

**The Morphosyntactic Origins
of the Definite Adjectives in Old Lithuanian**

Ricky Germain

A Thesis in the Individualized Program

Presented in Partial Fulfillment of the Requirements
for the Degree of Master of Arts
(Individualized Program in Classics, Languages and Linguistics) at
Concordia University
Montreal, Quebec, Canada

July 2018

© Ricky Germain, 2018

CONCORDIA UNIVERSITY

School of Graduate Studies

This is to certify that the thesis prepared

By: **Ricky Germain**

Entitled: **The Morphosyntactic Origins of the Definite Adjectives in Old Lithuanian**

and submitted in partial fulfillment of the requirements for the degree of

Master of Arts

complies with the regulations of this University and meets the accepted standards with respect to originality and quality.

Signed by the final examining committee:

_____ Chair
Dr. Rachel Berger

_____ Examiner
Dr. Madelyn Kissock

_____ Examiner
Dr. Annette Teffeteller

_____ Thesis Supervisor
Dr. Mark Hale

Approved _____
Graduate Program Director

_____ 20 _____

Dr. Paula Wood-Adams
Dean of Graduate Studies

ABSTRACT

The Morphosyntactic Origins of the Definite Adjectives in Old Lithuanian

Ricky Germain

The Lithuanian definite adjective construction originates from the suffixation of the Proto-Indo-European **ye/o-* relative pronoun to simple form adjectives (*baltas* vs. *baltasis*). Although this category has formal parallels in virtually every member of Balto-Slavic, the facts of its historical development are largely lost due to the relatively late attestation of both Baltic and Slavic. Evidence from Old Lithuanian, however, suggests that grammaticalization of the definite marker as adjectival morphology occurred exceptionally late, likely after the split of Baltic and Slavic. Furthermore, Old Lithuanian shows signs of the definite marker also having encliticized to nominal modifiers, most often found in the locative case (*tėvas dangujejis*, father in heaven).

The present thesis explores the implications of how the relative pronoun, and by extension relative clauses in Proto-Indo-European, could undergo development to form the adjectival construction of Modern Lithuanian. First, the analysis motivates the origins of the definite marker from the domain of syntax by relying on establishing a structural parallel in the historical development of the reflexive particle *si*—known to have been a Wackernagel’s Law clitic by comparison with facts of Slavic—with that of the deverbal adjectives of Old Lithuanian when taken in their definite form (*pajoprasto* vs *prastojo*, *nusiprausti* vs *praustis*). Both these particles’ complementary distribution as prefix and suffix suggests earlier sensitivity to elements of clausal syntax. On this evidence, a reconstruction for Proto-Balto-Slavic clauses is posited and the internal evidence is further corroborated by the use of the comparative method on Balto-Slavic and Indo-Iranian, the latter still attesting the Proto-Indo-European relative pronoun in its original use.

Finally, the early development of the predecessor to the definite marker *jis* is explored for the period from Proto-Indo-European up until latest Proto-Balto-Slavic. Using the history of the Iranian *ezafe* as a case study for a parallel development in early Balto-Slavic, a careful account is given of the reanalysis of adjectival and nominal predicates in relative clauses to justify the formation of both definite adjectives and *dangujejis* type construction.

Acknowledgment

I would like to thank my supervisor, Dr Mark Hale of Concordia University, whose lectures and teachings I have followed since the beginning of my undergraduate career at Concordia. His take on linguistics has always guided me towards asking the difficult questions and never taking the status quo for granted. The numerous hours spent listening to him lecture on various subjects have given me the tools for linguistic reflection I otherwise would not have developed. My curiosity for language is always awakened by the sharing of his mind.

I would also like to thank Dr Madelyn Kissock and Dr Annette Teffeteller both at Concordia University for their many years of guidance. Dr Kissock, during my undergraduate Sanskrit course, guided me through my first experience learning an ancient Indo-European language. Dr Teffeteller likewise opened my eyes to the rich world of Greek and Anatolian studies. Both of them broadened my grasp of Indo-European studies by conveying their passion for what they do.

Over in Lithuania, at Vilnius University, I would most like to thank those professors who guided me through my learning of Lithuanian. Namely, I thank Rita Migauskienė, whose approach to grammar always kept me on my toes and whose appreciation of my linguistic inquiries only brought me to ask even more subtle questions. I thank Joana Pribušauskaitė, whose conviction that her class was always capable of the challenges she set forth only shaped me into a better, more resilient language learner. Finally, I also thank Eglė Vaisetaitė for making a vocabulary class worth attending each time. I can very much say now that thanks to these teachers, Lithuanian is a part of me forever.

Lastly, I owe the completion of this master's thesis to those friends and colleagues who've supported me both intellectually and psychologically throughout this five year endeavour. I thank Dr Laura Grestenberger for reviewing an early draft of my first chapter. There were many times when I couldn't put my ideas to paper and allowed them to ferment too long in my head. My friend Kamal has been a source of encouragement and motivation through his fervent willingness to remind me to act rather than to stagnate. His attitude has certainly rubbed off on me and has allowed me to put to rest many doubts about myself. I thank also Fred, for convincing me that this work was worth completing in a time when I simply no longer wanted anything to do with it. Finally, I thank those in life who celebrate freedom to choose one's own path, whatever that may be.

Contents

1	Introduction	1
1.1	Context	1
1.2	Problem	3
1.3	Response	5
1.4	Outline of Chapters	5
2	The Syntactic Origins of <i>jis</i>	7
2.1	Preliminaries	7
2.2	Deverbal Adjectives	8
2.3	The Morphological Distribution of <i>si</i>	9
2.4	The syntactic parallel	12
3	Balto-Slavic in the Indo-European Context	15
3.1	Preliminaries	15
3.1.1	Correspondence Sets	16
3.1.2	The Choice of Indo-Iranian	17
3.2	Proto-Balto-Slavic	17
3.3	Vedic	18
3.4	Iranian	20
3.4.1	Avestan	20
3.4.2	Old Persian	21
3.4.3	The Iranian Preverb	22

3.5	Conclusions	22
4	Evidence for a Balto-Slavic <i>ezafe</i>	25
4.1	Iranian <i>Ezafe</i>	26
4.2	Balto-Slavic <i>Ezafe</i>	27
4.3	Further Notes on the <i>dangujejis</i> Construction	29
5	Concluding Remarks	31

Chapter 1

Introduction

1.1 Context

Modern Lithuanian possesses a category of adjectives commonly referred to as *įvardžiutiniai būdvardžiai* (pronominal adjectives) or definite adjectives. This formation, historically common to the Balto-Slavic family, but retained in various forms and usage by only a few of its modern descendents, derives from the merging of regular basic form adjectives and a suffix *-jis* of debatable origin.¹ Barring certain specific cases of phonological reduction (through haplology or various regular sound changes occurring in the language in word final syllables)², the Lithuanian version of this suffix remains fully declinable alongside the ending of the basic form adjective:

Fig. 1 Masculine adjectival paradigm for *šaltas*, ‘cold’³

Declension	Basic Form	Definite Form
Nom.Sg.	šaltas	šaltàsis (šaltas+jis)
Gen.Sg.	šalto	šaltojo (šalto+jo)
Dat.Sg.	šaltám	šaltájam (šaltám+jam)
Acc.Sg.	šaltą	šaltąjį (šaltą+jį)
Instr.Sg.	šaltu	šaltuoju (šaltu+juo)
Loc.Sg.	šaltamè	šaltãjame (šaltamè+jame)
Ill.Sg.	šaltañ	šaltãjan (šaltañ+jan)
Nom.Pl.	šaltì	šaltieji (šaltì+jie)
Gen.Pl.	šaltũ	šaltũju (šaltũ+ju)
Dat.Pl.	šaltíems	šaltíesiams (šaltíems+jiems)
Acc.Pl.	šaltus	šaltúosius (šaltus+juos)
Instr.Pl.	šaltaĩs	šaltaĩsiais (šaltaĩs+jais)
Loc.Pl.	šaltuosè	šaltuõsiuose (šaltuosè+juose)
Ill.Pl.	šaltúosna	šaltúosiuosna (šaltúosna+juosna)

¹Senn p.163 Section 195

²Zinkevičius (1957)

³Senn p.145 and p.165, this adjective continues the Proto-Indo-European o-stem. The examples chosen have movable accent (first declension, accent type 3)

The grammatical function of these adjectives in Modern Lithuanian is twofold. They may mark a noun phrase as definite, as in:

- (1) *Matau mažą vyrą*
 I-see small-DEF man
 ‘I see the small man’

They may also emphasize the singularity of the noun’s referent:

- (2) *Baltieji rūmai*
 White-EMPH House
 ‘the White House’

- (3) *žalioji arbata*
 green-EMPH tea
 ‘green tea’ (in contrast to teas of other known varieties).

Which of the two meanings is the original has been the subject of much debate and is undoubtedly tied to how this class of adjectives came into being. Valeckienė 1990 summarizes both arguments for the definite and emphatic meanings as the original, and ultimately argues that the emphatic use may have been older. The idea that one use derives from the other makes sense, given that an example like in (2) requires some overlap between definite and emphatic use of the adjectives. ‘The White House’ is necessarily an intrinsically definite noun phrase, given its referent, but also fits just as well into the category of emphatic, as seen in (3).

Aside from the definite adjectives, Lithuanian does not have any other common way of overtly marking definite noun phrases.⁴ The marking for definiteness on adjectives is rather peculiar given this fact, as without the presence of an adjective, definiteness is determined by extralinguistic context alone. Despite the lack of definite articles in Lithuanian and Balto-Slavic historically, the sole definite marker should occur only in conjunction with adjectives, a non-obligatory part of most noun phrases.

For more than a century, linguists have entertained two major hypotheses regarding the source word which gave rise to the Modern Lithuanian affix *-jis*. Both views seem to suggest three stages of development: free word, clitic, and affix.

- 1) The affix *-jis* is the final stage of derivation from the lexical reanalysis of the third singular personal pronouns *jis, ji* into deictics. Though no documented evidence exists for a demonstrative *jis, ji*, proponents of this view often rely on the striking parallel in forms of both adjectival affix and personal pronoun to state the likelihood of their claim. In this view, the creation of definite adjectives would find its path to existence through the cliticization of demonstrative *jis, ji* to basic form adjectives and their ultimate reanalysis as definite markers. This view is largely held by those more familiar with the Slavic material, where similar data within Slavic coherently points to this hypothesis as a probable course of development.⁵

⁴This is true for most of Slavic and all of East Baltic. Old Prussian, however, seems to have innovated a definite article by repurposing its demonstrative *stas, sta* (cf. Lith. *šitas, šita*, a proximal demonstrative), likely due to German influence on the language

⁵See Petit 2009 for a full account of the major players in the field.

2) A more attractive explanation among Indo-Europeanists, in consideration of the Baltic material which retains more archaic features of the Balto-Slavic proto-language, comes from positing the marker's origins from the former PIE **ye/o-* relative pronoun (Greek *ὄς*, Sanskrit *yah*). As in 1) above, this pronoun would have undergone reanalysis into an enclitic marker that later developed into an affix. Although the motivations for a relative pronoun becoming a marker for definiteness are not properly understood, proponents of this view often compare the Iranian *ezafe*, also from PIE **ye/o-*, whose existence offers in many ways a seemingly parallel case of development.⁶

Furthermore, both hypotheses have been granted extensive investigation in Petit 2009. After weighing the evidence in support of both views, Petit concludes that the relative pronoun stands better chances at finding a plausible explanation. Petit motivates this claim in part due to the peculiarities of the construction within Baltic itself, for which the demonstrative pronoun hypothesis in 1) simply cannot account.

1.2 Problem

In general, no triggering factor has in fact been identified to motivate the existence of the change (a ubiquitous issue in problems involving language change), save for invoking word order as providing the necessary context to engender the change. Word order alone, such as adjacency of two words, is usually not enough to explain why reanalysis happens in some contexts and not others. Settling for such an explanation offers little insight into the language change process as a natural occurrence of human language. The presence of two particular uses of the so-called definite marker *jis* in Old Lithuanian texts can bear light on the issue at hand: the creation of definite forms to nominal modifiers, as in the *dangujėjis* construction, and the morphological peculiarities of the definite forms of deverbal adjectives, where the marker often occurs as a prefix rather than a suffix (cf. Old Lithuanian *pa-jo-prasto* vs Modern Lithuanian *pa-prasto-jo*).

First, the main component of the *dangujėjis* construction is the occurrence a nominal modifier in either the genitive or locative case. This modifier, despite being inflected with nominal morphology, is encliticized by a definite marker agreeing for case, number and gender with the modifier's head noun.

This construction can often be used as a stand-in for adjectival expressions.

- (4) *Bet Tevas manas dangujė-jis ...* (DP 467, line 43)⁷
 But father.NOM.SG my.NOM.SG heaven.LOC.SG.-*jis*.NOM.SG
 'But my heavenly father ...'
- (5) *... Idant geistumbime dangujė-jų daiktų* (DP 532, line 29)
 ... So-that desire.we.may heaven.LOC.SG.-*jų*.GEN.PL things.GEN.PL
 '... So that we may desire heavenly things.'

The existence of the *dangujėjis* construction should place in doubt any conveniently simplistic explanation on how definite adjectives came into being. Old Lithuanian attests to the definite marker

⁶See Senn 1966, Stang 1966, and Zinkevičius 1957, to name a few.

⁷Examples taken from the Old Lithuanian text Daukša's *Postilė*. I have modernized the orthography for readability.

attaching to words that clearly cannot fall into the category of adjectives. Senn 1966 briefly remarks on the construction, but writes it off as a mere neological formation which merges the definite marker with a variety of case forms of nouns acting as spatio-temporal adverbs (*danguje*, *žemėje*, *dienoje*, etc.):

"There are in Daukša's Postilė adjectives, which are derived from the locative singular of a noun describing a place, more rarely a time, with the suffixed *jis*, *ji* pronoun [...]"⁸

In essence, Senn 1966's take appears to be that the *dangujėjis* construction, at least from a synchronic perspective, behaves much like regularly formed definite adjectives.⁹ However, this does little to explain how the construction could have come into being in the first place. Given that adjectival forms derived from these nominal roots already exist in Old Lithuanian texts (*dieninysis*, the daily, *naktinysis* the nightly, *dangiškasis* the heavenly, *žemiškasis* the earthly, etc.), it seems unlikely that speakers would have needed to innovate in this manner. What the *dangujėjis* construction suggests, however, is an earlier stage of the language where, before becoming an affix, *-jis* was allowed to encliticize to both adjectives and nouns when these acted as nominal modifiers. The attested forms of Old Lithuanian would have been brought on by its original function, whatever it may have been. The *dangujėjis* construction therefore makes more sense as an archaic retention than a neologism.

Second, deverbal adjectives also exhibit peculiar behaviour when attested in their definite form. Alongside their use as attributive participles, they also retain verbal prefixes which descend from the preverbs of common Indo-European inheritance. Widely attested in the Old Lithuanian corpus is the complementary distribution of the definite marker in some cases as a suffix to an attributive participle and in other cases as a prefix. This seems reliant upon the presence of a preverb (now grammaticalized into a prefix):

- (6) *pa-jo-prasto* (DP 98) (cf. Modern Lith. *pa-prasto-jo*)
 preverb-*jo*.GEN.SG-common.GEN.SG
 'of the common one'
- (7) *visi su-jie-spausti* (DP 65) (cf. Modern Lith. *su-spaustie-ji*)
 all.NOM.PL preverb-*jie*.NOM.PL-pressed.NOM.PL
 'all the ones pressed together'

The above observation on the distribution of the definite marker for this type of adjective prompts the question of when exactly Proto-Indo-European preverbs, widely known for their separability from the verb in most ancient Indo-European languages, fused with their respective verb. Given the prefixation of the definite marker only in cases where the preverbal prefix appears, it seems highly likely that the resultative configuration in Old Lithuanian harkens back to a time when both preverb and definite marker had greater syntactic autonomy, perhaps even to a time before the definite marker was enclitic to any other element in the clause. However, no direct evidence of this exists within the attested Balto-Slavic records.

The above evidence demonstrates that an etymology of the definite adjective construction that considers only its form as a lexical item, without an approach to the history of Baltic as a holistic

⁸Senn 1966, p.169, section 206; translation mine

⁹In fact, his *Handbuch der Litauischen Sprache* only offers examples of locative nouns in this construction, perhaps also preventing an appreciation for the complexity of the issue at hand.

system, is insufficient in properly explaining the path taken to arrive at its modern day form. Significant evidence exists to motivate the search for a syntactic explanation to the rise of the definite adjective construction and its apparent sister form in the *dangujejis* construction. Thus far, very little weight has been placed on a reconstruction that would allow for an etymology verifiable through an assessment of each discernable syntactic state *jis* must have undergone in its diachronic development.

1.3 Response

In short, the history of the definite adjectives must be fleshed out. It must be placed within the broader context of the historical syntax of Balto-Slavic languages, and its interaction with various other phenomena of syntactic nature must also be considered. Barring Petit 2009's recent examination of the problem, the field's two major hypotheses only provide a cursory glance into the hidden history of the definite adjectives. Proponents have rarely explored the full implications that their respective view may have for the history of the syntactic systems of ancestral Balto-Slavic.

It is well known from typological regularities that free words, clitics and affixes exist on a morphosyntactic cline, where free words tend towards cliticization before eventually being reanalyzed into affixes¹⁰. The definite adjectives readily provide a case study of this phenomenon. We are dealing with what once would have been a syntactically autonomous lexical item, whose reanalysis into a clitic must assuredly have been engendered not only by regular principles of language change, but also by the particular synchronic state of the grammar at the time of reanalysis. These factors must also be identified and explored for what they can tell us about early Balto-Slavic syntax.

The present research is primarily an attempt at exploring the definite marker's historical interactions with and influence by other aspects of Balto-Slavic syntax, in order to give rise to the various phenomena attested in Old Lithuanian texts. I argue that the origins of the *dangujejis* construction and the definite marker's behaviour when paired with deverbal adjectives are not simply oddities of the language but are remnant aspects of the original nature and fundamental function of the definite marker.

The methodology employed in this research rests on simultaneously considering the case of language change under the lens of diachronic and synchronic linguistics.¹¹ Not only are the chronologically successive morphosyntactic changes from free word to clitic to affix important to map out, but also a proper understanding of the synchronic states of the grammar at each of these formal stages can undoubtedly provide further evidence of the validity of certain hypotheses. This latter aspect is crucial in uncovering the potential linguistic environment that would engender a change as the one in question.

1.4 Outline of Chapters

In chapter two, the facts are laid out to provide through intra-Balto-Slavic evidence an argument for the origins of *jis* as a former sentential clitic from the Proto-Indo-European relative pronoun. Old

¹⁰Brinton and Traugott 2005

¹¹See Hale 2007 for a fuller explication of the theoretical framework on diachronic linguistics which has inspired this research.

Lithuanian's particular placement of *jis* between preverbal prefix and verbal stem in deverbal adjectives offers a parallel distribution with another clitic in the language guaranteed to have sentential origins: the reflexive object clitic *si*. Comparative evidence from Slavic pronominal object clitics, which still follow Wackernagel's Law of second position, and which are etymologically related to the Lithuanian reflexive, offer a way of confirming the original behaviour of these clitics in early Baltic. Finally, sketch is given of the type of environment which would have likely allowed for reanalysis: a relative clause containing both a predicate adjective and a null copula.

In chapter three, the definite adjectives' origins from old relative clauses is further reinforced. The comparative method is put into practice once again in order to establish correspondences between the features posited for Proto-Balto-Slavic in the previous chapter and those of ancient Indo-Iranian languages, which preserve the use of a free word relative pronoun *yah*. Hale's 1987 analysis of Vedic and Old Iranian clause structures not only provides comparative evidence for the final stage of Indo-European before Balto-Slavic and Indo-Iranian daughters split from common Indo-European, but it also serves to provide a glimpse into the synchronic workings of early Indo-European relative clauses before further morphosyntactic reanalysis.

In chapter four, attention is placed on fleshing out the intermediate stage of development that occurred during the Proto-Balto-Slavic period, from the branch's split from Proto-Indo-European up until the split of Baltic and Slavic daughters from their common ancestor. Having established the necessary starting point of the construction from relative clauses with adjectival and nominal predicates in Proto-Indo-European, the role that *jis* played as a functional element of certain modifier phrases is further defined. This is done by the intermediary of a case study found in the Iranian *ezafe* construction, for which several stages of development are documented that are simply lost to history for Balto-Slavic *jis*. Though significant formal differences abound, the *ezafe* is prime material in offering a justification resting on typological the historical development of the definite marker from archaic relative clauses.

Chapter 2

The Syntactic Origins of *jis*

2.1 Preliminaries

In its earliest attestation, the definite adjective exhibits already in Old Lithuanian strong signs of being fully grammaticalized, similarly to the forms observed in the modern Balto-Slavic languages. Despite this fact, traces of the past are still reflected in the idiosyncracies of Old Lithuanian morphology.

Zinkevičius's¹ findings on early Old Lithuanian separability of the definite marker from its related adjective suggest that the former only underwent the formal change from clitic to affix not long before Old Lithuanian textual documents were first produced.

This evidence is established mainly on the relatively recent innovation of directional cases in Old Lithuanian (allative, illative and adessive), likely due to extended contact with Finnic populations more than a millennium ago. These case forms are created from the fusion of both traditional genitive, accusative and locative cases with various postpositions that were in common use at that period. The definite adjective forms of these cases in turn exhibit doubling of the postposition: once for the original adjectival ending and once for the definite marker itself.

(8) *tikrosp vienybėsp*
true.ALL.SG unity.ALL.SG
'to (a) true unity'

(9) *tikrosp=iosp vienybėsp*²
true.ALL.SG=*jis*.ALL.SG unity.ALL.SG
'to the true unity'

As shown above for the allative case (formed from the feminine genitive endings *-os* and *-ės* and the postposition *pi*, later reduced to *-p*), both the adjective proper and the definite marker receive this new case marking. The doubling itself is sufficient to conclude that the definite marker must have had greater syntactic autonomy than a suffix at the time of formation of these new nominal cases.

¹Zinkevičius (1957) p.6-7

²Definite example from the Old Lithuanian text *Margarita Theologica* (Simonas Vaišnoras, ca. 1600) p.207, line 1

Otherwise, it would not be expected for the original postposition, a part of speech which normally retains some syntactic autonomy, to be able to intervene between the simple form adjective and the definite marker, the latter which must already have been an affix at this synchronic stage.

As expected, the reverse scenario is unattested. Had we been dealing with an affixal rather than enclitic *jis* at the time these new case forms were created, a form such as the following would be expected to be observed:

- (10) **tikrosiosp vienybėsp*
 true.ALL.SG.DEF unity.ALL.SG
 ‘to the true unity’ (?)

These facts therefore allow for a relatively late dating of the definite adjective construction as a single word form. At an earlier stage of the language, and for most of its prehistory, the construction consisted mainly of a simple form adjective with the enclitic definite marker.

2.2 Deverbal Adjectives

An important contrast exists in Old Lithuanian regarding the type of lexical stem used in forming the definite adjective. Notably, attributive participles, or deverbal adjectives, do not always have the definite marker arising as a suffix, contrary to what is observed in the modern day standard language. Rather, the marker has a strong tendency to frequently surface as a prefix when the deverbal adjective retains the preverb of its verb counterpart (11). This is in marked differentiation from word stems which are primarily used in the formation of adjectives. In this latter category, the definite marker always appears as a suffixed element inseparable from the simple form endings of the adjective, as in (12):

- (11) *pa-jo-prasto*
 PV-*jis*.GEN.SG-common.GEN.SG
 ‘of the common one’
- (12) *gero-jo*
 good.GEN.SG-*jis*.GEN.SG
 ‘of the good (one)’

The morphological distribution of the definite marker for the deverbal adjectives appears to be historically sensitive to the presence of a preverb: if no preverbal prefix is present, then regardless of lexical stem type, the definite marker shows up as a suffix tacked onto the simple form adjective endings, much like the straightforward configuration we find in the modern language. See below.

- (13) *gero-jo* (MLith.)

- (14) *pa-prasto-jo* (MLith.)

The reason for the existence of this particular behaviour of the definite marker can be found if we take a look at the state of other clitics in Baltic which often make use of the verb as their host. A clear distributional parallel to the definite marker can readily be found in the behaviour of pronominal object markers, which before written history were likely sentential clitics. Now they are largely attested as verbal affixes within Baltic literature. The most widely attested of these and still in use in Modern Lithuanian is the reflexive *si*. For the purpose of this investigation and given limited time and space, it is impossible to do justice to a comprehensive analysis of all three pronominal clitics (*mi*, *ti* and *si*). The focus is therefore mainly on an analysis of *si*, as the other forms *mi* and *ti* have fallen out of use.³

2.3 The Morphological Distribution of *si*

Use of a reflexive clitic of the form *si* can be found throughout Balto-Slavic. Its form is considered to go back to Proto-Indo-European times as part of a class of pronominal object clitics (Sanskrit *me*, *te*). Old Church Slavonic maintains the enclitic status of the pronoun (*mę*, *tę*, *sę* for the accusative; and *mi*, *ti*, *si* for the dative), while Latvian has grammaticalized its reflex into a verbal suffix used to mark pronominal verb forms (*mazgāties* 'to wash oneself' vs *mazgāt* 'to wash (something)'). Though Modern Lithuanian has innovated similarly to Latvian, the status of the marker in Old Lithuanian as either an enclitic or an affix is not readily clear and requires further investigation.

As with the definite marker of Old Lithuanian, the reflexive *si* exhibits the same permutations mentioned earlier when confronted with the presence of a preverb:

- (15) *nu-prausti*
 'to wash' prf.
prausti
 'to wash' imprf.
- (16) *nu-si-prausti*
 'to wash oneself' prf.
- (17) *prausti-s(i)*
 'to wash oneself' imprf.

In essence, when the verb is accompanied by a member of a large class of verbal prefixes, many of which directly continue the Indo-European preverbs (*at-*, *ap-*, *nu-*, *pra-*, *pa-*, *be-*, *pri-*, *ne-*, *be-*, *te-*, etc.), the reflexive marker surfaces in what appears to have originally been a tmesis-like position between the preverb and the verb (16). In the absence of such a verbal prefix, the reflexive marker surfaces as a suffix or enclitic on the end of the verb form (17). It should also be noted that certain dialects of Lithuanian exhibit a significantly modified distributional pattern, though these can be readily explained through analogical leveling of forms.⁴

³For a statistical analysis of how frequently these clitics are used within Old Lithuanian texts, see [Hermann \(1926\)](#)

⁴Most strikingly one where prefixation of the reflexive simply does not occur and suffixation is the hard rule. Variations of this kind, however, can be largely explained by analogical leveling in favour of suffixation, possibly after the univerbation of preverb and verb. (see [Kaukienė \(1968\)](#) for an in-depth discussion on the state of Lithuanian and Latvian dialects vis-a-vis placement of the reflexive clitic)

Unlike the definite marker, which is always written together as part of the adjective or participle it accompanies, twice in recorded texts the Old Lithuanian reflexive marker exhibits evidence that it must have held greater syntactic autonomy at an earlier point in time. This is observed in the following:⁵

- (18) *dėl-si reŋančiy* (Su 159, line 16)
 because.of-REFL dressing.up.GEN.PL
 ‘because of the ones dressing up’
- (19) *kur-si-dėstyti* (KN 117, line 3)
 where-REFL-to.lecture-INF
 ‘where to lecture’

Most noteworthy is how these examples of the reflexive seem to abide by Wackernagel’s Law in the marker being enclitic to the first word in its clause or phrase. In (18), the reflexive marker is actually written as enclitic to a preposition *dėl*, which is introducing a prepositional phrase and therefore is also likely first position in its constituent. It may also not be mere coincidence that the word that immediately follows the marker is indeed the verb itself. In (19), the reflexive is written directly following an interrogative pronoun, likely occupying a functional position in the left periphery of the clause. Again, the proximity of the verb to the reflexive marker seems significant.

Both (18) and (19) recall the particular syntactic configuration of pronominal clitics in Old Church Slavonic, where instances of second-position sentential clitics abound.⁶ It is vital to an understanding of the history of Baltic to attempt a comparative reconstruction of the Proto-Balto-Slavic configuration in order to establish the chronology of linguistic changes necessary to derive both the Baltic and Slavic systems. In this, Slavic can play a key role due to providing comparative evidence in reconstructing aspects of Baltic and Slavic’s shared ancestor.

Although Slavic is known to be Baltic’s closest genetic relative, it differs markedly from Lithuanian in two major ways. First, pronominal clitics such as *mi*, *ti* and *si* in OCS are largely sentential and regularly surface within a clitic chain normally following the first full or partial syntactic constituent in the clause⁷. Secondly, Slavic shows no evidence of a pronominal object clitic or the definite marker ever having intervened in the preverb-verb unit, despite its far earlier attestations vis-a-vis Baltic. The simplest way of reconciling the variations in the Baltic and Slavic systems is to reconstruct a clause structure for Proto-Balto-Slavic which had the following characteristics:

- 1) The language had sentential pronominal clitics *mi*, *ti* and *si*, which all must have surfaced after an element which occupied first position in the clause. Remnants of this configuration can still be found in Modern Czech and Serbo-Croatian, and the case holds true for OCS as well.
- 2) Like other ancient Indo-European languages, Proto-Balto-Slavic had separable preverbs which were often fronted into clause initial position. It is unknown from the current standpoint whether

⁵examples taken from Kaukienė 1968, p.44

⁶Despite evidence for the generalization of second-position clitics in early Slavic, one major caveat is that there is a strong lack of extensive research into the topic of syntactic reconstruction for Balto-Slavic as a whole. Various other placement rules for the same clitics seem to exist depending on factors such as time and place the text was written. Although the assumptions about Slavic made here are in themselves sound, future research into a comprehensive untangling of all the evidence will provide some beneficial confirmation.

⁷"[...] the short forms [of the personal pronouns] are enclitic, and stand after the first full word of a clause." Lunt (1955)

clause-initial position was the default for the preverb or whether this surface word order was the result of a grammatical transformation at the relevant synchronic stage. The order however must have occurred at least frequently enough for the preverb to regularly be the host of the language's pronominal clitics.

These two features would have thus resulted in the following surface clause configuration:

(20) # PV=*si* ... V #

If this reconstruction of the Proto-Balto-Slavic system is accurate, then after the split of the Baltic and Slavic daughters, Proto-Baltic must have preserved the majority of these above traits far longer than its Slavic counterpart. Although records of Baltic languages all show evidence for eventual univertation of preverb and verb, the interruption of these two elements by the presence of pronominal clitics (mainly the reflexive) means that univertation necessarily must have occurred long after the Proto-Balto-Slavic split and entirely independent of internal Slavic history. Early in its prehistory, Slavic reanalyzed the Indo-European preverb into a verbal prefix to create unintersectable verb forms. Baltic on the other hand did not do so until after pronominal clitics had found a regular position either as a verbal enclitic in the context $V=si$ for verbs without preverb, and enclitic to the preverb when one surfaced, as in $PV=si V$.

Regarding Proto-Balto-Slavic, from a synchronic standpoint, the language must have had the following word order expressing the full range of permutations of preverb, reflexive clitic, and verb:

- a) # PV=*si* ... (X) ... V # b) # PV ... (X) ... V #
 c) # V=*si* ... (X) ... # d) # X=*si* ... V #

The first change to have occurred in Baltic must have come with the generalization of the preverb and verb as the pronominal clitics' default hosts. Once the pronominal clitics found a stable host, their syntax no longer relied on clausal positioning but rather operated from a rule of clitic placement sensitive to verbal composition. How this reanalysis could have come about can be explained by modifying some of the four syntactic contexts above.

The rule for clitic placement was primarily affected by the context in (c), where the reflexive is not only second position in the clause, but also enclitic to the main verb. Originally, this word order might only have occurred in sentences where the verb and reflexive were the only members of the clause, and therefore the verb found itself mandatorily in first position. Another scenario may have been intentional fronting of the verb into first position, much like the behaviour that preverbs exhibit. If, due to frequent fronting of the verb, the reflexive would have been reanalyzed as a verbal enclitic, this would necessarily threaten the existence of structural contexts like the one in (b), as it is unlikely that a language will retain two competing placement rules for the same clitic. The regular appearance of *si* on the main verb could equally serve to motivate the particular disappearance of contexts (a) and (d) in Latvian and in certain Lithuanian dialects, since the reflexive would have undergone a change of status as a sentential enclitic into a verbal enclitic.

All of the above discussion serves to explain the particular diachronic trajectory undertaken by the reflexive clitic throughout Baltic history to arrive at the system found in the modern language. The

same treatment undergone by the reflexive can be extended to the other pronominal object clitics of Old Lithuanian. The clitic *mi* in particular also shows evidence of having undergone a similar change: *pamiduok, give me (perfective), duokim, give me (imperfective)*. The fact that only the reflexive clitic survives into modern times does not take away from the fact that this process of grammaticalization into verbal morphology is one that an entire class of clitics seems to have been susceptible to experiencing.

2.4 The syntactic parallel

The above conclusions regarding the development of pronominal clitics in Baltic are telling for an analysis of the definite adjectives insofar as the definite marker shares a parallel morphosyntactic distribution. The prefixation of the definite marker only occurs with deverbal adjectives, initially derived from participles, and therefore from a category of words that have a direct connection to verbs and their syntactic domain. It therefore seems reasonable to apply the same analysis made on the pronominal clitics in the prior section to help explain the idiosyncracies of the definite marker in cases where they interact with participles.

To reiterate the points about the reflexive clitic above, the particular prefixation of *jis* in participles had to have happened 1) when the preverb and verb were still separable and the preverb was not a bound morpheme but rather some type of relatively autonomous adverbial element⁸; and 2) in a context where the syntactic rules of *jis* placement considered the preverb to be first position in the constituent (be it a clause, verb or adjectival phrase). How it ended up having much the same morphosyntactic development as earlier autonomous sentential clitics could be explained if *jis* played an important role in clausal syntax, such that it consistently surfaced in a similar syntactic position to the pronominal object clitics. The nature of its origins to be somehow tied to the verbal/clausal domain. We should thus consider the possibility of existence of a potential configuration of the following kind:

(13) a) # PV=*jis* ... V # b) # X=*jis* ... V #

Throughout Lithuanian linguistic history, the phrase types wherein the definite marker is found are in adjectival and nominal phrases. How then could a marker which seems restricted to the structure of nominal and adjectival phrases find itself able to intersect preverbs and verbs, when considering the origins of deverbal adjectives from lexical verb stems?

It should be apparent that what is being suggested for reconstruction above is the blueprint for an archaic clause structure found to be attested nowhere within Balto-Slavic records. It follows that the relative pronoun hypothesis must have been the correct one, given the need to explain the definite marker's similar behaviour to the reflexive clitic by positing them as having similar syntax which would have placed them in the left-periphery of the clause.

If *jis* came from the Proto-Indo-European relative pronoun, an attempt must be made to explain the different stages it could have gone through to get from its posited starting point in

Proto-Indo-European to the situation seen today. Unlike the more straightforward history of the reflexive clitic, *jis* requires additional motivations of its own for having undergone a reanalysis into the

⁸This, as stated before, is the status of preverbs for many ancient Indo-European languages, as in Sanskrit.

so apparent definite marker. Since the marker appears both alongside deverbal adjectives and nominal modifier constructions, there must have been at a previous unattested time in Baltic history a syntactic context shared by both adjectives and nominal modifiers with a co-occurring relative pronoun that encouraged reanalysis.

One such syntactic context that could have been sensitive to reanalysis are relative clauses with adjectival and nominal predicates. These predicate types regularly make use of copulaic constructions. Like all early Indo-European languages, and like every daughter of Baltic and Slavic, the use of a null copula in such constructions must certainly have been common. The lack of overt verbal elements in these cases, may have played an important role in creating enough structural ambiguity to reanalyze these relative clauses into another type of syntactic phrase:⁹

(21) Vyras [_{CP} [_{AdjP} baltas] jis_{relpro} [_{VP} **cop**]]

'The man who (is) white'

Result: 'The white man'

(22) Vyras [_{CP} pa jis_{relpro} [_{VP} prastas_{ptcp} **cop**]] 'The man who (is) common'

Result: 'The common man'

(23) Vyras [_{CP} [_{NP} danguje] jis_{relpro} [_{VP} **cop**]]

'The man who (is) in heaven' Result: 'The heavenly man'

As will be seen in the next chapters, it will become apparent how not only positing the definite marker as coming from the reanalysis of pronouns in relative clauses, but also motivating this fact by considering the predicate type for the clause itself. This allows a straightforward account of not only the modern formation of the definite adjectives but also it may help explain the *dangujė-jis* construction we find in Old Lithuanian texts should it too be proven to come from archaic relative clause structures.

⁹Modern Lithuanian orthography and forms are used for ease of reading. These lexical items are of course placeholders for the Proto-Balto-Slavic reconstructions

Chapter 3

Balto-Slavic in the Indo-European Context

3.1 Preliminaries

The insights so far provided from ascertaining the origins of *jis* from relative clauses with null copula have been produced through internal reconstruction of Lithuanian (and to some extent Baltic as a whole) in tandem with the application of the comparative method on Balto-Slavic as a sub-grouping of Indo-European. Enough information has been provided to posit the basic structural configuration of relative clauses in Proto-Balto-Slavic. The next step in this investigation is to test this hypothesis on the Proto-Balto-Slavic relative clause against facts of linguistic history that exist outside the scope of the branch under examination. Any hypothesis on the syntactic configuration of Proto-Balto-Slavic must be structurally coherent with what can be reconstructed for its Proto-Indo-European ancestor. This can be verified using the comparative method on immediate daughters of Proto-Indo-European.

By comparing the Proto-Balto-Slavic relative clause to another Indo-European daughter's, the goal is two-fold: 1) provide greater corroborative evidence for the claims so far suggested in this research; and 2) potentially recover key facts about relative clauses in Proto-Indo-European by uncovering a broader period of linguistic history for Balto-Slavic. It should be noted that the aim here is not to reconstruct Proto-Indo-European clauses in any robust fashion, as such an endeavour requires a comprehensive assessment of the relevant material from each daughter of Indo-European. In short, all that is necessary for the task at hand is strong comparative evidence from at least one branch of Indo-European which points to the same configuration that Proto-Balto-Slavic is assumed to have had.

In order to further this investigation, the comparative method must again be used. This time, however, it is worth establishing some formal methodology in order to fortify any conclusive evidence gained from its use. Hale's 2013 lecture on the nature of syntactic reconstruction provides a general outline on how the comparative method can find just as much application in syntactic reconstruction as it does for phonology and morphology if some notions about the nature of syntactic change are observed.¹

¹If we can reconstruct the morphosyntactic features of lexical items and functional heads, and we assume the syntactic computational system is universal and invariant, we can reconstruct output sentences for a protolanguage. They are what

Following his careful reasoning, the three components required to do comparative work can be laid out as follows:

1) Establish a sets of grammatical features that may act as points of comparison between synchronic states of the sister languages under examination. These correspondence sets are essentially considered direct reflexes of the shared ancestor's original grammatical feature, and each reflex in its respective daughter is assumed to have developed independently from its sister forms. An example of a grammatical feature in the case of syntax could range from the varying details of a rule of clitic placement to the use of subject-verb inversions to express yes-no interrogatives.

2) Having determined sister languages to compare, it is necessary to treat these linguistic objects in their own right as synchronic states with their own fixed set of grammatical properties. Despite sometimes our extensive knowledge of a period of linguistic history of a given language, positing the earliest reconstructable synchronic state, which undoubtedly should be structurally closer to the ancestor, allows for more accurate predictions on reconstructed forms of the ancestor. The goal is to apply as much rigour to an understanding of the coherence of the daughters' grammatical systems as linguists tend to apply to the reconstruction of the ancestor (in this case Proto-Indo-European).

3) Finally, the latest common ancestor of the daughters under comparison should be posited as a synchronic state with its own grammatical system to uncover. Rooting the beginning and end states of a linguistic change in fully fleshed out synchronic states potentially allows for a clear understanding of the type of language change needed (analogy, reanalysis, etc.) in order to go from one state to the other. It is very likely in many cases that language change turns out to require the positing of intermediate steps that end up largely irretrievable with current methods of reconstruction. Furthermore, ascertaining the overall likelihood that both daughters can be derived from the former without the need to stipulate an improbable or unlikely number of linguistic changes during either branch's history.

In essence, it is the correspondence sets which serve to justify the genetic relationship between mother and daughter languages, with the latter being genetically descended from the former, and to organize the varying degrees to which two sister languages resemble or differ from each other. These correspondences, however, cannot fully be recognized without placing them in their proper synchronic environment, as was demonstrated in the introductory section to this research. The following sections will break down further the various choices to be made for the current research.

3.1.1 Correspondence Sets

For the purpose of this investigation, the correspondence sets to be established between branches lie in two key linguistic features explored in the previous chapter when attempting to deduce the syntactic origins of the definite adjectives. First is the particular form and function of the relative pronoun **ye/o-* within the daughters. Proto-Balto-Slavic undoubtedly had an enclitic *jis* which regularly appeared in second position in a clause, following the pattern of pronominal object clitics encountered earlier. Second is the status of preverbs of Indo-European origins as having a degree of separability from their verb, a phenomenon which is well attested in virtually all early daughters (i.e. Anatolian, Indic, Greek). Moreover, the particular syntactic behaviour of preverbs within their clause when found

gets built when you run the lexical items and functional heads through the syntax." Hale (2013), paragraph 46

to be separable. The state of Proto-Balto-Slavic was such that it must have had largely separable preverbs that found themselves regularly fronted to the beginning of their clause.

3.1.2 The Choice of Indo-Iranian

In this investigation, Indo-Iranian has been chosen as a prime candidate for comparative work with Balto-Slavic, due to the daughter's ubiquitous use of the relative pronoun **ye/o-* in all early texts and the tendency for separable preverbs to be fronted in clause initial position. Sufficient research from a generativist perspective has already been carried out by Hale's 1987 dissertation on the historical syntax of both Indic and Iranian relative and interrogative clauses. Hale's work is primarily an attempt to uncover the configurational syntax of the earliest attested Indo-Iranian daughters through examining the interaction of several phenomena occurring in the left periphery of the clause. Hale defines the behaviour of mainly three phenomena: the effects of movement into the complementizer phrase on interrogative and relative pronouns; the behaviour of Wackernagel's Law clitics and their habitat within the left periphery; and the possibility for left-hand or right-hand topicalization around a central complementizer position. These features of early Indo-Iranian writings offer a glimpse into the synchronic behaviour of the Indo-European relative pronoun in actual relative function, a grammatical state which is not afforded to Balto-Slavic, given such late attestations for the branch.

Additionally, it should be noted that Indic and Iranian are both separately attested branches of the Indo-European family, but their undeniably strong genetic links compel researchers to posit a Proto-Indo-Iranian ancestor as a result of this subgrouping. The considerably large size of attested corpora for both Indic and Iranian provides an advantage for comparative work, in that the relevant findings in one sub-branch can be cross-checked against the facts of the other, thus allowing for more rigorous establishment of the exact grammatical details of Proto-Indo-Iranian. In the work that follows, both Indic and Iranian have been analyzed separately before attempting to say anything about Proto-Indo-Iranian, in order to ensure a careful step by step analysis of the likeliest scenario to reconstruct. The focus for comparative reconstruction of Proto-Indo-European, however, should be on Proto-Indo-Iranian itself.

3.2 Proto-Balto-Slavic

The rather late attestation of the daughters relative to the latest period of Balto-Slavic unity has not encouraged researchers to reconstruct Proto-Balto-Slavic in any extensive form. The facts so far uncovered in this research, therefore, aid greatly in establishing certain fundamental aspects of the history of Balto-Slavic syntax.

In the previous chapter, a reconstruction of Proto-Balto-Slavic relative clauses has been proposed. What has so far been reconstructed through this investigation is the latest common ancestor of Baltic and Slavic languages:

(24) [CP PV *jis* (...)] [VP V]

However, there exists a considerably long period of linguistic history between the split of the

Balto-Slavic branch from the rest of Proto-Indo-European and what it has so far in this research been considered to be Proto-Balto-Slavic. The use of the term Proto-Balto-Slavic, in fact, has both a synchronic and a diachronic dimension. This hypothetical language either refers to the last stage of Balto-Slavic unity, and therefore refers to a synchronic state of the language, a specifically defined grammatical system used by a certain group of people at a certain point in time; or, it refers to the period of time in the branch's history encompassing the wide variety of linguistic states the branch may have undergone, from the earliest moment at the split from Proto-Indo-European up until the creation of Baltic and Slavic sub-branches. Both definitions are correct in their own respect.

As is clear from the reconstruction in previous chapter, the final stage of Proto-Balto-Slavic did not necessarily use the **ye/o-* pronoun as a true relative. The evidence from Baltic and Slavic daughters, if taken conservatively, favour the reconstruction of a final stage where **ye/o-* as a free word relative was reanalyzed in form and function as an enclitic marker for some type of modifier phrase encompassing both nominal and adjectival phrases. This is understood from the vestigial contexts in which the relative is attested. Nowhere in Balto-Slavic is the reflex of **ye/o-* seen to express the function of a generic relative pronoun. There is, however, no evidence that prevents the existence of **ye/o-* relative as a free word relative pronoun at some point in the history of Balto-Slavic, somewhere in the millennia-long stretch from the Proto-Indo-European split up until just before the latest stage of Proto-Balto-Slavic.

3.3 Vedic

For his analysis of early Indic syntax, Hale examines the collection of hymns from the Rig Veda, known to be the branch's earliest attested text, and compares these with relatively early written Brahmana prose texts, the Taittiriya Samhita (abbreviated TS), which serves as a commentary to the Yajur Veda.² Since Hale's goal is to uncover the productive rules of grammar of the speakers of Vedic Sanskrit, the decision to include both metered verses and free form prose in his analysis better ensures unbiased predictions against peculiar conventions of language use found in either literary form.

Hale identifies several key phenomena found in the left periphery of Rigvedic relative and interrogative clauses. These exhibit a regular ordering, as they wind up in the structurally defined complementizer phrase (abbreviated CP), either in the head of C or in a further higher position above the phrase's projection, likely due to a fronted topicalizer phrase.

Compiling a list of all clauses with interrogative and relative pronouns in the Rig Veda, he denotes the following three noteworthy observations as formal rules of Vedic:³

- 1) Vedic has wh-movement of interrogative and relative elements. This rule allows relative and interrogative words to surface in the complementizer phrase of the left periphery (more specifically in head of CP), rather than in their base canonical position in the clause.
- 2) Vedic allows the topicalization of a single constituent (or subconstituent). This topicalizer position precedes the landing spot of both relative and interrogative elements in the left periphery.

²Hale (1987) Chap.1, p.5

³ibid. Chap.2, p.24

3) Vedic has at least three distinct classes of Wackernagel's Law clitics. Although these can all surface in second position in the clause, so to speak, the select conditions for each type of clitic are based on entirely independent mechanisms. As will be shown, some sentences show that so-called second position is defined differently for each clitic type.

The generalization of a move-wh rule into head of C rests upon the observation that the vast majority of clauses with interrogatives and relative pronouns have either of these in absolute first position in their respective clause. Of the 600 relative clauses that Hale documents from the Rig Veda, 500 find the pronoun in first position. For the remainder, in several instances where a constituent precedes the moved pronoun, the majority of these are found to be due to effects of topicalization of a single constituent, usually a displaced NP or VP.⁴

As the second above observation states, a single or partial constituent can be fronted to a place directly preceding C. This is illustrated in the below example:⁵

- (25) *ví yó bháribhrad óṣadhiṣu jihvām* (RV 2.4.4c)
'who would carry his tongue in the plants...'

The last observation states that clitics conforming to Wackernagel's Law are in fact regulated by three different rules of Vedic grammar. Hale demonstrates that syntactic devices such as topicalization and movement of wh-words into head of CP both frequently act as guideposts for their placement.

The first category of clitics are sentential clitics acting as conjunctives or disjunctives (i.e. *ca* 'and' or *vā* 'or') These can often be found before the relative pronoun if a constituent appears in the topic position. They appear to prefer encliticizing to the absolute most leftward element in the clause.

- (26) *utá vā yó no marcáyād ánāgasah* (RV 2.23.7a)
'or also who would harm innocent us, ...'

Furthermore, from the example in (24), the pronominal object clitic *nas*, here sandhified as *no*, is an example of the second category of clitics to define. Its positioning is not the same as conjunctives or disjunctives; rather, it appears to encliticize to whatever element is in the head of C. If no such element is present, the difference in placement would of course be obscured, as both *vā* and *no* would concatenate after *utá*.

Finally, the last category is defined by emphatic clitics, which usually encliticize to the end of the first element of a large variety of constituents (usually a noun phrase, in the case of *cit*). These are found in second position in the clause when said constituent has undergone topicalization of the second observation above.

- (27) *áśmānam cid yé bibhidúr vácobhiḥ* (RV 4.16.6c)
'who smashed even rock with words, ...'

⁴Hale (1987) p.15-16

⁵The English translation to the Sanskrit and all subsequent translations for Indo-Iranian in this chapter are taken alongside examples from Hale (1987)

As for early Vedic prose, the data from the TS lead to similar findings as those that are gleaned from the Rig Veda. Of the 400 relative clauses Hale identifies, the relative pronoun is found in first position in all but twenty. This largely matches the situation found for Vedic meter in the first observation above. In half of the exceptions, either the word *átha* then, *utá* and, or *tásmāt* therefore, precedes the relative pronoun. All three act as sentence introductory material and can be considered zero-position elements (essentially, words not abiding in the clause but directly before it). Being sentential connectors or discourse markers, they therefore are not considered first position in the clause.

Hale concludes, given the lack of any actual NP or VP constituents fronted to the left of the relative pronoun, that topicalization into this position is rare, nearly forbidden for early Vedic prose.⁶ In sum, the Indic situation would lead to positing the following for the immediate ancestor of Indic:

- 1) The relative pronoun was in the head C of the complementizer phrase.
- 2) Topicalization to the left of comp was a possible feature of the language. Only a single constituent or sub-constituent could surface before the relative pronoun.
- 3) Three independent rules of clitic placement existed, and one of them regularly placed pronominal object clitics directly after the relative pronoun in head of CP.

Furthermore, the above examples from Vedic text should serve both to demonstrate the behaviour of the relative pronoun *yaḥ* while also showcasing the separability of preverbs from their respective verb. In fact, fronting of the preverb into the topic position is a frequent occurrence.⁷ The order PV+*yaḥ* is ubiquitous in Vedic texts, and, conveniently enough, largely reflects the expected ordering for Proto-Balto-Slavic.

3.4 Iranian

Hale's findings on Iranian interrogative and relative clauses come from examining three linguistic sources: Older Avestan through the Gathas of Zoroastrianism, Young Avestan through the Great Yashts, and Old Persian through inscriptions of Darius the Great and his descendants.⁸

3.4.1 Avestan

Contrary to Vedic, Avestan exhibits topicalization of a constituent to the immediate right of interrogative and relative pronouns, which are assumed to be in the head of the complementizer phrase. In Older (Gathic) Avestan, Hale concludes that over 93% of all interrogative clauses have the pronoun in sentence initial position.⁹ This tendency is paralleled in relative clauses, where the pronoun also shows up clause initial in a large majority of cases. In the exceptions to the rule, the majority of which are interpreted early on by linguists as left-hand topicalization, Hale takes each case individually and

⁶Hale (1987) p.30

⁷"Note that the element most frequently topical around the relative pronouns in the language of the Rigveda is the preverb ..." *ibid.*, p.38

⁸*Ibid.*, p.6

⁹*Ibid.*, p.32

manages to convincingly explain these word orderings as motivated by other syntactic phenomena at play.

The main phenomenon which seems to challenge this generalization is the presence of clause initial vocatives. Hale states however that “nowhere in Indo-Iranian [these] seem to ‘count’ as first position in a clause”¹⁰. These can therefore be exempt, likely due to their parenthetical nature as optional appositive elements in the clause.

When no explanation can be found an element occurring before the relative or interrogative, Hale notes that the potential fronting around the complementizer position actually is in line with the rules uncovered for Vedic Sanskrit. This may likely be the vestiges of an archaic structure used as a stylistic device.

In the case of Younger Avestan, Hale finds in the Great Yashts few exceptions to the generalization established for Older Avestan. In fact, he states that: “In a complete survey of wh-word questions in the Great Yashts no passages were found in which the question word stood outside of the expected first position. The language has clearly generalized COMP in initial position and does not allow topicalization around this site.”¹¹

3.4.2 Old Persian

Old Persian presents a more straightforward case than Avestan, in that left-hand topicalization around the complementizer position is a clear occurrence within the corpus. Due to the stylistic nature of the texts under examination, there are no interrogatives in these inscriptional decrees to compare alongside relative pronouns. Although a majority of Old Persian sentences show the relative pronoun to be clause initial, there are times when a constituent is found on the left of the complementizer position. In some cases a null position element precedes the relative, such as *utā*.¹²

“Interestingly, Old Persian agrees with the language of the Rigveda in allowing topicalization of a single constituent around the relative pronoun. Note that corresponding to this (in contrast with the other older Iranian languages), there is no topicalization to a sentence internal position after the COMP slot. This is direct support for the claim in this thesis that the sentence-internal (after COMP + clitics) topicalization slot in Avestan evolved after topicalization around COMP ceased to be a possibility.”
(Ibid., p.58)

As regards the state of pronominal clitics in Old Persian, Hale states that their behaviour in Old Iranian seems to match the Rigvedic facts. Essentially, this category of clitics too determines its positioning relative to the CP layer, ignoring the presence of topicalized material to the left of the relative pronoun in C.¹³

- (28) *utā martiyā tyai=šaiy fratamā anušiyā āhatā avaiy Hagmatānaiy atar didām frāhajam* (DB 2.77)
'and which men were his foremost supports, these I hung inside the fortress at Hagmatana'

¹⁰ Hale (1987), p.32

¹¹Ibid., p.50

¹²Ibid., p.57

¹³Ibid., p.58

3.4.3 The Iranian Preverb

Although Old Persian has not retained the separability of its Indo-European preverbs from their respective verbs, Avestan fortunately still offers a glimpse into this configuration for Iranian.¹⁴

3.5 Conclusions

Despite the discrepancies found above for both Indic and Iranian, Hale himself asserts that the left-side topic position is in fact the original configuration to reconstruct for Proto-Indo-Iranian.¹⁵ If Indic widely preserves left-hand topicalization vis-a-vis the head of the complementizer phrase and Old Persian retains the same configuration, this is 2:1 in favour of the proto-language having allowed for a single constituent to be fronted into first position in the clause. Indeed, in the Indo-Iranian scenario, left-hand topicalization requires one less change event than right-hand topicalization in order to explain the attested outcomes in both Indic and Iranian. Therefore, the scenario where East Iranian right-hand topicalization is innovative is more likely, especially since Eastern Iranian attests to vestiges of left-hand topicalization.

The Proto-Indo-Iranian relative clause would thus have had the following configuration:

(29) [CP X_{topic} *jis* (...) [VP V]]

Furthermore, separability of the Indo-European preverb is a common occurrence, not only for Vedic but also for Eastern Iranian. In Vedic, the preverb is often found fronted to the topic position before the relative pronoun, while in Old Avestan the separable preverb lands to the right of the relative. This is likely due to the reanalysis of a topic position to the right of C.

The behaviour of each languages' separable preverbs in landing into the topic position makes the claim evident: Proto-Indo-Iranian must have also had the same rule of preverb fronting:

(30) [CP PV *jis* (...) [VP V]]

At first glance, Proto-Indo-Iranian's ordering of the various syntactic elements of the left periphery very much reflect the hypothesized configuration for early Proto-Balto-Slavic; that is, it represents the state of the language before the reduction of relative clauses by reanalysis into a marker for nominal and adjectival modifier phrases. Taking into consideration the correspondence sets established earlier in this discussion, as well as the posited reconstruction of both Proto-Balto-Slavic and Proto-Indo-Iranian relative clauses, the following points of comparison can be made:

- 1) Both Proto-Indo-Iranian *yaḥ* and Proto-Balto-Slavic *jis* surface in head of CP when acting as relative pronouns.
- 2) Both languages permit one clause internal element above the head of CP, which acts as a topicalizer position in first position.

¹⁴Beekes (1988), p.148

¹⁵Hale (1987), p.66

3) Both have a tendency to topicalize separable preverbs into first position in the clause.

The above helps to explain how we arrive at Old Lithuanian's particular distributional patterns for the definite marker and the reflexive clitic. Now that the starting point to the definite adjective construction has been ascertained through comparative evidence from Indo-Iranian relative clauses, it is time to further explore the rise of morphosyntactic particularities of the daughter form of Proto-Indo-European relative clauses within Proto-Balto-Slavic history.

Chapter 4

Evidence for a Balto-Slavic *ezafe*

As discussed in the previous chapter, the notion of Proto-Balto-Slavic denotes a time where both Baltic and Slavic languages were thought to be one single linguistic entity with a unified grammatical system. The term, however, can be defined both synchronically—as a specific punctual stage in the language’s history—or diachronically—as a period of linguistic history encompassing several stages that chronologically derive one from the other. Taking the diachronic perspective into account, no full attempt has so far been made in this study to flesh out the historical trajectory of the Proto-Indo-European relative pronoun **ye/o-* through its successive changes on its way to the form of the definite marker posited for the latest Proto-Balto-Slavic reconstruction.

It has been demonstrated that the definite marker originated within the context of the Proto-Indo-European relative clauses with null copula, but the exact implications for the chronology of the marker’s linguistic history have yet to be ascertained. Indeed, the grammaticalization of free words into affixes can best be explained in modern linguistic theory by a typological cline where a free word first is reanalyzed as a clitic, a word which has undergone considerable loss of syntactic autonomy and weakened prosody, before then becoming a bound morpheme such as an affix.¹

This process of change alone suggests at least three synchronic stages of development. The first stage is defined by the free word status of the relative pronoun in Proto-Indo-European. The second stage’s exact beginnings are difficult to ascertain. Given the comparative evidence for the status of *jis* as an enclitic in late Proto-Balto-Slavic, the second stage, defined by the relative pronoun being reanalyzed as a clitic, would have occurred at some point after the split from Proto-Indo-European and at the latest immediately before the split of Proto-Balto-Slavic into its daughters. Finally, the third stage can be shown to be the generic state found in all attested Balto-Slavic languages, which all show the definite marker fully grammaticalized as an affix.

These three stages of development not only affect form but also function of the definite marker. It is likely that at some intermediate stage the marker was no longer a true relative pronoun, but not yet either an indicator for definiteness on modifier phrases. Although the first stage as a free word relative can be assumed to be well understood, the particular function and use of *jis* during the Proto-Balto-Slavic period is still shrouded in unknowns. Another branch of Indo-European holds

¹Brinton and Trautgott 2005

several insights into the morphosyntactic status of this intermediate step by having preserved records of a similar process of grammaticalization of its *ye/o- relative pronoun.

Iranian has innovated from the PIE relative pronoun the *ezafe*, a type of construction bearing striking similarities to Proto-Balto-Slavic *jis*. Although it is not fully equivalent in function to attested uses of *jis* captured in Old Lithuanian texts—it bears little connection with expressing notions of definiteness—it nevertheless shares many parallels in its formal development.² Iranian literature shows stages that remain hidden for Balto-Slavic given the late attestation of the branch.

The following chapter compares the developmental similarities between the two cognate constructions and attempts to utilize the known facts about the *ezafe*'s historical trajectory to shed light on the missing link of the Balto-Slavic definite marker. In particular, the analysis pertains to uncovering how exactly relative clauses with adjectival or nominal predicates could be reanalyzed into a discrete marker for modifier phrases.

4.1 Iranian *Ezafe*

Iranian developed from the Proto-Indo-European relative pronoun the *ezafe*, a grammatical particle whose primary function in Modern Persian is to express attributive relationships (possessive, genitive, etc.) between two nouns or a noun and an adjective. The *ezafe* takes on the form *-(y)e* or *-(y)i*, and is normally enclitic to the head noun, as in *butril-e âb*, a bottle of water. In earlier Iranian, the function of the *ezafe* is not as well defined. Haider and Zwanziger 1984 approach the history of the particle by identifying four stages of development, from its earliest attested use in the Gathas as a relative pronoun, to its particle function in Modern Persian.

The relative pronoun starts off as a true relative in early texts and is later restricted to the function of *ezafe* by modern times, being superseded as a relative by a form of the interrogative pronoun. In its intermediary stage, particularly at the time of Middle Persian, both an interrogative element and the original relative could be used in contexts to form relative clauses.

Avestan's early attestation provides ample evidence for full functionality of the relative pronoun. The language, however, allows for such constructions as the following:

- (31) *yā auuam kəhrpəm aiβiāxšaiieinti yam sāmahe kərəsāspahe* (Yt 13.61)
 'the ones who guard the body, which (is) of the Samid Krsaspa'³

Such relative constructions in fact do not contain any overt verbal element. In order to tie them with generic relative clauses, they must be considered to have undergone copula ellipsis, a natural rule of Avestan syntax. Another instance in Avestan where nominal relative attributes exhibit peculiar behaviour is the following:

²In fact, the resemblance between the definite marker and the *ezafe* is often used by linguists to motivate the origins of *jis* from the relative pronoun. For instance, Zinkevičius 1957 makes mention of this correlation.

³This and all subsequent translations of the Iranian material are credited to H&Z p.142

- (32) *gaṇdarəβəm yim zairi.pāšnim* (Yt 5.38)
 ‘Gandarva (acc.), the golden-heeled (acc)’

In this case, positing copula ellipsis does not explain why the relative pronoun and the embedded adjective are both the same case as the antecedent head noun (accusative). One would expect the relative pronoun and its accompanying adjective to be in the nominative case, given that they should form a clause of their own. From a structural standpoint, *yim zairi.pāšnim* does not appear to be a mere case of copula ellipsis, since this alone cannot account for the presence of the accusative case on both the embedded adjective and relative pronoun. Indeed, these instances within the Gathas demonstrate a structurally different underlying representation than what is expected of generic relative clauses. The status of these constructions as true relative clauses should therefore be contested.⁴In other words, it is the lack of verbal structure, known to assign accusative case, within the apparent relative clause which allows for case attraction of the relative pronoun to its antecedent.

4.2 Balto-Slavic *Ezafe*

Taking the above into consideration, a similar path of development can be proposed for the relative pronoun during the Proto-Balto-Slavic period. Although, so far from chapter 2, the use of the definite marker in Old Lithuanian has been divided mainly among definite adjectives and the *dangujėjis* construction, for the purposes of the current analysis, the former category holds a further distinction: definite adjectives can be broken down into those derived from lexical stems that primarily form adjectives (*baltas*, *baltasis*) and those that originate from the attributive use of participles (*paprastas*, *pajisprastas*).

- (33) *Baltasis vyras*
 ‘The white man’
- (34) *Pajisprastas vyras*
 ‘The common man’
- (35) *Vyras dangujėjis*
 ‘The man in heaven’

⁴‘It is the absence of a verb which leads to case agreement with the head of the relative clause. This entails an analysis which assigns a different syntactic structure to the constructions which show agreement on the one hand and to the nominal relative on the other. The latter still are of a sentential structure while the former are non-sentential attributes’. H&Z (p.143)

Drawing inspiration from the Iranian facts above, all three constructions must have started off as full-fledged relative clauses with the option of copula ellipsis. Topicalizer position, relpro in second position, much like the reconstructed word order for Indo-Iranian in chapter 3.

Initial Stage (free word):⁵

- (36) a) [NP Vyras [CP [AdjP baltas] jis_{relpro} [VP cop]]]
 b) [NP Vyras [CP pa⁶ jis_{relpro} [VP prastas_{ptcp} cop]]]
 c) [NP Vyras [CP [NP danguje] jis_{relpro} [VP cop]]]

Like Iranian, the use of copula ellipsis—a phenomenon found in all ancient Indo-European languages and likely existing here as well—created the surface ambiguity in word order to encourage the reanalysis of the underlying structure of these clauses, such that they no longer housed an embedded verb phrase. At the same time, the complementizer phrase itself must also have been reinterpreted as some other type of phrase or simply done away with and the remaining elements reconfigured into parts of their respective modifier phrase type (adjectival phrase, nominal phrase, etc.) The relative pronoun likewise must have become a discrete marker for this type of modifier construction (see examples (37)-(39) below). Its semantics are unclear, however. Whether the presence of this marker expressed any inherent meaning that distinguished its modifier phrases from those without is part of the many details deemed lost to history.

Intermediate Stage (clitic):

- (37) a) [NP Vyras [AdjP baltas=jis]]
 ‘the white man’
 b) [NP Vyras [AdjP(?) pa=jis prastas]]
 ‘the common man’
 c) [NP Vyras [NP danguje=jis]]
 ‘the man in heaven’

Moreover, evidence for case attraction in Balto-Slavic, as seen in Iranian, within the three types of modifier phrases presented is difficult to ascertain. This is at least the case for the definite adjectives.

This is because the relative pronoun and the adjective or participle, once grammaticalized into the definite adjectives, will likely always reflect the case of their referent. In Old Lithuanian, the head noun, the adjective and the definite marker are all three marked similarly for categories of case, gender and number. This is obviously the natural state of affairs in declensional languages like Lithuanian, where adjectives regularly agree with their referent noun. However, the *dangujejis* construction, can shed light on the matter of case attraction. Where the definite marker always agrees with the antecedent noun, despite being postposed to the nominal modifier, the latter normally contrasts in case with the head noun and the definite marker:

⁵It should be noted that the word forms used in the following examples are evidently Modern Lithuanian placeholders for the actual lexical reconstruction. Considering the uncommonness of reconstructing Proto-Balto-Slavic forms, let alone Pre-Proto-Balto-Slavic, the use of familiar lexical items can help the reader focus on the actual crux of the matter.

⁶Note here the separability of the preverb, which ties in with the reconstruction of Proto-Indo-European clauses in chapter 3.

- (38) [NP Vyraš_{nom} [NP danguje_{loc=jis_{nom}}]]
the man in heaven

4.3 Further Notes on the *dangujejis* Construction

The *dangujejis* construction in its own right deserves further study beyond the observations afforded in this research. This current section provides a brief analysis of the facts of the construction in order to compare its behaviour. Using Daukša's Postille as an example, the construction can be found with the referent noun in essentially any case, and the nominal modifier in locative or genitive cases:

- (39) *karalystėje_{loc.f.sg.} danguje_{loc.m.sg.} -joje_{loc.f.sg.}* (DP 556, line 25)
'... in the heavenly kingdom'
- (40) *žmonės_{acc.m.pl.} pinigų_{gen.m.pl.} -jus_{acc.m.pl.}* (DP 602, line 4)
'... rich people' (literally: 'people of money')

From a synchronic standpoint, it is very plausible that modifiers like *dangujejis* can be readily interpreted as definite adjectives in Old Lithuanian, as they may indeed be indistinguishable in form and function from other adjectives due to the grammaticalization process. Nevertheless, the two cases used for the nominal modifier by the construction have one thing in common: they can both be found, even in the modern language, as well as in other ancient Indo-European languages, to be used as nominal predicates accompanied by the copula:

- (41) *Knygos (yra) bibliotekoje* (locative predicate)
'(The) books are in the library'
- (42) *Čia drakony (yra)* (genitive predicate)
'There are dragons here'

These Modern Lithuanian examples demonstrate the ability that these cases have to be used in nominal predicate constructions. When considering how reanalysis of Proto-Indo-European relative clauses would have interacted with the cases of such nominal predicates in early Proto-Balto-Slavic, it becomes clear that they would have naturally wound up in the exact same syntactic context which granted relative clauses with adjectival predicates a chance at reanalysis.

Moreover, if we take the agreement between head noun and definite marker in the *dangujejis* construction to go all the way back to the intermediate stage sketched out in 4.2, it becomes evident that case agreement must also have been the phenomenon present at that time which engendered the change.

Though the *dangujejis* construction parallels the reduced relative clauses with nominal modifiers of Avestan, they are not exact parallels. For one, the Avestan construction uses mainly the accusative, but also instrumental case for its nominal modifiers. This is apparently due to the accusative being a

structural case, and the instrumental having a secondary function as one also.⁷ If this is the criterion for selection, this would automatically exclude both genitive and locative cases from undergoing this type of attraction. Indeed, all other oblique cases in Avestan are barred from case attraction, and instead the relative pronoun in cases where it would agree with a dative, locative, or ablative head noun is substituted by an invariable form of itself as *yat*, which defaults to the neuter singular nom/acc.

It should therefore be quite clear that, despite the similarities in many respects between the Iranian *ezafe* and the Balto-Slavic *jis*, the two do not share enough common development to be considered to be of the same genetic provenance; their last common stage what that of Proto-Indo-European relative pronoun. Particularly by the lack of shared cases used in the *dangujejis* construction and the instances in Avestan of case attraction, it is safe to assume that both innovations developed fairly independently.

Nevertheless, from a typological standpoint, Iranian makes for an immensely useful case study in understanding the particular developmental reanalysis a functional word like a relative pronoun can undergo.

⁷H&Z p.149

Chapter 5

Concluding Remarks

Having approached the problem of the definite adjectives from three different angles, it is now important to take a more comprehensive view of the issue. To summarize, chapter two has demonstrated the need to adopt the relative pronoun hypothesis for the origins of the definite marker *jis*, mainly due to the structural parallel in the morphological distribution of other clitics in Lithuanian which are known to go back to Wackernagel's Law clitics of sentential status. Furthermore, the Indo-European evidence gleaned in chapter three for the likelihood of such a development is high. Indo-Iranian texts, in particular those from the Rig Veda, show a word ordering to the elements in the left periphery of the clause that very much parallel the order captured in the frozen morphology of Old Lithuanian verbs (*pa-jo-prasto*: PV+relpro+V). Finally, the definite marker can be soundly derived from Proto-Indo-European **ye/o-* if sufficient evidence from this hypothesis exists to coherently map out the main stages of its diachronic development from a relative pronoun into the adjectival affix of Old Lithuanian. Chapter four makes use of the parallel development of the Iranian *ezafe* to catch a glimpse of what the definite marker may have looked like during its intermediate stage coinciding with the Proto-Balto-Slavic period.

The current work has also demonstrated, I hope, the importance of looking into an event of language change as inextricable from its full linguistic context. This is especially true when considering any type of change—be it morphological or even phonological—that may have been affected by the syntactic proximity of other words. Indeed, syntax is an area of language sometimes showing high contextual variability, given the near infinite number of permutations in word order that can be generated in a language.¹ Without a consideration of the syntactic context of the definite marker, it would also not only be impossible to ascertain the true originator of the construction in the PIE relative pronoun, but facts about the synchronic systems of reconstructed languages like Proto-Balto-Slavic and Proto-Indo-European could also not be uncovered.

Finally, it is my hope that the work carried out in this research will help Indo-Europeanists gain a firmer understanding of the diachronic syntax of the Balto-Slavic branch of Indo-European. This is an area of Indo-European studies where more research is sorely needed, especially on the side of Baltic.

¹The development of interword sandhi rules is an issue that immediately comes to mind as being found at the interface of both syntax and phonology. The application of these phonological rules is undoubtedly controlled by the frequency in which certain words find themselves in a given order.

Bibliography

- Baldauf, L. (1967). *Der Gebrauch der Pronominalform des Adjektivs im Litauischen*. Peter Lang.
- Beekes, R. S. P. (1988). *A Grammar of Gatha-Avestan*. Brill.
- Brinton, L. J. and Traugott, E. C. (2005). *Lexicalization and Language Change*. Cambridge Press.
- Daukša, M. (1599). *Postilla Catholica (Postilė)*. Vilnius. Akademijos spauda.
- Dini, P. U. (2014). *Foundations of Baltic Languages*. Vilnius University.
- Franks, S. and King, T. H. (2000). *Handbook of Slavic Clitics*. Oxford University Press.
- Haider, H. and Zwanziger, R. (1984). Historical syntax - trends in linguistics, studies in monographs;23.
- Hale, M. (1987). *Studies in the Comparative Syntax of the Oldest Indo-Iranian Languages*. PhD thesis, Harvard University.
- Hale, M. (2007). *Historical Linguistics: Theory and Method*. Wiley Blackwell.
- Hale, M. (2013). What changes in ‘syntactic change’? some implications for syntactic reconstruction. Workshop on Diachronic Syntax 2013 LSA Summer Institute.
- Hermann, E. (1926). *Litauische Studien : eine historische Untersuchung schwachbetonter Wörter im Litauischen*. Weidmann.
- Hill, E. (2014). Inheritance and secondary similarities in the inflectional morphology of baltic and slavic. *Baltai ir slavai: dvasinių kultūrų sankirtos*.
- Kaukienė, A. (1968). *Sangražinių veiksmažodžių istorija*. Klaipėdos Universiteto Baltistikos Centras.
- Lowe, J. J. (2011). Rigvedic clitics and ‘prosodic movement’.
- Lunt, H. G. (1955). *Old Church Slavonic Grammar*. Mouton.
- Mathiassen, T. (1996). *A Short Grammar of Lithuanian*. Slavica Publishers, Inc.
- Mažiulis, V. (2004). *Prūsų kalbos istorinė gramatika*. Vilniaus universiteto leidykla.
- Mikulėnienė, D. (1994). Dėl įvardžiutinių būdvardžių kirčiavimo raidos. *Baltistica IV*.
- Petit, D. (2009). La préhistoire des adjectifs déterminés du baltique et du slave. *Bulletin de la société linguistique de Paris*, 104(1):311–360.
- Ramunienė, M. and Pribušauskaitė, J. (2008). *Practical Grammar of Lithuanian*. Baltų lankų leidyba.

- Rondestvedt, K. A. (1986). *Definite/Indefinite and Related Pragmatic Categories in Early Original Slavic*. PhD thesis, University of Chicago.
- Rosinas, A. (1975). Ar baltų *i-, *io- resp. *i-, *jā- kamienai buvo reliatyviniai? *Baltistica XI(2)*.
- Rosinas, A. (2008). Dėl vadinamųjų kokybinių (k)-oks, (k)-oki(a) tipo įvardžių darybos ir raidos. *Baltistica XLIII(2)*.
- Senn, A. (1957). *Handbuch der Litauischen Sprache*. Heidelberg.
- Stang, C. (1966). *Vergleichende Grammatik der Baltischen Sprachen*. Universitetsforlaget.
- Townsend, C. E. and Janda, L. A. (1996). *Common and Comparative Slavic: Phonology and Inflection*. Slavica Publishers, Inc.
- Valeckienė, A. (1990). Įvardžiuotinių būdvardžių kilmė. *Baltistica*, 26(1):23–28.
- Watkins, C. (1963). Indo-european metrics and archaic irish verse. *Celtica 6*.
- Zinkevičius, Z. (1957). *Lietuvių kalbos įvardžiuotinių būdvardžių istorijos bruožai*. Vilnius.
- Zinkevičius, Z. (1978). Dėl įvardžiuotinių būdvardžių raidos. *Lietuvių kalbos klausymai XVIII*.