong to the *ordinary* passive paradigm. There is, however, one major problem with such an account. Since the relevant gerundive suffixes are confined to the GER+(NOM+)DAT construction and are not found outside of it, this particular property, namely passive+modal reading, cannot be derived from any other aspect of the language as such and must therefore be assumed to be specific for this construction. In essence, this means that this special passive has to be stipulated and accounted for as such in the grammar of the relevant languages, which basically amounts to a non-compositional and constructional analysis of the type that we suggest in Section 4 below.

3.2 The possessive account

As an alternate hypothesis of the origin of the GER+(NOM+)DAT construction, Bauer (2000) observes that different verbal forms, including gerundives but also participles in *-to-*, invariant participles, and infinitives, in constructions selecting for a dative argument may be related to the Dative Possessive Construction. Consider example (42) below of the Dative Possessive Construction, where the dative designates the possessor and the nominative the possessed.

- (42) ubi tempus tibi erit
 where time.NOM you.DAT be.3SG.FUT
 ‘where you will have time’ (Ter. Eun. 485, from Bauer 2000: 180)

Bauer (2000) points to the strong structural parallels between the two constructions and argues that they should both be considered “impersonal” constructions as expressions of transitive-independent syntax. She further claims that these constructions are residues of an earlier language stage at which transitivity was conveyed by nominal agreement.

While we recognize the formal and functional similarities between the Dative Possessive Construction and the GER+(NOM+)DAT construction, we argue that one is not historically derived from the other. It is certainly true that possessives may be the source to some modal constructions (Narrog 2010), but such a scenario presupposes structural identity which is not found here, as there is a gerundive in the GER+(NOM+)DAT construction, but BE+NOUN in the possessive construction.

There are even further problems with the assumption that the GER+(NOM+)DAT has developed from the BE+NOUN construction, as Bauer herself recognizes—namely that structural similarity does not imply identity of functions. The two datives share the same form but not the same meaning: in one case the dative is the possessor, in the other the dative is the potential agent, or in our terminology, the protagonist. Therefore, any claims about the Dative Possessive Construction being the source of the GER+(NOM+)DAT construction requires more evidence and elaboration in order to be convincing.

3.3 The benefactive account

Another recent analysis is suggested by Luraghi (2016), who argues, following Hettrich (1990) that the “agentive” use of the dative developed from beneficiary datives but, contra Hettrich, that this development has taken place independently in the different daughter languages. This last claim is based on three facts: a) that Sanskrit shows variation between dative, instrumental, and genitive, b) that the interpretation of the dative in the GER+(NOM)+DAT construction is context-dependent (cf. Hettrich 1990), suggesting a low degree of conventionalization according to Luraghi (2016: 20–21), and c) that there are no examples of the GER+(NOM)+DAT construction with *-tva* in the R̥gveda. We now discuss each in turn:

Starting with the first itemized point above, namely the variation between the dative, instrumental, and genitive in Sanskrit, we have already reported in Section 2.3 above on Hettrich’s findings (also cited by Luraghi 2016) that the instrumental seems to be typically used to denote events in the realis, the dative with other moods, and the genitive with participles. Hence, the distribution of the dative, instrumental, and the genitive with gerundives in Sanskrit is clearly functionally and structurally motivated, undermining Luraghi’s claim that the GER+(NOM)+DAT structure is not a construction of its own in Sanskrit.

Turning to the second itemized point above, namely the alleged lack of conventionality of the “dative of agent” construction in Sanskrit, this claim is based on the fact that context is needed to disambiguate between different readings of the dative with gerundives. In some instances, the dative is a beneficiary, while in other cases, it is the referent taking on the obligation expressed by the event, our protagonist. There is, however, a major problem with the claim that the need for context for disambiguation signals lack of conventionalization. The reason for this is simple, namely that functional ambiguity does not equate low degree of conventionalization, it only speaks for a one-to-many mappings of a morphosyntactic form. Such one-to-many mappings may be around in languages for centuries, which in turn shows that one-to-many mappings do not necessarily signal that a development must be recent.

It is well known from lexicology and lexical semantics, for instance, that context is needed to disambiguate word senses that are otherwise ambiguous (Kilgariff 1997, Swaab, Brown & Hagoort 2003, Nash 2008); this is irrespective of whether the different

senses have arisen recently or whether they have existed for a long time. In Modern English the past participle with a present tense ‘be’, as in “the fish is fried” is ambiguous between a resultative and a passive reading, again demanding context to decide between the two readings. The periphrastic passive can be traced at least to Proto-Germanic, including the ambiguity resulting from the use of the present tense of ‘be’. This ambiguity must thus have existed since the periphrastic passive arose during prehistoric times.

In Modern Swedish, moreover, the verbal suffix *-s* is ambiguous between a passive and a middle reading, requiring context to disambiguate between the two (Barðdal & Molnár 2003). This verbal suffix originally developed from the reflexive pronoun *sik* ‘self’, first to a clitic and then later to a suffix (Ottósson 1992). This development was completed around 1200 in Old Swedish and it is generally assumed that the middle meaning is derived from its reflexive/reciprocal meaning. The first unambiguous examples of the *s*-form with a passive reading are found in Old Swedish law texts (Wessén 1965: 167ff.), for instance *Östgötalagen* which date to 1290. This, in turn, means that the two readings, the middle and the passive readings, have existed side by side for more than seven centuries in the history of Swedish.

In none of these instances can it be argued that these constructions are non-conventionalized and the same is true for word senses. Hence, these examples show that one morphosyntactic form can be mapped onto many functions and such mappings may exist not only for centuries (*-s* in Swedish) but also millennia (periphrastic passive in Germanic). Therefore, the claim that the GER+(NOM)+DAT construction is non-conventionalized due to the need for context for disambiguation in Sanskrit is absolutely without any merit whatsoever.

The relevance of the third itemized point above, i.e. the fact that there are no examples of the GER+(NOM)+DAT construction with *-tva* in the Ṛgveda, is unclear given that Sanskrit *-ya-*, cognate to the Avestan *-iia-*, is found in the Ṛgveda, i.e. the earliest stages of Indo-Aryan, with a dative. Thus, the same or a cognate form is found in the Ṛgveda, as well as in two daughter languages of the Indo-Aryan branch, namely Classical Sanskrit and Avestan. This distribution clearly speaks for inheritance. Taken together, Luraghi’s assumption that the “dative of agent” construction is an independent development in the daughter languages appears as ill founded.

It is furthermore assumed in Luraghi’s analysis (2016: 26) that the dative itself exists as an independent category in the early and ancient Indo-European languages, irrespective of the constructions it occurs in. This view can be traced back to at least the structuralists, cf. Hjelmslev (1935) and Jakobson (1936), where for instance the dative is studied across different contexts and an abstract meaning is assigned to it on the basis of its meaning in different constructions.

The problem with this traditionalist and structuralist approach is that different uses of the dative are lumped together, including the uses of the dative in different and even unrelated constructions (for a general criticism of such a LUMPING approach, see Croft 2001: 65–75 and particularly with regard to case marking and semantic roles, see Barðdal 2003, Barðdal et al. 2013). In order to illustrate this, consider the examples in (43) below, all instantiating dative personal pronouns in different Indo-European case languages:

- (43) **moi** (Ancient Greek)
mihi (Latin)
tebe (Old Russian)

táu	(Lithuanian)
mér	(Icelandic)
dir	(German)

In isolation, these dative forms have no meaning. They are only imbued with meaning through syntactic context, as can be seen by the fact that the same form can instantiate multiple functions, e.g. experience, reciprocity, possession, benefaction, malefaction, absolutive (for Gothic), etc. While certain functions of the dative could be viewed as primary, this is not because these represent any default meaning of the dative, but rather because that syntactic context of the dative is more salient or more frequent in a language.

Hence, we believe that the meaning of datives comes directly from the constructions they instantiate, and that this meaning does not exist independent of constructions. This implies that the alleged benefactive meaning of the dative comes from the ditransitive construction where the indirect object is in the dative case with verbs like ‘give’, ‘bring’, ‘send’, ‘say’, etc. In the same vein, the alleged experiencer meaning of the dative comes directly from dative subject verbs which often express emotion, such as ‘like’, ‘feel good/bad’, ‘be bored’, among others. Thus, on our view, there cannot be any independent “benefactive” or “experiencer” meaning of the dative in the languages under investigation from which the dative in the GER construction has developed from.

Luraghi (2016: 134) further lays out how the connection between the beneficiary dative and the dative of the protagonist in modal constructions may have arisen, namely through a metaphorical extension where a) beneficiaries have been associated with recipients (most likely through metonymy, we infer), and b) obligations are perceived of as transferred objects. Luraghi argues that this last assumption is rooted in a metaphor OBLIGATIONS ARE OBJECTS TRANSFERRED. An immediate problem is that the term *beneficiary* implies that the relevant participant receives something good, i.e. benefits from the transfer, which is far from always the case with an obligation.

Moreover, it is unclear what the role of this alleged metaphor is, especially given that it does not seem to be a conceptual metaphor in the sense of Lakoff & Johnson (1980), nor does it seem to be attested outside of this particular linguistic domain. That is, no independent motivation seems to exist for the stipulation of this metaphor; rather, this alleged metaphor is assumed to exist on the basis of the very data it is intended to explain, and as such this argumentation is circular, to say the least. A simpler solution, we believe, takes the GER+(NOM+)DAT construction to be a subconstruction of the ordinary Oblique Subject Construction, found more widely across Indo-European languages. We lay out the arguments for this position in Section 4 below.

Finally, Luraghi’s analysis assumes that the gerundive construction was an independent parallel development in each language. That is, the same metaphorical extension was instantiated in five subbranches and six different daughter languages of Indo-European. Such a claim is not impossible, but given the structural, semantic, and, in some cases, etymological similarities between the GER+(NOM+)DAT construction in the languages detailed above, we find this claim to be inherently less simple than one that assumes a common Indo-European origin. While we do not propose to reconstruct the “dative of agent” as Hettrich (1990) suggested, we find the fact that all GER+(NOM+)DAT constructions have the same modal meaning, the same type of verbal

adjective, and the same case (dative or a functionally equivalent one) to designate the protagonist requires—even demands—a Proto-Indo-European source.

To conclude, the GER+(NOM+)DAT construction is indeed quite puzzling; the combination of a gerundive being used finitely with a dative argument is not a typical type of finite clause. Second, there is a clear modal meaning associated with the construction, which cannot be attributed to any modal element in the clause, neither a modal verb nor a modal particle. As we have suggested elsewhere (Barðdal & Danesi 2014), this modal meaning must be directly attributed to the gerundive construction itself. In the following section, we provide our analysis and reconstruction of the GER+(NOM+)DAT construction for Proto-Indo-European.

4. Reconstruction

Below we analyze the GER+(NOM+)DAT structure as a construction in the sense of Construction Grammar, i.e. as a form–meaning correspondence (Fillmore, Kay, & O’Connor 1988, Jackendoff 1997, Kay & Fillmore 1999; Goldberg 1995, 2006, Croft 2001, *inter alia*). This construction, we believe, is of an Indo-European origin, belonging to the broader category of Oblique Subject Constructions in Indo-European, and is as such reconstructable for a proto-stage.

On a constructional approach to language, constructions are form–meaning pairings larger than words and as such they constitute the basic building blocks of language. In contrast to other current syntactic frameworks, Construction Grammar does not assume a strict separation between the syntax and the lexicon. Constructions differ from each other with regard to their complexity and schematicity, varying on a scale from simple to complex and substantive to schematic (Croft 2001, Croft & Cruse 2004, Barðdal 2001, 2008, 2013). To give an example, the word *dog* is morphologically simple and substantive while the ditransitive construction is complex and schematic in the sense that it can be filled with all verbs that satisfy the constraints of the construction (see Goldberg 1995, Croft 2003, Barðdal 2007, Barðdal et al. 2011 for an analysis of the ditransitive construction in different languages).

Since Construction Grammar takes constructions to be the basic units of language and since constructions can also be complex syntactic structures, Construction Grammar is the ideal framework for reconstructing syntax (cf. Barðdal & Eythórsson 2012a–b, 2016, Barðdal 2013, 2015, Barðdal et al. 2013); Construction Grammar is particularly useful as the *comparanda* in the Indo-European languages under scrutiny are not simple lexical items but rather compositional and schematic expressions.

4.1 Form and meaning: An Indo-European construction

The presence of the GER+(NOM+)DAT construction in five different branches of Indo-European and across widely divergent geographic areas, spanning the East-West divide, clearly suggests that this combination continues a construction of common Indo-European origin (Hettrich 1990: 64ff., Danesi 2013). The combination of a dative and a gerundive also shows many similarities at different linguistic levels across the languages examined, which are too great to be attributed to a simple coincidence but must instead be assumed to derive from a common origin. We now discuss each of these similarities in turn:

At the morphological level, in all the languages taken into account except for Tocharian, the gerundive is derived via a suffix added to a verbal root or stem. At the syntactic level, in all the languages under investigation, this gerundive selects for two arguments, a nominative and a dative, both of which are optional, even though our focus above has been on the variant with the dative. At the semantic level, in all the languages examined, the gerundive construction expresses the same modal meaning of obligation or necessity. At an etymological level, Sanskrit and Avestan share the same suffixes: the Sanskrit *-ya-*, *-tva-* and Avestan *-iia-*, *-θβa-* are clearly etymologically related. An etymological connection between Sanskrit *-tva-*, *-tavya-* and Greek *-τεο-* <*-τεφο- (Brugmann 1886–1893: 424) is also possible.

Before we continue to our reconstruction, let us address the issue of whether the modal meaning can be taken to be derived from the suffix itself or whether it must be assumed to be an inherent part of the construction as a whole. Since the suffix does not occur outside the GER construction, it is clear that the modal meaning is not predictable from any aspect of the language outside this construction, and it would only be predictable from the gerundive suffix on the linguist’s analysis that the suffix has this meaning. Such an analysis would not be independently motivated, but would be based strictly on the meaning of the gerundive construction itself. As such, this becomes an analytical distinction. The suffix, in our view, is an inherent part of the deontic construction as is evident from our reconstruction below (Figure 1).

We suggest the correspondence set given in Table 7, which shows four case markers for the protagonist, the dative, the accusative, the genitive, and the instrumental, on the basis of the data presented in Section 2 above. The accusative is only found in Ancient Greek, the instrumental is confined to Sanskrit, the genitive is found in the two Indo-European branches where the dative and the genitive have merged, namely Tocharian and Indo-Aryan, while the dative is found in five branches, i.e. all branches except for Tocharian. The GER+(NOM+)DAT construction in Vedic Sanskrit shows variation between the dative, the genitive and the instrumental, while only the genitive and the instrumental are attested in Classical Sanskrit, suggesting an ongoing change with the original dative being lost and its functions taken over by the genitive.

Table 7: Correspondence set for the GER+(NOM+)DAT construction.

	Alt 1	Alt 2	Alt 3	Alt 4
Latin	GER-‘be’-(Nom)-Dat			
Ancient Greek	GER-‘be’-(Nom)-Dat	GER-‘be’-(Nom)-Acc		
Vedic Sanskrit	GER-‘be’-(Nom)-Dat		GER-‘be’-(Nom)-Gen	GER-‘be’-(Nom)-Ins
Sanskrit			GER-‘be’-(Nom)-Gen	GER-‘be’-(Nom)-Ins
Avestan	GER-‘be’-(Nom)-Dat			
Tocharian			GER-‘be’-(Nom)-Gen	
Lithuanian	GER-‘be’-(Nom)-Dat			

Since the patterns with accusative and instrumental are each confined to only one Indo-European subbranch, Greek and Indo-Aryan, respectively, and since the genitive is a secondary development in both Tocharian and Indo-Aryan, continuing an earlier Indo-European dative, none of these qualify as candidates for reconstruction. In contrast, the construction with the dative can be reconstructed on the basis of occurrences in five

Indo-European subbranches, six with Tocharian included, given that the Tocharian genitive has taken over the functions of the IE dative.

Thus, our reconstruction of the GER+(NOM+)DAT construction for Proto-Indo-European is based on the following criteria:

- the function of the verbal adjective as gerundive in all six branches
- the unexpected predicative use of the gerundive across all six branches
- the gerundive's unexpected subcategorization for a dative argument (or for a case that continues the Indo-European dative) across all six branches
- the already established internal etymologies of dative endings and dative pronouns in the Indo-European languages
- the almost identical semantics of the GER+(NOM+)DAT construction as conveying obligation or necessity across all six branches
- the partial etymological relations found across Sanskrit, Avestan, and (potentially) Greek

The last bulleted point involving the partial etymological relations only adds support to the reconstruction; strictly speaking, they are not necessary for proposing an Indo-European reconstruction. The reason is that morphological material, exactly like lexical material, can be replaced over time, while the more schematic category itself stays the same. Indeed, the lack of cognate derivational suffixes may suggest that this construction should even be reconstructed for a much deeper time span than only back to late Proto-Indo-European.

In order to expand on the details of our reconstruction, we employ the formalism of Sign-Based Construction Grammar (Sag 2012, Michaelis 2009, 2013), which is particularly adequate in modeling the grammar of synchronic languages as it fleshes out all the relevant details of a given construction, including information about form and meaning. This formalism involves three levels for argument structure constructions, a FORM field, a SYN field, and a SEM field. The FORM field describes the morphosyntactic properties of the construction, the SYN field specifies case marking and argument structure, while the SEM field expresses the relevant semantic properties.

* *Argument structure cxt*

FORM	< gerundive 'be' >							
SYN	< NP-DAT _i , NP-NOM _j >							
SEM	FRAMES	<table border="1"> <tr> <td colspan="2">Obligation_frame</td> </tr> <tr> <td>RESPONSIBLE PARTY</td> <td>i</td> </tr> <tr> <td>DUTY</td> <td>j</td> </tr> </table>	Obligation_frame		RESPONSIBLE PARTY	i	DUTY	j
Obligation_frame								
RESPONSIBLE PARTY	i							
DUTY	j							

Figure 1. Reconstruction of the GER+(NOM+)DAT construction for Proto-Indo-European

Our reconstruction of the GER+(NOM+)DAT construction for Proto-Indo-European is given in Figure 1. Since this reconstruction involves a schematic construction and not a lexical construction, there is no phonological material in the FORM field, but only a specification of the type of morphological category the predicate consists of, in this case the gerundive together with the verb ‘be’ (which can be omitted in certain contexts in the later stages of some of the daughter languages). While the gerundive suffix is not the same across all six languages, the gerundive is formally one and the same in each language, in that it is a verbal adjective that can occur in a predicative position and conveys a modal meaning.

The SYN field specifies the two arguments, one being in the dative and the other in the nominative. The SEM field renders the semantics of the construction through semantic frames, in this case the *obligation_frame* (see the relevant entry in FrameNet), where the protagonist is labeled the “Responsible Party” and the nominative is labeled “Duty”.² The two participant roles are each indexed with an *i* or *j*, which, in turn, links the participant roles with the dative and the nominative argument from the SYN field. This is how case marking and participant roles are mapped to each other in this type of representational formalism.

A formalization of the reconstruction in Figure 1 not only licenses all instantiations of the construction in the daughter languages, thus emphasizing the cognacy of the construction across the daughters, what is more, it also models the aspects of the grammar of Proto-Indo-European that are relevant for the GER+(NOM+)DAT construction. Our goal is to present a full reconstruction of the construction, in which all relevant details are included. Only through such an elaborate formalism is a complete reconstruction achieved.

The reconstruction in Figure 1 above fleshes out the details of the GER+(NOM+)DAT construction for Proto-Indo-European, which is only one constructional variant of the more schematic GER+(NOM)+(DAT) construction. The more schematic construction has three variants, the one with the dative, the one with the nominative and the one with both the dative and the nominative present. The deontic reading is found with all three constructional variants, as they are all tied to the presence of the gerundive in combination with expressed or unexpressed participants in the obligation frame. Whether the protagonist, the object needed or both are expressed boils down to the choices of the speaker and the pragmatic context.

4.2 Modality, transitivity, and non-canonical case marking

We take the GER+(NOM+)DAT construction to be part and parcel of a larger set of oblique subject constructions found throughout the Indo-European languages (cf. the overview in Barðdal et al. 2012). What characterizes this construction is a general reduction in transitivity (cf. Barðdal & Eythórsson 2009, Danesi 2014). In the same vein, modal meaning is usually associated with a reduction of transitivity, which in turn involves a number of components which all relate to the *effectiveness* with which an event takes place.

In clauses with gerundives, there is an event which is expected to take place (even *necessitated* by the circumstances surrounding the event), but has not happened yet. As Hopper & Thompson (1980: 252) observe, an event which has not taken place is

² https://framenet2.icsi.berkeley.edu/fnReports/data/frameIndex.xml?frame=Obligation_scenario

“less effective” than one which is presented as a real event. Effectiveness is implicitly defined (pp. 251–253) as the transfer of an action from an agent to a patient; the more affected the patient is by the action, the more effective and also transitive the clause is—and vice versa. Hence, a construction with a modal meaning is *less* effective and *less* transitive, as the event has not taken place.

Turning to the “dative of agent”, this “agent” is no real agent at all, as shown for each of the languages discussed in Section 2 above, but rather a participant of the event who is conceptualized as having no control or volition, as this participant is under the obligation to perform a specific duty. In this respect, the protagonist is similar to a patient in being *affected* by his/her obligation, which is externally imposed. It is generally well known in the literature that non-canonical case marking is connected with a low degree of transitivity, cf. Shibatani (1985), Tsunoda (1985), Onishi (2001), Barðdal (2004), Barðdal & Eythórsson (2009), Narrog (2010), and Danesi (2014).

More particularly, as pointed out by Langacker (1991: 409–413), and emphasized by Smith (2001) and Barðdal (2004), since accusatives and datives are typically used to mark objects of transitive verbs, these case markers denote affectedness to a much higher degree than nominatives. Hence, the use of an oblique case to mark the protagonist of the GER+(NOM+)DAT construction is motivated by the modal meaning of the construction, the lack of agentive properties of the protagonist, and the construction’s low degree of transitivity.

From a typological perspective, moreover, non-canonically case-marked subjects, especially in dative subject constructions, may be associated with a modal meaning. In such constructions, the subject-like argument, the protagonist, is marked in the dative case, rather than in the nominative (Onishi 2001, Narrog 2010, Danesi, Johnson & Barðdal 2016). However, from a typological perspective, it is more common to assume that dative subject constructions are experiencer constructions and not modal constructions. Another incongruity between the GER+(NOM+)DAT construction in the Indo-European languages and this “typologically-attested dative-subject construction” is the fact that an inherently non-finite structure, in this case the gerundive, is used finitely across five different subbranches of Indo-European. This is not a general property of constructions exhibiting dative subjects cross-linguistically. Hence, there is no doubt that this is an idiosyncrasy, specific to the Indo-European languages, and must as such be inherited from an earlier proto-stage. For further arguments illustrating the incompatibility between the “typological dative” and the dative in the Indo-European languages, see Barðdal et al. (2012).

The dative subject construction in several Indo-European languages has recently been the subject of a large-scale comparison, carried out by Barðdal (2004, 2006, 2008), and Barðdal et al. (2012, 2013, 2016). One of their major findings is that the predicates instantiating this construction are not confined to experiencer subjects, as the “typological dative” is assumed to be, but covers instead five different semantic fields. These are the semantic fields of experience and happenstance events, in addition to modality, evidentiality, and possession. The two major fields of experience and happenstance events can each be further divided into smaller subfields, as schematized in Figure 2. Note that the benefactive uses of the dative are typically found with verbs expressing gain and perhaps success, in addition to ditransitives which fall outside the scope of dative subject constructions.

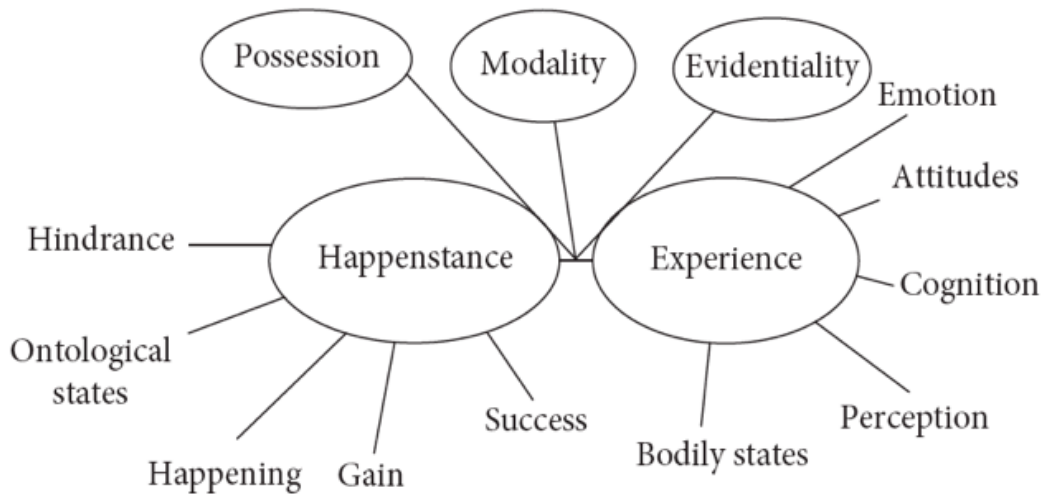


Figure 2. Reconstruction of the semantics of the Dative Subject Construction for a common proto-stage (Barðdal et al. 2012: 529).

Furthermore, there is no doubt that the dative of the GER+(NOM+)DAT construction is semantically similar to the dative expressing the subject of modal predicates in similar oblique subject constructions across different Indo-European languages. Some of these are given in (44) below from three of the languages discussed above, namely Latin, Ancient Greek, and Lithuanian.

- (44) a. Latin
 Huius nobis exempla permulta opus
 this.GEN us.DAT examples.NOM very.many.NOM.PL need
 sunt
 be.PRES.3PL
 ‘We need very many examples of this’ (Cic. Inv. 2. 19. 57)
- b. Greek
 θεοῖσι προσβαλεῖν χθονὶ ἄλλην
 gods.DAT put.to.INF hearth.ACC other.ACC.SG
 δεήσει γαῖαν
 be.needful.FUT.3SG world.ACC
 ‘The gods will have to add another earth to our world’ (Eur. Hipp. 941)
- c. Lithuanian
 Man reikia kambario
 I.DAT need.PRES.3SG room.GEN
 ‘I need a room’ (Schmalstieg 1987: 220)

These examples show strong structural parallels with the GER+(NOM+)DAT construction: Each of these examples is patient-oriented in the sense that the patient is marked in the nominative case and the subject-like protagonist in the dative case.

We argue that the existence of the GER+(NOM+)DAT construction in the Indo-European languages is licensed by the existence of a more general dative subject construction; in this sense, the GER+(NOM+)DAT construction is a subconstruction of a

larger family of constructions with non-canonical case-marking. With this family of constructions it shares the form and one of its meanings, namely the modal meaning. The GER+(NOM+)DAT construction, moreover, is mostly schematic; part of the verb phrase is lexically filled with the verb ‘be’, but the gerundive suffix can in principle combine with any lexical verb fitting the construction.

5. Summary and Conclusions

In the present article we have analyzed the syntactic and semantic properties of gerundives that select for dative arguments, comparing their behavior across the Indo-European languages where they are documented, namely Latin, Greek, Sanskrit, Avestan, Tocharian, and Lithuanian—languages that represent five separate subbranches of Indo-European and span the East-West divide. On the basis of this comparison we have reconstructed for Proto-Indo-European a schematic construction with a gerundive predicate (consisting of an optional form of the verb ‘be’ and the derived gerundive itself) and a dative argument. This construction conveys a modal meaning of obligation and/or necessity in all six languages, and this is the meaning that we suggest in our proposed reconstruction.

Furthermore, the protagonist is expressed in the dative (with the exception of Tocharian and Indo-Aryan where the genitive and the dative have merged), and the construction is patient-oriented in the sense that the referent with the semantic role of patient is expressed in the nominative, the usual “unmarked” case. Since this patient is assigned nominative case, the GER+(NOM+)DAT construction resembles passive structures and has frequently been analyzed as such. However, the GER+DAT construction does not have the same form or the same meaning as the passive in any of the languages examined. Crucially, in all of the languages, the agent of “true” passive structures is not expressed with a dative but with other cases or prepositional phrases. In addition, the GER+(NOM+)DAT construction is not functionally equivalent to passives since it has a specific meaning of obligation.

Since the dative is frequently used in Indo-European languages to express a possessor, we have also examined the hypothesis, proposed in the literature, that the GER+(NOM+)DAT construction should be regarded as a possessive construction, and we have shown that this interpretation is too simplistic. Even though the two constructions exhibit some structural parallels, one is clearly not derived from the other; instead the two are better interpreted as two subconstructions of a larger family of constructions where the subject-like argument is marked in the dative case.

We have also argued against a recent analysis in the literature which assumes that the “dative of agent” is not reconstructable for Proto-Indo-European, but is instead an independent development in the daughter languages, based on the beneficiary meaning of the dative, allegedly inherited from Proto-Indo-European. We have provided several arguments against such an analysis, including pointing out that any beneficiary meaning of the dative does not exist irrespective of the constructions that the dative occurs in. This means that the beneficiary meaning of the dative derives from ditransitives and a small subset of dative subject construction expressing gain. In this sense, there cannot be any abstract independent beneficiary dative in the early Indo-European languages, and, consequently, there can be no development from any such alleged abstract beneficiary dative to the “dative of agent” construction.

Instead of a) the traditionalist analysis, b) the possessive analysis, and c) the benefactive analysis, we have argued above that the non-canonical case-marking of the subject of the GER+(NOM+)DAT construction is directly associated with the lower transitivity of modal constructions, as is the case with other oblique subject constructions in the early Indo-European languages. Thus, the GER+(NOM+)DAT construction is best analyzed as a subconstruction of the more general oblique subject construction in Indo-European which has been reconstructed exhibiting five major semantic fields, namely those of experience, happenstance, possession, modality and evidentiality.

To conclude, the work presented in this article offers an important exercise in syntactic reconstruction. The similarities between the GER+(NOM+)DAT construction across the six Indo-European languages discussed above are too great to be a matter of chance, but rather represent a continuation of an Indo-European construction. This construction is itself, given the similarities to other constructions with non-nominative subjects, a subconstruction of the oblique subject construction that is found even more widely across Indo-European and for which reconstructions have already been proposed in the recent literature.

References

- Adams, Douglas Q. 2011. A Late Alternative to the Mihi Est Construction in Tocharian B. *Tocharian and Indo-European Studies* 12.53–56.
- Allen, Joseph Henry & James Bradstreet Greenough. 1903. *New Latin Grammar*. Boston/London: Ginn & Company.
- Ambrasas, Vytautas. 1997. *Lithuanian Grammar*. Vilnius: Baltos Lankos.
- Andersen, Paul Kent. 1986. The genitive agent in Rigvedic passive constructions. *Collectanea linguistica in honorem Adami Heinz*, ed by F. Slawski, 9–13. Wrocław: Zakład Narodowy im. Ossolińskich.
- Barðdal, Jóhanna. 2001. The Perplexity of Dat-Nom Verbs in Icelandic. *Nordic Journal of Linguistics* 24: 47–70.
- Barðdal, Jóhanna. 2003. Review of “Cognitive Linguistics and the Polish Dative” by Ewa Dabrowska. *Cognitive Linguistics* 14(4): 379–386.
- Barðdal, Jóhanna. 2004. The Semantics of the Impersonal Construction in Icelandic, German and Faroese. Beyond thematic roles. *Focus on Germanic Typology*, ed. by Werner Abraham, 105–137. Berlin: Akademie Verlag.
- Barðdal, Jóhanna. 2007. The Semantic and Lexical Range of the Ditransitive Construction in the History of (North) Germanic. *Functions of Language* 14(1): 9–30.
- Barðdal, Jóhanna. 2008. *Productivity: Evidence from Case and Argument Structure in Icelandic*. Amsterdam: John Benjamins.
- Barðdal, Jóhanna. 2011. The Rise of Dative Substitution in the History of Icelandic: A Diachronic Construction Grammar Approach. *Lingua* 121(1): 60–79.
- Barðdal, Jóhanna. 2013. Construction-Based Historical-Comparative Reconstruction. *The Oxford Handbook of Construction Grammar*, ed. by Greame Trousdale & Thomas Hoffmann, 438–457. Oxford: Oxford University Press.
- Barðdal, Jóhanna. 2015. Syntax and Syntactic Reconstruction. *The Routledge Handbook of Historical Linguistics*, ed. by Claire Bowerman & Bethwyn Evans, 343–373. London: Routledge.

- Barðdal, Jóhanna, Carlee Arnett, Stephen Mark Carey, Thórhallur Eythórsson, Gard B. Jensen, Guus Kroonen & Adam Oberlin. 2016. Dative Subjects in Germanic: A Computational Analysis of Lexical Semantic Verb Classes Across Time and Space. *STUF: Language Typology and Universals* 69(1): 49–84.
- Barðdal, Jóhanna, Valgerður Bjarnadóttir, Serena Danesi, Tonya Kim Dewey, Thórhallur Eythórsson, Chiara Fedriani & Thomas Smitherman. 2013. The Story of 'Woe'. *Journal of Indo-European Studies* 41(3–4): 321–377.
- Barðdal, Jóhanna & Serena Danesi. 2014. Construction Grammar and Greek. *Encyclopedia of Ancient Greek Language and Linguistics (EAGLL)*, ed. by G. K. Giakanis, 375–379. Brill: Leiden.
- Barðdal, Jóhanna & Thórhallur Eythórsson. 2009. The Origin of the Oblique Subject Construction: An Indo-European Comparison. *Grammatical Change in Indo-European Languages*, ed. by Vit Bubenik, John Hewson & Sarah Rose, 179–193. Amsterdam: John Benjamins.
- Barðdal, Jóhanna & Thórhallur Eythórsson. 2012a. Reconstructing Syntax: Construction Grammar and the Comparative Method. *Sign-Based Construction Grammar*, ed. by Hans C. Boas & Ivan A. Sag, 257–308. Stanford: CSLI Publications.
- Barðdal, Jóhanna & Thórhallur Eythórsson. 2012b. "Hungering and Lusting for Women and Fleshly Delicacies": Reconstructing Grammatical Relations for Proto-Germanic. *Transactions of the Philological Society* 110(3): 363–393.
- Barðdal, Jóhanna & Thórhallur Eythórsson. 2017. How to Identify Cognates in Syntax: Taking Watkins' Legacy One Step Further. To appear in *Reconstructing Syntax*, ed. by Eugenio R. Lujan, Jóhanna Barðdal & Spike Gildea. Leiden: Brill.
- Barðdal, Jóhanna, Kristian E. Kristoffersen & Andreas Sveen. 2011. West Scandinavian Ditransitives as a Family of Constructions: With a Special Attention to the Norwegian V-REFL-NP Construction. *Linguistics* 49(1): 53–104.
- Barðdal, Jóhanna & Valéria Molnár. 2003. The Passive in Icelandic – Compared to Mainland Scandinavian. *Structures of Focus and Grammatical Relations*, ed. by Jorunn Hetland & Valéria Molnár, 231–260. Tübingen: Max Niemeyer Verlag.
- Barðdal, Jóhanna & Thomas Smitherman. 2013. The Quest for Cognates: A Reconstruction of Oblique Subject Constructions in Proto-Indo-European. *Language Dynamics and Change* 3(1): 28–67.
- Barðdal, Jóhanna, Thomas Smitherman, Valgerður Bjarnadóttir, Serena Danesi, Gard B. Jensen & Barbara McGillivray. 2012. Reconstructing Constructional Semantics: The Dative Subject Construction in Old Norse-Icelandic, Latin, Ancient Greek, Old Russian and Old Lithuanian. *Studies in Language* 36(3): 511–547.
- Bauer, Brigitte L. M. 2000. *Archaic Syntax in Indo-European: The Spread of Transitivity in Latin and French*. Berlin: Mouton de Gruyter.
- Bennett, Charles E. 1914. *Syntax of Early Latin. II. The Cases*. Boston: Allyn and Bacon.
- Berg-Olsen, Sturla. 2009. Lacking in Latvian: Case Variation from a Cognitive and Constructional Perspective. *The Role of Semantic, Pragmatic and Discourse Factors in the Development of Case*, ed. by Jóhanna Barðdal & Shobhana L. Chelliah, 181–202. Amsterdam: John Benjamins.
- Bowern, Claire. 2008. Syntactic Change and Syntactic Reconstruction in Generative Grammar. *Principles of Syntactic Reconstruction*, ed. by Gisela Ferraresi & Maria Goldbach, 187–216. Amsterdam: John Benjamins.
- Brugmann, Karl. 1886–1893. *Grundriss der vergleichenden Grammatik der indogermanischen Sprachen. Kurzgefasste Darstellung der Geschichte des Altindischen, Altiranischen (Avestischen und Altpersischen), Lateinischen, Umbrisch-Samnitischen,*

- Altirischen, Gotischen, Althochdeutschen, Litauischen und Altkirchenslavischen*. Vol. 2, Part 1: Wortbildungslehre (Stammbildungs- und Flexionslehre). Strassburg, Trübner.
- Brugmann, Karl & Delbrück, Bertold. 1900. *Grundriß der vergleichenden Grammatik der indogermanischen Sprachen*, Band 2, Teil 2. Straßburg: Trübner.
- Bubenik, Vit. 1997. The Verbal System of Tocharian. *Tense and Aspect in Indo-European Languages: Theory, typology, diachrony*, ed. by John Hewson & Vit Bubenik, 125–142. Amsterdam: John Benjamins.
- Bubenik, Vit. 2006. Tocharian: From Case to Adposition. *The development of configurational syntax in Indo-European languages*, ed. by John Hewson & Vit Bubenik, 317–333. Amsterdam: John Benjamins.
- Conti, Luz. 1999. La expresión de la Causa en Homero con referentes humanos. *Emerita* 67.2, 295–313.
- Conti, Luz. 2009. Weiteres zum Genitiv als Semisubjekt im Altgriechischen: Analyse des Kasus bei impersonalen Konstruktionen. *Historische Sprachforschung* 122.182–207.
- Cotticelli Kurras, Paula & Alfredo Rizza. 2013. Reconstructing Proto-Indo-European Categories: The Reflexive and the Middle in Hittite and the Proto-Language. *Journal of Historical Linguistics* 3(1): 7–27.
- Croft, William. 1998. Event structure in argument linking. *The projection of arguments: lexical and compositional factors*, ed. Miriam Butt & Wilhelm Geuder, 1–43. Stanford: Center for the Study of Language and Information.
- Croft, William A. 2001. *Radical Construction Grammar: Syntactic Theory in Typological Perspective*. Oxford: Oxford University Press.
- Croft, William. 2012. *Verbs: Aspect and Causal Structure*. Oxford: Oxford University Press.
- Croft, William. 2003. Lexical Rules vs. Constructions: A False Dichotomy. *Motivation in Language: Studies in Honour of Günter Radden*, ed. by H. B. Cuyckens, Th. Berg, R. Dirven, and Kl.-U. Panther, 49–68. Amsterdam: John Benjamins.
- Danesi, Serena, Cynthia A. Johnson & Jóhanna Barðdal. 2017. Where Does the Modality of Ancient Greek Modal Verbs Come From? The Relation between Modality and Oblique Case Marking. Under revision for *Journal of Greek Linguistics*.
- Daves, Alexandra. 2006. On the Function of the Mediopassive Perfect in the Homeric Epics. *Word Classes and Related Topics in the Ancient Greek, Proceedings of the Conference on 'Greek Syntax and Word Classes' held in Madrid on 18–21, June 2003*, ed. by E. Crespo, J. De la Villa & A. R. Revuelta, 257–272. Louvain-La-Neuve: Peeters.
- Dahl, Eystein & Chiara Fedriani. 2012. The Argument Structure of Experience: Experiential Constructions in Early Vedic, Homeric Greek and Early Latin. *Transactions of the Philological Society* 110(3).342–362.
- Danesi, Serena. 2013. Between the Historical Languages and the Reconstructed Language: The 'Verbal Adjective + Dative' Construction. A talk presented at the 21st International Conference of Historical Linguistics, Oslo, 5–9 August.
- Danesi, Serena. 2014. Accusative Subjects in Avestan: 'Errors' or Noncanonically Marked Arguments. *Indo-Iranian Journal* 57(3).223–260.
- Danesi, Serena, Cynthia A. Johnson & Jóhanna Barðdal. 2016. Where Does the Modality of Ancient Greek Modal Verbs Come From? The Relation between Modality and Oblique Case Marking. Submitted to *Journal of Greek Linguistics*.
- Dash, Niladri Sekhar. 2008. Context and Contextual Word Meaning. *SKASE Journal of Theoretical Linguistics* 5(2): 21–31.
- Delbrück, Berthold. 1888. *Altindische Syntax*. Halle a.S.: Verlag der Buchhandlung des Waisenhauses.

- Eythórsson, Thórhallur & Jóhanna Barðdal. 2011. Die Konstruktionsgrammatik und die komparative Methode. *Indogermanistik und Linguistik im Dialog: Akten der XIII. Fachtagung der Indogermanischen Gesellschaft vom 21. bis 27. September 2008 in Salzburg*, ed. by Thomas Krisch & Thomas Lindner, 148–156. Wiesbaden: Reichert Verlag.
- Eythórsson, Thórhallur & Jóhanna Barðdal. 2016. Syntactic Reconstruction in Indo-European: The State of the Art. *Franz Bopp and his Comparative Grammar Model (1816–2016)*, ed. by J. Gorrochategui, C. García Castillero & J. M. Vallejo. A special monographic volume in *Veleia* 33: 83–102.
- Fedriani, Chiara. 2014. *Experiential Constructions in Latin*. Brill: Leiden.
- Fillmore, Charles, Paul Kay & Catherine O'Connor. 1988. Regularity and Idiomaticity in Grammatical Constructions: The Case of let alone. *Language* 64: 501–538.
- Gaedicke, Carl. 1880. *Der Accusativ im Veda*. Breslau: W. Koebner.
- Garrett, Andrew. 1990. *The Syntax of Anatolian Pronominal Clitics*. Harvard University PhD. Dissertation.
- Geldner, Karl Friedrich. 1952–1957. *Der Rig-Veda: aus dem Sanskrit ins Deutsche Übersetzt und mit einem laufenden Kommentar versehen*. Harvard Oriental Series 33–36, Bd. 1–3. Cambridge, Massachusetts: Harvard University Press. Available online at <http://www.sanskritweb.net/rigveda/rigveda.pdf/>.
- Gildea, Spike. 1998. *On Reconstructing Grammar: Comparative Cariban Morphosyntax*. Oxford: Oxford University Press.
- Gildersleeve, Basil L. and Lodge, Gonzalez. 1894. *Gildersleeve's Latin grammar*. 3d ed. New York: Boston University Publishing Company.
- Goldberg, Adele. 1995. *Constructions: A Construction Grammar Approach to Argument Structure*. Chicago: University of Chicago Press.
- Goldberg, Adele. 2006. *Constructions at Work: The Nature of Generalization in Language*. Oxford: Oxford University Press.
- Goodwin, William G. 1900. *Greek Grammar*. Boston: Ginn and Company.
- Green, Alexander. 1913. *The Dative of Agency: A Chapter of Indo-European Case-Syntax*. New York: Columbia University Press.
- George, Coulter H. 2005. *Expressions of Agency in Ancient Greek*. Cambridge: Cambridge University Press.
- Hale, Mark. 1987a. Studies in the comparative syntax of the oldest Indo-Iranian languages, Ph.D. Dissertation, Harvard University. Cambridge, MA.
- Hale, Mark. 1987b. Notes on Wackernagel's Law in the language of the Rigveda. In *Studies in memory of Warren Cowgill (1929–1985): Papers from the Fourth East Coast Indo-European Conference*, ed. Calvert Watkins, 38–50. Berlin – New York: Walter de Gruyter.
- Harris, Alice C. & Lyle Campbell. 1995. *Historical Syntax in Cross-Linguistic Perspective*. Cambridge: Cambridge University Press.
- Harrison, Shelly P. 2003. On the Limits of the Comparative Method. *The Handbook of Historical Linguistics*, ed. by Brian D. Joseph & Richard D. Janda, 343–368. Oxford: Blackwell.
- Havers, Wilhelm. 1911. *Untersuchungen zur Kasussyntax der indoeuropäischen Sprachen*. Strassburg: Trübner.
- Hettrich, Heinrich. 1990. *Der Agens in passivischen Sätzen altindogermanischer Sprachen*. Göttingen: Vandenhoeck und Ruprecht.

- Hettrich, Heinrich. 2014. Zum Agens in passivischen Sätzen des Rigveda. Na-wa/i-VIR.ZI/A MAGNUS.SCRIBA – *Festschrift für Helmut Nowicki zum 70. Geburtstag*, ed. by Cyril Brosch & Annick Payne, 107–112. Wiesbaden: Harrassowitz.
- Hjelmlev, Louis. 1935. *La catégorie des cas: Etude de grammaire générale* (Acta Jutlandica: Aarsskrift for Aarhus Universitet 9.3). Copenhagen: Munksgaard
- Hock, Hans Heinrich. 1985–1986. Voice, mood, and the gerundive (kr̥tya) in Sanskrit. *Indologica Taurinensia* 13: 81–102.
- Hock, Hans Heinrich. 2013. Reconstruction, Typology, Validation. *Journal of Historical Linguistics* 3(2): 49–76.
- Hopper, Paul J. & Sandra A. Thompson. 1980. Transitivity in Grammar and Discourse. *Language* 56: 251–299.
- Inslar, Stanley. 1975. *The Gāthās of Zarathustra*. Leiden: Brill.
- Jackendoff, Ray. 1997. *The Architecture of the Language Faculty*. Cambridge, MA: MIT Press.
- Jakobson, Roman. 1936. Beitrag zur allgemeinen Kasuslehre: Gesamtbedeutungen der russischen Kasus. *Travaux du Cercle Linguistique de Prague* 6: 240–299.
- Jamison, Stephanie W. 1979. The Case of the Agent in Indo-European. *Die Sprache* 15.129–143.
- Jamison, Stephanie W. 2000. On Translating the Rig Veda: Three questions. *Proceedings of the 11th Annual UCLA Indo-European Conference. Los Angeles, June 4–5 1999*, ed. by Karlene Jones-Bley, Martin E. Huld, & Angela Della Volpe, 1–20. Washington: Institute for the Study of Man.
- Jasanoff, Jay H. 2006. The Origin of the Latin Gerund and Gerundive: A New Proposal. *Harvard Ukrainian Studies* 28(1–4): 195–208).
- Jeffers, Robert J. 1976. Syntactic Change and Syntactic Reconstruction. *Current Progress in Historical Linguistics: Proceedings of the Second International Conference on Historical Linguistics*, ed. by William M. Jr. Christie, William M. Jr., 1–15. Amsterdam.
- Joseph, Brian D. 2012. A Variationist Solution to Apparent Copying Across Related Languages. Copies vs. Cognates in Bound Morphology, ed. by Lars Johanson & Martine Robbeets, 151–164. Leiden: Brill.
- Joseph, Brian D. 2013. Demystifying Drift: A Variationist Account. *Shared Grammaticalization: With special focus on the Transeurasian languages*, ed. by Martine Robbeets & Herbert Cuyckens, 43–66. Amsterdam: John Benjamins.
- Kanga, Kavasji Edulji. 1891. *A Practical Grammar of the Avesta Language*. Bombay: Education Soc. Press.
- Kay, Paul and Fillmore, Charles J. 1999. Grammatical Constructions and Linguistic Generalizations: the What's X Doing Y? Construction. *Language* 75(1): 1–33.
- Keydana, Götz. 2013. *Infinitive im Rigveda: Formen, Funktion, Diachronie*. Leiden: Brill.
- Kikusawa, Ritsuko. 2002. *Proto Central Pacific Ergativity: Its Reconstruction and Development in the Fijian, Rotuman and Polynesian languages*. Canberra: Pacific Linguistics.
- Kilgarriff, Adam. 1997. I Don't Believe in Word Senses. *Computers and the Humanities* 31(2): 91–113.
- Klein, Jared. 2010. Review of “Principles of Reconstruction”, ed. by Gisela Ferraresi and Maria Goldbach (2008). *Language* 86: 720–726.
- Krause, Wolfgang & Werner Thomas. 1960. *Tocharisches Elementarbuch*. Heidelberg: C. Winter.
- Kühner, Raphael & Gerth, Bernhard. 1955. *Ausführliche Grammatik der griechischen Sprache: Satzlehre*. Hannover: Hahn.

- Kühner, Raphael and Stegmann, Carl. 1955. *Ausführliche Grammatik der lateinischen Sprache: Satzlehre*. 3. Aufl. Leverkusen: Gottschalk.
- Kulikov, Leonid. 2011. Passive to anticausative through impersonalization: The case of Vedic and Indo-European. Impersonal constructions. A cross-linguistic perspective, ed by Anna Siewierska & Andrej Malchukov, 229–254. Amsterdam: John Benjamins.
- Kulikov, Leonid. 2012. *The Vedic -ya-presents: Passives and intransitivity in Old Indo-Aryan*. Amsterdam: Rodopi.
- Kulikov, Leonid & Nikolaos Lavidas. 2013. Reconstructing Passive and Voice in Proto-Indo-European. *Journal of Historical Linguistics* 3(2): 101–124.
- Kurschat, Friedrich. 1986. *Grammatik der litauischen sprache*. Halle: Verlag der Buchhandlung des Waisenhauses.
- Lakoff, George & Mark Johnson 1980. *Metaphors We Live By*. Chicago: University of Chicago Press.
- Langacker, Ronald W. 1991. *Foundations of Cognitive Grammar II: Descriptive Application*. Stanford: Stanford University Press.
- Leskien, A. 1919. *Litauisches Lesebuch mit Grammatik und Wörterbuch*. Indogermanische Bibliothek., Erste Reihe, Lehr- und Handbücher; 12. Bd. Heidelberg: C. Winter.
- Leumann, Manu, Johan Baptist Hofmann, & Anton Szantyr. 1972. *Lateinische Syntax und Stilistik*, Part 2, Volume 2. Reprint. Munich: C. H. Beck.
- Lühr, Rosemarie. 2004. Thematische Rollen und Kasus: Zu Agens und Patiens beim Passiv im Altindischen. *Linguistische Arbeitsberichte* 81, 99–126.
- Lühr, Rosemarie. 2008. Competitive Indo-European Syntax. In *Principles of Syntactic Reconstruction*. Eds. Gisela Ferraresi & Maria Goldbach, 121–159. Amsterdam: John Benjamins.
- Luraghi, Silvia. 1986. On the distribution of instrumental and agent markers for human and non-human agents of passive verbs in some Indo-European languages. *Indogermanische Forschungen* 91, 48–66.
- Luraghi, Silvia. 1995. Prototypicality and agenthood in Indo-European. *Historical Linguistics* 1993, ed. by Henning Andersen, 259–268. Amsterdam: John Benjamins.
- Luraghi, Silvia. 2000. Spatial metaphors and agenthood in Ancient Greek. *125 Jahre Indogermanistik in Graz*, ed. by Ch. Zinko & M. Offisch, 283–209. Leykam: Graz.
- Luraghi, Silvia. 2010. Experiencer predicates in Hittite. *Ex Anatolia lux: Anatolian and Indo European Studies in Honor of H. Craig Melchert on the Occasion of his Sixty-Fifth Birthday*, ed. by Ronald Kim, Norbert Oettinger, Elisabeth Riecken & Michael J. Weiss, 249–264. Ann Arbor: Beech Stave Press.
- Luraghi, Silvia. 2016. The Dative of Agent in Indo-European Languages. *STUF – Language Typology and Universals* 69(1): 15–47.
- Macdonnell, Arthur Anthony. 1916. *A Vedic Grammar for Students*. Oxford: Oxford University Press.
- Matasović, Ranko. 2013. Latin *paenitet me, miseret me, pudet me* and active clause alignment in PIE. *Indogermanische Forschungen* 118.93–110.
- Menge, Hermann. 2000. *Lehrbuch der lateinischen Syntax und Semantik: Völlig neu bearbeitet von Thorsten Burkard und Markus Schauer*. Darmstadt: Wissenschaftliche Buchgesellschaft.
- Michaelis, Laura A. 2009. Sign-Based Construction Grammar. *The Oxford Handbook of Linguistic Analysis*, ed. by B. Heine and H. Narrog, 155–176. Oxford: Oxford University Press.

- Michaelis, Laura A. 2013. Sign-Based Construction Grammar. *The Oxford Handbook of Construction Grammar*, ed. by T. Hoffman and G. Trousdale, 133–152. Oxford: Oxford University Press.
- Narrog, Heiko. 2010. Voice and non-canonical case marking in the expression of event-oriented modality. *Linguistic Typology* 14, 71–126.
- Oberlies, Thomas. 2003. *A Grammar of Epic Sanskrit*. Berlin: de Gruyter.
- Onishi, Masayuki. 2001. Non-canonically marked subjects and objects: Parameters and properties. *Non-Canonical Marking of Subjects and Objects*, ed. by Alexandra Y. Aikhenvald, R. M. W. Dixon & Masayuki Onishi, 1–51. Amsterdam: John Benjamins.
- Ottósson, Kjartan G. 1992. *The Middle Voice in Icelandic*. Ph.D. dissertation, Lund University.
- Palmer, Frank R. 2001. *Mood and Modality*. 2nd Edition. Cambridge: Cambridge University Press.
- Reichelt, Hans. 1909. *Awestisches Elementarbuch*. Heidelberg: C. Winter.
- Reichelt, Hans. 1911. *Avesta reader: texts, notes, glossary and index*. Strassburg: Verlag von Karl J. Trübner.
- Sag, Ivan A. 2012. Sign-based Construction Grammar: An informal synopsis. *Sign-based Construction Grammar*, ed. by Hans C. Boas & Ivan Sag, 69–202. Stanford: CSLI Publications.
- Schleicher, August. 1856. *Handbuch der litauischen sprache*. Prag: J.G. Calve.
- Schmalstieg, William R. 1987. *A Lithuanian Historical Syntax*. Columbus, Ohio: Slavica Publishers.
- Senn, Alfred Erich. 1966. *Handbuch der litauischen Sprache. 1, Grammatik*. Heidelberg : C. Winter.
- Shibatani, Masayoshi. 1985. Passives and related constructions: A prototype analysis. *Language* 61. 821–848.
- Skjærvø, Prods Oktor. 2003. *An Introduction to Young Avestan*, rechecked 4th version. Unpublished. Available online at <https://www.fas.harvard.edu/~iranian/Avesta/>.
- Smith, Michael B. 2001. Why Quirky Case Really Isn't Quirky (Or How to Treat Dative Sickness in Icelandic). *Polysemy in Cognitive Linguistics*, ed. by Hubert Cuyckens & Britta Zawada, 115–159. Amsterdam: John Benjamins.
- Smyth, Herbert Weir. 1963. *Greek grammar* (revised by Gordon M Messing). Cambridge: Harvard University Press.
- Swaab Tamara, Colin Brown & Peter Hagoort. 2003. Understanding Words in Sentence Contexts: The Time Course of Ambiguity Resolution. *Brain and Language* 86(2): 326–343.
- Tsunoda, Tasaku. 1985. Remarks on Transitivity. *Journal of Linguistics* 21.385–396.
- Van Hoeske, Willy. 2011. The Latin Dative. *The Dative: Volume 1: Descriptive studies*. Amsterdam: John Benjamins.
- Viti, Carlotta. 2014. Reconstructing Syntactic Variation in Proto-Indo-European. *Indo-European Linguistics* 2: 73–111.
- Viti, Carlotta. 2016. Areal distribution of argument marking of Indo-European experience predicates. *Journal of Indo-European Studies* 44: 1–84.
- Walkden, George. 2014. *Syntactic Reconstruction and Proto-Germanic*. Oxford: Oxford University Press.
- Watkins, Calvert. 1976. "Toward Proto-European syntax: Problems and pseudo-problems." In Steever, S., Walker, C. & Mufwene, S. (eds.), 305–326.
- Werner, Thomas. 1951. *Die tocharischen Verbaladjektive auf 1: Eine syntaktische Untersuchung*. [Diss.]. Series: Berlin. Deutsche Akademie der Wissenschaften. Institut

- für Orientforschung. Veröffentlichung, 9. Göttingen: Deutsche Akademie der Wissenschaften. Institut für Orientforschung.
- Wessén, Elias. 1965. *Svensk språkhistora III. Grundlinjer till en historisk syntax* [Swedish Language History III: The Main Features of Historical Syntax]. Stockholm: Almqvist and Wiksell.
- Willis, David. 2011. Reconstructing Last Week's Weather: Syntactic Reconstruction and Brythonic Free Relatives. *Journal of Linguistics* 47(2): 407–446.
- Winter, Werner. 1984. Reconstructional Comparative Linguistics and the Reconstruction of the Syntax of Undocumented Stages in the Development of Languages and Language Families. *Historical Syntax*, ed. by J. Fisiak, 613–625. The Hague: Mouton.