

EVIDENCE FROM INNOVATION:
RECONSTRUCTING DISHARMONIC
HEADEDNESS FOR PROTO-INDO-EUROPEAN

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EVIDENCE FROM INNOVATION: RECONSTRUCTING DISHARMONIC
HEADEDNESS FOR PROTO-INDO-EUROPEAN

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In this dissertation, I show that due to the unique hierarchical properties of syntactic features, innovation can reveal inherited structural relationships that would otherwise remain opaque. Based on this idea, I propose a disharmonically headed reconstruction of Proto-Indo-European (PIE) clausal syntax; specifically, I argue that PIE was left-headed in the CP domain and right-headed in the TP domain, and provide additional evidence that PIE was right-headed within VP as well. The novelty of my approach compared to those of my predecessors is looking at the various auxiliary constructions innovated across the Indo-European (IE) daughter languages instead of focusing exclusively on reconstructible lexical verbs. This approach allows me to more accurately triangulate the location of inflection in the syntax relative to the lower verbal domain, which gives me more accurate information about the featural makeup of the functional heads of these languages and improves my resulting reconstruction.

To strengthen my conclusions, I provide extensive auxiliary data from corpora of six of the earliest attested Indo-European languages: Hittite, Tocharian, Vedic Sanskrit, Homeric Greek, Old Latin, and Gothic. For each language, I categorize all word order variations seen in the auxiliary constructions, demonstrate that clauses ending with a verbal element (usually a participle) followed immediately by the auxiliary is by far the most common order attested, and show that in each of these languages these facts are most readily explained with

a left-headed CP, right-headed TP analysis. I then provide all examples of auxiliary constructions from my corpora showing any other word order, and demonstrate that this word order variation is most straightforwardly derivable from an underlying right-headed TP structure.

This project illustrates just how valuable and robust feature-based syntactic reconstruction can be. As Kim (2018) states, it is currently assumed that the innovations useful for subgrouping "may be phonological, morphological, or lexical". This project and others like it can help show the value of syntactic isoglosses for subgrouping purposes as well, and can even take the original idea a step further, showing that in some cases we can reconstruct syntactic information where we cannot reconstruct corresponding phonological or morphological information. This means that not only can we now subgroup based on inherited syntactic constructions, but also based on the syntactic features gleaned from constructions independently innovated in the daughter languages.

BIOGRAPHICAL SKETCH

Ryan Hearn was born in 1985 in Thomaston, GA. He graduated Star Student from Monroe Academy in Forsyth, GA in 2003, and went on to attend Furman University where he graduated Cum Laude with a degree in Accounting in 2007. During his time in undergrad he began studying Japanese for fun, not knowing at the time that this would eventually lead him to a lifetime of language study. After graduation, he spent a year in Kahoku, Japan, teaching English in local elementary and middle schools before moving back to the States and getting a job as an accountant and Japanese translator at YKK AP America in Dublin, GA.

During these five years, in addition to his regular responsibilities, Ryan organized language and culture courses both for Japanese management expats wanting to learn English and for local coworkers wanting to better communicate with their Japanese counterparts. In early 2013, while teaching himself Latin in his downtime, as one does, he discovered the study of historical linguistics and applied to the Linguistics Masters program at the University of Georgia, having never studied linguistics in his life and with very little idea of what the discipline entailed.

Miraculously, he was accepted into the program, and two years later he graduated with a Masters degree in Linguistics, having picked up a love of syntax and morphophonology along the way. In 2015 he entered the Linguistics PhD program at Cornell University, where his research broadly focused on the diachronic/synchronic interface, exploring how modern synchronic linguistic methods could better inform diachronic analyses and vice versa. Specifically, he worked on historical syntactic reconstruction and also explored morphophonemic alternations in diachronic lexical strata, and presented his work at

distinguished international conferences like the Manchester Phonology Meeting, Diachronic Generative Syntax, Linguistic Society of America, and both the East and West Coast Indo-European Conferences along the way. His syntactic reconstruction work culminated in his dissertation, which examines innovated auxiliary constructions across the earliest-attested Indo-European daughter languages to argue for a disharmonically headed reconstruction of Proto-Indo-European clausal syntax.

During his time at Cornell, Ryan also had the good fortune to work with Marvel Entertainment on the summer blockbuster *Captain Marvel*, designing the Torfan language alongside his colleague Joseph Rhyne.

This work is dedicated to:

my mom, who taught me that I could do anything I set my mind to,
my dad, who taught me the perseverance and hard work necessary to achieve
the goals I set for myself,
and my wife, who supported and encouraged me every step of the way.

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CHAPTER 1

INTRODUCTION

Traditionally in comparative historical linguistics, innovation is not viewed as useful for informing our reconstruction of proto-languages¹, and for good reason. Innovations are by definition changes, deviations from the system inherited from a language's parent, and are therefore unreconstructible. In this dissertation, however, I propose that innovation in one area of a linguistic system can reveal information about the inherited characteristics of another area. For our purposes specifically, I argue that innovations in the system of phonological exponence of syntactic heads in the oldest Indo-European languages reveals the inherited structural syntactic relationships between these heads.

In what follows I propose a disharmonically headed reconstruction of Proto-Indo-European (PIE) clausal syntax. Specifically, I argue that PIE was left-headed in the CP domain and right-headed in the TP domain, and provide additional evidence that PIE was right-headed within VP as well. The novelty of my approach compared to those of my predecessors is looking at the various auxiliary constructions innovated across the Indo-European (IE) daughter languages instead of focusing exclusively on reconstructible lexical verbs only. This approach allows me to more accurately triangulate the location of inflection in the syntax relative to the lower verbal domain, which gives me more accurate information about the featural makeup of the functional heads of these languages and improves my resulting reconstruction.

Here in §1, I outline the syntactic assumptions that allow for rigorous use

¹Though mutually shared innovation is, of course, the primary means of subgrouping related languages.

of the Comparative Method in syntax alongside more traditional morphological and phonological reconstruction, as well as my own theoretical assumptions about syntactic structure and the nature of syntactic features. I then provide the case study of complementizer development across the IE daughter languages to demonstrate how the Comparative Method may be applied to syntactic functional heads even when associated phonological forms cannot be securely reconstructed. I define "auxiliary construction" for the purposes of this work, give a brief overview of auxiliary constructions across the earliest attested IE daughter languages, and explain why auxiliary constructions cannot be securely reconstructed for the proto-language. Finally, I show that the complementizer and auxiliary construction word order generalizations across these languages support the reconstruction of a left-headed CP domain and a right-headed TP domain for PIE.

In §2 I provide extensive auxiliary construction data from corpora of six of the earliest attested Indo-European languages: Hittite, Tocharian B, Vedic Sanskrit, Homeric Greek, Old Latin, and Gothic. For each language, I categorize all word order variations seen in the auxiliary constructions, demonstrate that clauses ending with a verbal element (usually a participle) followed immediately by the auxiliary is by far the most common order attested, and show that in each of these languages these facts are most readily explained with a left-headed CP, right-headed TP analysis. For each of these languages, I then provide all examples of auxiliary constructions from my corpus showing any other word order, and demonstrate that this word order variation is most straightforwardly derivable from an underlying right-headed TP structure.

§3 presents my reconstruction of PIE clausal syntax and concludes the dis-

sertation. Using the auxiliary construction and complementizer data from each of the IE daughter languages in §1 and §2, I set up a correspondence set composed of the headedness features of the T and C functional heads of each of these languages and show that these correspondence sets unanimously support the reconstruction of a left-headed CP domain and right-headed TP domain for PIE. I bring up potential alternative explanations of my corpus data and their resulting reconstructions, and show why each of these alternatives is considerably less probable than the analysis I present here. I discuss the implications of this dissertation for Indo-European studies and reconstruction specifically, as well as for diachronic and reconstructive syntax in general, and mention some potentially interesting directions for future work.

1.1 The validity of syntactic reconstruction and the theoretical assumptions of this dissertation²

Robust syntactic reconstruction has often been called implausible for a variety of reasons, most notably due to the difficulty of setting up appropriate correspondence sets. The earliest attempts at syntactic reconstruction merely looked at word order generalizations across daughter languages and ascribed those same generalizations to the parent language. Delbrück (1900, 82-3), for example, concluded that Proto-Indo-European must have been mostly verb-final since Sanskrit is mostly verb-final. In general, the Neogrammarians and Structuralists were not overly concerned with syntax in general, and especially not reconstructive syntax.

The next big leap forward in syntactic reconstruction didn't come until

²Much of this introduction is drawn from the introduction of Hearn (Under Review).

the 1970s, when Lehmann (1974) adopted a typological approach to syntactic change based on the linguistic universals proposed by Greenberg (1963). In brief, Greenberg noted that languages tend to pattern together in (among other things) word order generalizations, and Lehmann further argued that syntactic change must therefore occur in order to result in systems that are more typologically expected (that is to say, crosslinguistically common). PIE word order, he argued, must have been Subject-Object-Verb (SOV) in order for the word order patterns seen in the daughter languages to be derivable in a manner consistent with linguistic typology.

Watkins (1976) strongly criticized not only the typological approach to syntactic change, but also cast doubt on the plausibility of syntactic reconstruction in general. He provided evidence that the typological approach was overly simplistic, showing that languages often change in typologically unexpected ways, and proposed instead that syntactic reconstruction proceed through a combination of reconstructing syntagms inherited by multiple daughter languages and reconstructing exceptional word order occurrences inconsistent with the general synchronic rules of that language's syntax. Further, he emphasized the importance of keeping genre in mind when analyzing the syntactic structure of ancient texts. Finally, he reiterates the central problem that has plagued syntactic reconstruction since its inception: what exactly are we comparing when we attempt to apply the Comparative Method to word order?

Lightfoot (2002) clearly explains this correspondence set problem: phonology and morphology can be easily reconstructed since words/morphemes are stored intact in a mental lexicon that is transferred directly to new generations of speakers. As a result, inherited words form correspondence sets that can be

compared directly across speakers. Syntax, on the other hand, is procedurally built by speakers: sentences are not stored in the lexicon, are not passed directly to new speakers, and therefore (according to the argument) cannot be compared to each other for reconstructive purposes. If, however, we could relegate some portion of syntax to the lexicon, we could potentially create lexical correspondence sets that would allow us to reconstruct syntax in the same way that we currently reconstruct phonology and morphology³.

The Minimalist Program of Chomsky (1995) offers one such solution to the correspondence problem, adopting two critical assumptions about syntactic structure that form a strong theoretical foundation for rigorous syntactic reconstruction.

First, the computational component of the syntax is assumed to be universal. It is a set of operations assumed to be part of human cognitive makeup and thus invariant over time, space, and population. Second is the Chomsky-Borer conjecture (Baker, 2008, 353): the *input* to this universal computational process, features associated with lexical items and functional heads, are stored in the mental lexicon and *do* change. As a result, all synchronic and diachronic syntactic variation is due to the featural differences of lexical items and functional heads, and is not due to the structure-building component of the syntax. As Pires & Thomason (2008) put it, "the task of syntactic reconstruction can then be restricted to identifying variation in the feature specification of (functional) lexical items that determine syntactic structure and syntactic variation" (p. 41).⁴

³For a more detailed overview of the history of syntactic reconstruction, see the discussion in Ferraresi & Goldbach (2008).

⁴It should be mentioned that in recent years the "emergentist" critiques of the Chomsky-Borer conjecture, championed by Ian Roberts and Theresa Biberauer, have gained steam. They argue for parameters that sit outside the information stored in the features associated with lexical heads; however, for my purposes here, the systematic correspondences between these sister languages remain in either view, and can be just as easily reconstructed in either system. The

As noted in the literature (Hale 1998, Roberts & Roussou 2003, Pires & Thomason 2008, Walkden 2014, etc.) this formulation of syntactic variation and change solves the correspondence set problem⁵, since the elements that drive syntactic variation are now stored in the lexicon. We can, therefore, reconstruct syntactic proto-forms using the same tools we use for reconstructing phonological and morphological proto-forms. Importantly, note that the ability to reconstruct syntax in this manner is not inherently limited to Minimalism: as discussed in Walkden (2014), any formalism can be used for reconstruction if it gives us lexical items to reconstruct. As such, this dissertation is not an attempt to use syntactic reconstruction to make arguments in favor of Minimalism; rather, it is an attempt to use Minimalism to make arguments in favor of a specific syntactic reconstruction. My theoretical contributions instead explore the implications of these Minimalist assumptions for reconstructive theory, arguing (1) that syntactic reconstruction is possible even when phonological or morphological reconstruction is not and (2) that innovations can improve our understanding of inherited syntactic structure.

There are other similar approaches to syntactic comparison. The Parametric Comparison Method (PCM) of Longobardi (2003), for example, uses syntactic parametric variation as the sole basis for language phylogeny. The crucial difference between Longobardi's syntactic comparison and the syntactic recon-

Chomsky-Borer conjecture is a bit simpler and more comprehensively represented in the literature, so that's what I'll be adopting in this work.

⁵Partially, at least. Walkden (2014, 50-60)'s Double Cognacy Condition explains how correspondence sets must be composed of cognate forms, which themselves occur in cognate contexts. For phonological reconstruction, this means that the cognate sounds being reconstructed must occur in the same location in words that are themselves cognate. According to Walkden, the Double Cognacy Condition cannot be met for syntactic reconstruction, since the cognate features in question do not occur in sentences that are themselves cognate. He explains however that this correspondence problem can partially be rectified through finding *contexts* that are themselves cognate, if finding cognate sentences themselves is not possible. This can be done through, for example, examination of the distribution of lexical items across structures and the use of phonological clues (p. 54-7).

struction I will undertake here is that while the PCM is concerned mainly with language phylogeny and does not attempt to reconstruct proto-forms, my parametric analysis of languages already known to be related is specifically intended to produce rigorous reconstructions of proto-language syntax.⁶

There are also Construction Grammar methods of syntactic reconstruction, as outlined, for example, in Eythórsson & Barðdal (2016). These take advantage of the form-meaning correspondences inherent to the Construction Grammar framework to propose reconstructions analogous to those already present in the Comparative Method. My reconstructions here also use syntactic features as input to the Comparative Method, but within a generative framework instead of using Construction Grammar.

I will be working within the Minimalist Program (Chomsky, 1995) of the Principles and Parameters (P&P) framework first introduced in Chomsky (1982). The key idea of P&P for our purposes is the existence of fundamental *principles* common to all languages, along with a set of *parameters* that determine the various realizations of these principles across the world's languages. The Minimalist Program, in addition to the assumptions mentioned above that allow for syntactic reconstruction, makes use of Bare Phrase Structure (BPS), a derivational method of building syntactic structure through the two basic operations: "merge" and "move" (or "remerge"). Merge is a function that takes two elements *a* and *b* and creates an unordered set $\{a, b\}$. This unordered set is assigned a label (either *a* or *b*) that determines the properties of the newly-created object.

⁶For a discussion of how the PCM compares to the Minimalist reconstruction here, see Pires & Thomason (2008, 29). In brief, my approach here uses parametric variation as input to the Comparative Method, which reconstructs proto-forms to determine genetic relationships between languages, while the PCM is more a comparison of typological similarity, and does not attempt to reconstruct proto-forms. Pires and Thomason note that "[Longobardi] intends his use of the term 'reconstruction of phylogenetic relations' to exclude actual historical comparative reconstruction."

If one (or both) of the objects being merged have not yet been merged into the derivation, this operation is termed "merge", and if both objects being merged already belong to the derivation the operation is termed "move/remerge", so both operations are two instantiations of the same "merging" process.

After Whitman (2001), I also assume that phrasal heads may select their complements on the left or the right. To formalize this, I adopt the Cyclic Linearization model of Fox & Pesetsky (2005), and assume that headedness is determined by an interpretable feature, [Comp:Left] or [Comp:Right], that determines whether complements are linearized to the right or to the left of their heads at PF, where the feature is interpreted. Again, specifiers are always on the left in this model, which makes a prediction about the position and nature of movement operators, namely that movement must always and only be leftward. At the end of each phase (Chomsky, 2008) the relative ordering of words is fixed, and this relative ordering must not be contradicted by later phases. For this dissertation, CP and vP constitute phases.

Finally, I will assume that "disharmonic headedness", where functional projections in a language may have different headedness, is allowed by the syntax. My choice of headedness for a given functional projection is determined by (1) economy of movement considerations, favoring the headedness analysis that accounts for the most data with the fewest motivated movements and (2) disfavoring headedness analyses that require pragmatically unmotivated or unnatural movements given the data.

I use "CP" to refer to all projections in the clause above TP, including the left periphery or "expanded CP" as described by Rizzi (1997)⁷. Similarly, "within

⁷By the "left periphery", I refer to Rizzi's (1997) idea that the highest, leftmost projections in a clause are a sequence of functional heads that attract phrases that express the information

TP" refers to TP and everything between TP and the projection where the subject is externally merged (vP or VoiceP), excluding obviously semantically specialized projections like NegP. For heads within CP, after Walkden (2014)'s reconstruction of Germanic, I assume uninterpretable features corresponding to their heads (e.g. [μ Foc] for Foc⁰), along with [\pm Wh] and [\pm Q], as well as the [Comp] headedness feature. For TP, I assume the following features: [$\mu\phi$] to express ϕ -features, [μ V] to motivate v-to-T movement, T(ense)-A(spect)-M(ood) features to trigger TAM morphology, and the [Comp] headedness feature.

Note that when reconstructing functional categories, I only reconstruct features that I can be confident of, and leave the others unspecified rather than speculating. This is consistent with reconstruction methodology for phonology and morphology, as seen, for example, in the reconstruction of the PIE "laryngeals". Indo-Europeanists determined that certain vowels had been colored by adjacent segments that were more sonorant than stop consonants, but less sonorant than the vowels themselves. Researchers therefore reconstruct the feature-poor resonants commonly known as "laryngeals", with unknown qualities that resulted in the coloring of adjacent vowels⁸. In the same way, the features I am primarily concerned with reconstructing for C and T here are [Comp:Left] and [Comp:Right] headedness features, but I will also reconstruct other features where the data allows.

structure relationships of the clause. In this dissertation, I will be adopting the original form of the expanded left periphery: ForceP > TopP > FocP > TopP > FinP > TP. Briefly, ForceP is assumed to contain clausal typing information, topic and focus phrases host topicalized and focused elements, and FinP determines the finiteness of the clause.

⁸Though it should be noted that we do have increasingly sophisticated ideas about the featural identities of the laryngeals - see the discussion in Weiss (2016) for more information.

1.1.1 Final Concerns

There are two final considerations I would like to address. The first is discussed by Lehmann (2005) and Balles (2008), who assert that research on diachronic syntax and reconstruction should be supplemented with a theory of syntactic change. The second is brought up by Walkden (2014), who cautions that reconstruction should proceed to a greater time depth only when the acceptance of shallower reconstructions are agreed upon by the scholarly community (e.g. one should only proceed to reconstructing PIE syntax once we have reached a consensus on the syntax of the IE daughter languages).

Both of these concerns should be kept in mind; indeed, the only reasons the reconstruction offered in the current paper is undertaken are (1) the fact that the correspondence sets presented here overwhelmingly agree in the nature of both their generalizations and their exceptions and (2) the fact that the headedness features being reconstructed do not change from the parent language to the any of the daughter languages.

In effect, this dissertation sidesteps the first problem because I will argue that no structural syntactic change has actually occurred, though the theory of syntactic change outlined in Walkden (2014) I adopt here is as rigorous a theory as I've seen so far. The second problem is addressed by the fact that I have limited myself to only one construction, whose correspondence set across the oldest daughter languages shows surprisingly systematic commonalities.

1.2 Reconstructing syntactic features without reconstructing phonological features

As a result of the Minimalist assumptions discussed above, we should not only be able to reconstruct syntactic features in the same way that we reconstruct phonology and morphology, but we should even be able to reconstruct syntactic features in the absence of any accompanying reconstructible phonology or morphology. This section provides an example of such a syntactic reconstruction.

1.2.1 A case study: reconstructing CP headedness in PIE

In this section I propose an uncontroversial reconstruction of a [Comp:Left] feature of the C head for PIE, based on a combination of argument complement clause data from six of the earliest IE languages and other arguments for left-headedness in CP from the literature. This reconstruction not only straightforwardly illustrates the nature of the "innovation-based reconstruction" I propose, but also serves to bolster the existing literature reconstructing left-headedness for CP in PIE. I focus on complement clause data instead of incorporating relative or other clause data for three reasons. First, most of the existing literature arguing for left-headedness in CP for PIE focuses mainly on relative and adverbial clauses, so this analysis addresses the "third pillar" of embedded clauses. Second, by restricting my analysis to argument complement clauses, there is some simplification of the left periphery situation in the data. Third, demonstrating conclusively that any CP head is on the left effectively demonstrates

left-headedness for the entire expanded CP. Cross-linguistically we have evidence of C-type heads on one side of the derivation and T-type heads on the other, but not cases of one C-type head being on the left, and another on the right; there are no cases of Force being on the left and Topic on the right, for example⁹.

No discussion of argument complementation in PIE would be complete without mentioning the debate surrounding the nature of subordination in reconstructed PIE. The original position taken by researchers, concisely reviewed and summarized by Kiparsky (1995)'s influential analysis of the development of V2 syntax in Germanic, is that PIE originally had no finite subordinate clausal embedding, instead relying solely on adjunction and correlative constructions. Over time, according to the analysis, the PIE daughter languages separately developed CP structure, clausal embedding, and the complementizers that go with them. Kiparsky takes a lack of reconstructible complementizers as evidence of a lack of CP structure in PIE ("there were no complementizers, and therefore no CP, and no embedding", p.153), but as we will see, the assumptions we've made about lexical storage of syntactic features will allow us to reconstruct CP features without needing to reconstruct individual complementizers.

In addition to objections on the basis of the continuity hypothesis, the idea that all universal properties of current grammars also held for any historical human language (e.g. Pires & Thomason 2008, 40), evidence has recently come to light that may shift the *communis opinio*. Probert (2014) argues that clausal embedding should be reconstructed for the earliest stage of PIE, noting that the infrequency of clausal embedding in the older daughter languages is not an *absence* in any branch, and citing evidence that the infrequency seen in the

⁹Thanks to John Whitman for this discussion.

earliest stages of the daughter languages are due more to literary genre than grammar. The main reason for not reconstructing embedded relative clauses for PIE, she claims, has been due to the belief that the earliest-attested Anatolian languages do not appear to contain the structures. In response, she provides an example of an embedded construction in Old Hittite (KBo 6.2 ii 61–62, provided below), and also claims that the construction in general is considerably more common in later Anatolian than previously thought, and that development of this ‘relative pronoun strategy’ is typologically rare. As embedded clauses are present in the earliest corpora of all of the IE daughter languages, she argues that we have no reason not to reconstruct them for the proto-language as well.

- (1) *nu apē[l É -SÚ] kuel=a^{GIS}eyan āški=šši šakuzwān a[pēniššan]*

"The house of him **at whose** gate an *eyan*-tree is visible is li[kewise exempt]." (KBo 6.2 ii 61–62)

For the purposes of this dissertation, we will follow Probert in reconstructing both clausal embedding and CP for PIE, though the debate is likely far from decided.

1.2.2 Setting up a correspondence set

Argument complementizers (henceforth ‘complementizers’) across the early IE languages are not all cognate. Latin *quod*, Hittite *kuit*, and Tocharian *k_uce/kucne* are from the PIE interrogative stem **k^wo-*, Gothic *patei* comes from the demonstrative pronoun **to-*, and Sanskrit *yád* and Greek *hóti* and *ho:s* are from the PIE relative pronoun **H_io-*. This is summarized in Figure 1.1 below.

Language	Complementizer	Etymon	Source type
Latin	<i>quod</i>	* <i>k^wo-</i>	interrogative pronoun
Hittite	<i>kuit</i>	* <i>k^wo-</i>	interrogative pronoun
Tocharian	<i>k_uce/kucne</i>	* <i>k^wo-</i>	interrogative pronoun
Gothic	<i>patei</i>	* <i>to-</i>	demonstrative pronoun
Sanskrit	<i>yád</i>	* <i>Hio-</i>	relative pronoun
Greek	<i>hóti/ho:s</i>	* <i>Hio-</i>	relative pronoun

Figure 1.1: IE complementizer etymology

Further, as shown by Hackstein (2013), for most of these languages complementizer behavior developed within their attested history, and none of the languages show any competition between the various pronominal etyma, i.e. we never see two of these complementizers competing in the same language family. Latin *quod* was only extended from use with factive verbs in the Classical period. Sanskrit *yád* develops its own complementizer usage from relative usage during the Classical period. Hittite *kuit*¹⁰ and Tocharian *k_uce/kucne* start as the heads of relative/adverbial adjuncts which later develop true argument complementizer usage.¹¹

So, a single overt argument complementizer cannot be reconstructed for PIE due to the fact that 1) the complementizers in early IE languages are not cognate and 2) the complementizers that appear in the daughter languages are often innovated within the attested histories of these languages. According to Hackstein, zero-embedding is likely the only reconstructible method for embedding sentential complements after verbs of utterance and cognition for PIE¹². If we

¹⁰c.f. Melchert (2016) and Holland (2011) for the development of *kuit* in Middle Hittite.

¹¹It's worth noting that the Armenian and Balto-Slavic complementizers that we have both derive from **k^wo-*, and Italic derives from **k^wo-* while Celtic derives from **Hio-*, so the pronominal origins of each complementizer are likely not very useful as isoglosses for subgrouping purposes, especially considering the fact that complementizer usage developed independently within most of these languages.

¹²This does not mean that zero-embedding was the *only* method of embedding available to PIE, as this sort of conclusion would have typological implications for the size of CP in PIE that are not supported by the comparative evidence – it just means that this is the only embedding

follow much of modern generative theory in assuming that all languages project a CP, and that complementizers fill a functional head C, then even without any reconstructible complementizer, we know that PIE had a C head – we just need to know whether it was left-headed or right-headed.

1.2.3 Setting up a correspondence set

All of the daughter languages have fully tensed argument complement clauses, so we should reconstruct this behavior for PIE as well in lieu of evidence to the contrary. As such, even if PIE used zero-embedding, it still likely projected a CP and has a functional head C; C in PIE is just filled with a null complementizer, or a complementizer that we can no longer reconstruct. So, instead of trying to reconstruct both the phonological form *and* headedness of C, I reconstruct just the headedness itself, regardless of what phonological form this position takes in the daughter languages. I therefore set up a correspondence set for the feature sets of all of the innovated complementizers of the daughter languages, and ignore the specific phonological form of each complementizer.

When we ignore the phonological form of the complementizers, we immediately see striking similarities in the daughter languages' syntax in clauses embedded after verbs of speaking or cognition¹³:

- (2) **Hittite**
IDI [*kuit=za* KUR^{URU} *Mizri* KUR^{URU} *Hatti=ya* 1^{EN} KUR^{TIM}
 know-1SG [COMP=REFL land Egypt land Hatti=and one land
kišari
 become-3SG]

method that we can securely reconstruct. Plus, zero-complementizers are relatively rare across the early IE languages, being most commonly seen in Tocharian, which further points toward argument complementation having some overt phonological form in the proto-language.

¹³These examples are all from Hackstein (2013).

"[...] I know that the land of Egypt and the land of Hatti are becoming one land" (KUB XXI 38 Rs. 13f.)

(3) **Tocharian B**

poñ [*ce* *ñiś te-ñemtsa* *pañäkte saim*
say.IMP [COMP I this-name-PERL Buddha refuge-OBL.SG.M
yamaskemar]
make-PRS.1SG.MP]

"Say that I, named so-and-so, take the Buddha as refuge!" (IOL Toch. 92,4)

(4) **Sanskrit**

vaktavyam=ca [*yac* *candras* *tvām* *atra*
tell-GV.NOM.SG.N=and [COMP moon-NOM.SG you-2SG.ACC here
hrada *āgacchantam* *niśedhayati*]
lake-LOC.SG go-PART.ACC.SG.M forbid-3SG]

"[...] he ought to be informed (namely) that the moon forbids you to go to this lake" (*Pañcatantra* 160.24)

(5) **Homeric Greek**

gno:tón [...] *éstin* [*ho:s* *e:de:* *Tro:essin*
known-NOM.SG.N [...] COP.3SG [COMP already Trojan-DAT.PL
olet^hrou *peirat'* *ep^he:ptai*]
destruction-GEN.SG end-N / ACC.PL bound-PERF.MID.3SG]

"One can see [...] that by this time the terms of death hang over the Trojans" (Iliad 7.402)

(6) **Old Latin**

te *scire* *audivi* [...] [*quod* *cum*
you-ACC.SG know-INF hear-PERF.1SG.ACT [...] [COMP with
peregrini *cubui* *uxore*
foreign-GEN.SG.M sleep-PERF.1SG.ACT wife-ABL.SG.F
militis]
soldier-GEN.SG.M]

"I heard you know [...] that I slept with the foreign soldier's wife." (Plautus, *Bacchides* 1007f.)

- (7) **Gothic**¹⁴
gamelid ist [*patei ni bi hlaib ainana libaid*
 written COP.3SG [COMP not by bread-ACC.SG alone live-3SG
manna]
 man-NOM.SG]
 "It is written that man shall not live by bread alone" (Luke 4:4, Katz 2019)

Every innovated argument complementizer in the daughter languages, when it ultimately shows up, appears clause-initially the vast majority of the time, and can only be preceded by a small class of fronted elements, as shown by Hale (1987). Even with Rizzi (1997)'s split CP model that allows for landing sites above argument complementizers in the left periphery, assuming that the complementizers in (2) through (7) above are all base-generated in their respective C-heads and have not moved somehow, there are no movement operations to my knowledge that can derive these word orders from a right-headed CP.

I argue that these languages aren't all independently innovating a left-headed C domain; they're innovating a phonological form to fill the left-headed C that they already share. We see therefore that our correspondence set, composed of the [Comp:Right] feature of the C head in each of the early IE languages, unanimously points toward a null (or at least unreconstructible) clause-initial C for the proto-language.

Note that this is not "structural" syntactic innovation on the part of any of the daughter languages. The [Comp:Right] feature of C hasn't changed – just whether a phonological form is associated with this syntactic position. The parallel innovation of separate phonological forms to fill the same syntactic position in each of the daughter languages cues us in to the shared structural syntactic reality: CP was also left-headed in their ancestor, Proto-Indo-European.

¹⁴The Gothic syntax here closely follows the Greek, but note that the earliest Old English translations also have initial *pat*.

This conclusion is corroborated by work on other IE complementizers and particles. Many scholars, for example, claim that Wackernagel ("second") position clitics in the old IE languages show behavior indicating that they likely head their own projections in the left periphery. Koller (2013) locates Tocharian A *ne* (as well as its Tocharian B cognate *nai*) in the head of FocP since it immediately follows wh-phrases (which Koller places in spec-FocP) clause-initially. For Sanskrit, Hale (1996) places Wackernagel clitics in the C head. Danckaert (2012) explores the Latin left periphery in depth, coming to the overwhelming conclusion that functional heads within the expanded CP are left-headed. Finally, Scharf (2015) points out that the Sanskrit question particle *api* occurs clause-initially as seen in (8) below, instead of the clause final position we would expect if CP was right-headed (e.g. *ka* in Japanese, etc.)¹⁵.

- (8) *api ete asmatputrāḥ kalabhāṣiṇaḥ padbhyām gaccheyuḥ*
 Q these our.sons softly.speaking by.feet go
 "Can these baby-talking sons of ours walk?" (*Viṣṇupurāṇa* 4.2.43, Scharf 2015)

1.2.3.1 Conclusion: PIE was left-headed in CP

By comparing the [Comp] headedness features of the various *innovated* complementizers across the early Indo-European languages, we arrived at an uncontroversial reconstruction for Proto-Indo-European: its CP was left-headed. This serves as an effective proof-of-concept, however, since it demonstrates the ex-

¹⁵I would be remiss to leave out Sanskrit's clause-final quotative particle *iti* in this discussion of universal clause-initial complementizers across the Indo-European languages, but note that Hock (1982) and Saxena (1995) claim that its complementizer-like usage did not fully evolve until the classical period, and that even so it does not show true complementizer behavior, acting instead only as a particle indicating quotations. According to Biberauer *et al.* (2014), who conclude that *iti* is part of a class of acategorical elements existing outside the extended projection, "we take it to be significant that we do not find this kind of [word] order with true subordinating Cs".

tent to which innovation of new lexical items to fill existing structural syntactic positions can preserve and even make explicit inherited syntactic relationships.

1.3 Using innovated auxiliary constructions to reconstruct TP-headedness

The remainder of this dissertation will be devoted to a much more controversial reconstruction: reconstructing a right-headed TP for PIE based on the similarities seen in separately innovated auxiliary constructions across the earliest-attested Indo-European daughter languages. In this section I will discuss my methodology, give an overview of the auxiliary data discussed in more detail in the next chapter, and briefly present my conclusion.

1.3.1 Why not just use reconstructible lexical verbs?

All other reconstructions of PIE clause structure have focused on the position of reconstructible lexical verbs, so why am I focusing exclusively on periphrastic auxiliary constructions? Put simply, due to the freedom of word order that we see in the ancient IE languages, combined with the multiple landing sites that verbs are able to target cross-linguistically, individual lexical verbs are much less useful for determining the location/headedness of T in the syntax than complementizers were for determining the location/headedness of C in the previous section. Mostly as a result of this structural ambiguity and freedom of movement, the argument about Proto-Indo-European's clausal headedness has lasted over a century, dating all the way back to the initial assertion of Delbrück (1900,

82-83) that PIE was SOV because Sanskrit was (mostly) SOV.

Looking only at auxiliary constructions eliminates much of this ambiguity. Since Pollock (1989)'s influential work on verb movement restrictions, most generative syntactic models generate auxiliaries in T either by external merge (e.g. the English modals), or by movement/internal merge from lower aspectual heads (e.g. English 'be' and 'have' auxiliaries), and base-generate the auxiliaries' accompanying participles within VP much lower in the clause. Each of these elements may then be manipulated separately by syntactic processes, of course, but due to what we know about their initial syntactic relationship and the possible syntactic transformations that exist, the potential word-order relationships between their individual landing sites are more constrained. For example, clause-initial participle+auxiliary order is very different from clause-initial auxiliary+participle order, and this tells us much more about the syntax than just a clause-initial finite lexical verb. These relationships are therefore more transparent to reverse-engineering, allowing us to triangulate the locations of V and T relative to their arguments with a precision that is not possible using lexical verbs alone.

1.3.2 What constitutes an auxiliary construction?

For my purposes, an auxiliary construction is a periphrastic verbal construction consisting of a transparently monoclausal structure in which a semantically bleached verb (the auxiliary) ends up in T in order to express the ϕ -features of T.¹⁶ This auxiliary is accompanied by a participle or other closely related verbal

¹⁶This could either be through base-generation of the auxiliary in T or (more likely) movement from a lower aspectual phrase to T.

adjective lower in the same clause.

I am excluding constructions composed of a modal verb and (usually) an infinitive, such as desiderative, volitional, or purpose constructions, etc., as these are often considered to be multi-clausal in nature, especially in these old IE languages¹⁷. I will briefly refer to embedded clause constructions throughout as additional evidence of mixed headedness, but they will not be the main focus of my analysis, since I will be most concerned with the relative positioning of verbal elements in the same clause. This restriction will ensure that my triangulation of ϕ -feature location relative to structural cases and the participle are as accurate as possible for determining the structure of the local clause in each language.

In addition, I will be excluding from my analysis and reconstruction any participle and verb collocations that are clearly compositional. That is to say, if in a given collocation the participle and the lexical verb retain their individual compositional semantics instead of clearly forming a single periphrastic construction, then that construction is not an auxiliary construction, and cannot be relied on to accurately describe the relationship between T and the lower verbal domain.

Finally, often in the ancient IE languages inflected auxiliaries (especially ‘be’ auxiliaries) will be omitted in auxiliary constructions, most often in conjoined clauses. In the majority of these tokens across the ancient languages the participle does occur clause-finally, allowing for the possibility that the elided auxiliaries would be located clause-finally, but without definite proof of their location in the syntax, I will be ignoring all such constructions in my analysis. (9) be-

¹⁷For one example of how early IE modal syntactic behavior is significantly different from that of auxiliaries, see Danckaert (2017, 224).

low, for example, places the participle clause-finally but elides the ‘be’ auxiliary, though the construction has an interpretation consistent with the periphrastic future.

- (9) *(maiwe ne)sau māwk ñäs srūka(l)l(e)*
 young COP-1sg not-EMPH I dying-GV.N/O
 "I a(m young), I will not die yet." (Tocharian B, THT 1.b2)

1.3.3 Summary of the early IE auxiliary data

As we saw before with early IE complementizer data, once we abstract away from the individual lexical items filling syntactic positions, we see striking similarities across the early IE auxiliary constructions, as seen in the examples below.

- (10) **Hittite**
[(našma)] ÉSAG kuiš ZI-it kīnu-an har-z[(i)]
 or granary somebody by.his.will break-PRTC.NOM.SG have-3SG
 "Or somebody has broken open a granary by his own will"
 (MH/MS (CTH 261.3) KUB 13.1(+) rev. iv 20'-23')
- (11) **Tocharian B**
mā tot ñis pintwāt warpalle nesau
 not so.much I alms-N/O.SG accepting-GV COP.1SG.PRES
 "I will not accept (any) alms" (THT 107 b10)
- (12) **Vedic Sanskrit**
āsūn pitṛb^hyo gamayām cakāra
 breaths father-DAT.PL going-VBL.NOUN do-PERF.3SG.ACT.IND
 "He made his breaths go to the fathers" (Atharvaveda 18.2.27)
- (13) **Homeric Greek**

me:d' éti Te:lemák^hoio paté:r kekle:ménos
 and.not still Telemachos-GEN father called-PART.PERF.MED.NOM.SG.M
eíe:n
 COP.1SG.PRES.OPT.ACT
 "Let me nevermore be called Telemachos' father." (Iliad 2.260)

(14) **Old Latin**

sed quid tu foras egressa
 but why you outside departed-PART.PERF.PASS.NOM.SG.F
es?
 COP.2SG.PRES.ACT.IND
 "But why have you come outside?" (Plautus, Amphitryon 1078)

(15) **Gothic**¹⁸

witandans þatei du sunjonai aiwaggeljons
 knowing that for defence-DAT.SG gospel-GEN.SG
gasatīps im
 set-PART.PAST.NOM.SG.M COP.1SG.PRES
 "Knowing that for the defense of the gospels I have been set" (Philippians 1:16, Katz 2019)

In 95% of the 129 examples in my Hittite data, auxiliaries appear clause-finally, immediately preceded by the participle. In my Tocharian data, 74% of the 88 potential auxiliary constructions show the exact same order, along with 94% of my 94 Sanskrit tokens, 81% of the 48 total Homeric tokens, and 75% of my 189 Latin tokens. Also, of the 47 Gothic tokens where a Gothic periphrastic construction translates a single clause-final Greek verb, all 47 place the participle immediately before the auxiliary clause-finally¹⁹. Note that all of these languages only have constructions with a single auxiliary, and none of the auxiliaries can co-occur in the same clause. The auxiliary morphology and behavior of these six languages is summarized in Figure 1.2 below.

¹⁸This is an auxiliary construction translation of a single clause-final Greek verb *keĩmai*.

¹⁹Note that due to V2 behavior in Gothic (see, e.g. Fuss (2003)), my corpus only consists of the embedded auxiliary constructions in the Gothic corpus. Further, due to heavy Gothic mirroring of the Greek syntax, I have limited my tokens to the cases where Gothic uses two words to translate one Greek word, along with the cases where the Gothic syntax disagrees with the Greek syntax. This is discussed in much greater detail in §2.6.

Language	'Be' Auxiliary?	Other Auxiliary?	Participle	Part-Aux-#
Hittite	<i>ēš-</i> < <i>*h₁es-</i>	<i>hark-</i> 'have' < <i>*h₂erk-</i>	past < <i>*-nt-</i>	95%
Tocharian	<i>ste</i> < <i>*h₁es-</i>	–	pret. part., gerundives	74%
Sanskrit	–	√ <i>kr</i> 'do' < <i>*k^wer-</i>	verbal noun	95%
Greek	<i>eimí</i> < <i>*h₁es-</i>	<i>ek^ho:</i> 'have' < <i>*se^{g^h}</i> -	perf. mid. < <i>*-mh₁no-</i>	81%
Latin	<i>esse</i> < <i>*h₁es-</i>	<i>habere</i> 'have' < <i>*g^heh₁b^h-</i>	perf. pass. < <i>*-to-</i>	75%
Gothic	<i>ist</i> < <i>*h₁es-</i>	–	past pass. < <i>*-no-/-to-</i>	100% ¹⁹

Figure 1.2: Summary of auxiliary constructions across six early IE languages

Importantly, every single old IE language shows clause-final Part-Aux word order the vast majority of the time. These are the most conservative percentages possible, including all potentially compositional tokens in case any of them are true auxiliaries. And, since these compositional examples constitute a significant number of the word order exceptions, the percentages are likely higher for Tocharian, Greek, and Latin. Note that most 'be' auxiliaries stem from the PIE copula, while all of the other auxiliaries stem from separate roots. It should be mentioned that some of these languages' 'be' auxiliaries are suppletive, so there may be other stems involved in the construction of these auxiliaries in other tenses²⁰.

1.3.3.1 General analysis

With the structural assumptions I outlined earlier in this chapter (i.e. mixed headedness, economy of movement), the most straightforward analysis for the vast majority of the early IE auxiliary data is concluding that in each language the auxiliary ends up in a right-headed T above the participle generated in a right-headed V. This analysis trivially accounts for the vast majority of the data summarized in Figure 1.2 above. To illustrate this, Figure 1.3 below shows a

²⁰This is especially true for Tocharian B, where *ste* certainly comes from **h₁es-*, but the origins of the rest of the paradigm, based on the root *nes-*, are still debated.

possible derivation of (10) above, reproduced here:

(10) **Hittite**

[(*našma*)] ÉSAG *kuiš* ZI-*it* *kīnu-an*
 or granary somebody by.his.will break-PRTC.ACC.SG.NEUT
har-z[(i)]
 have-3SG
 "Or somebody has broken open a granary by his own will"
 (MH/MS (CTH 261.3) KUB 13.1(+) rev. iv 20'-23')

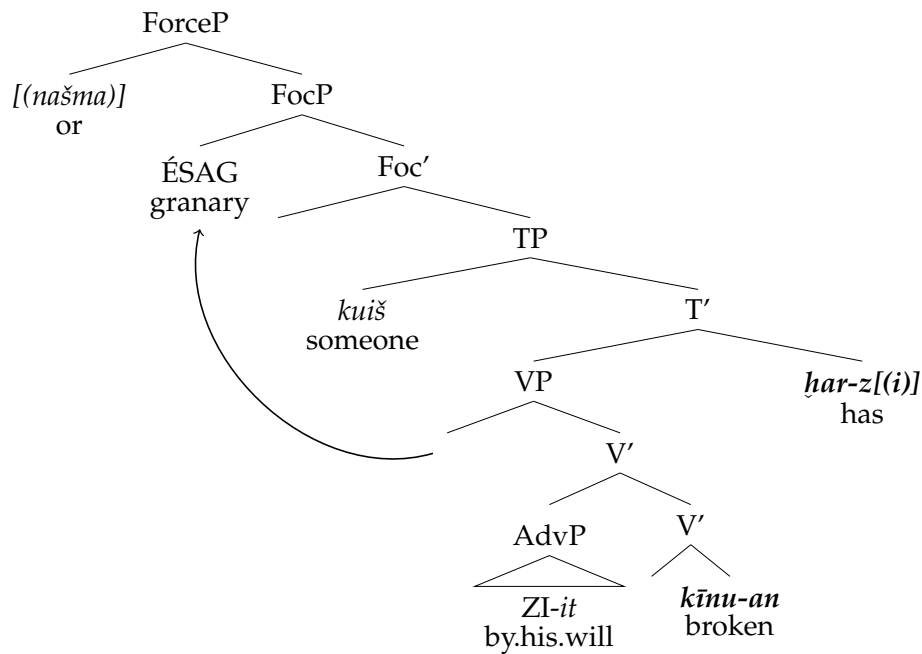


Figure 1.3: A possible right-T representation of (10)

This right-T analysis is more elegant and efficient than left-T analyses, as long as any exceptions to this clause-final Part-Aux generalization can be reasonably explained within a right-T analysis as well, especially if these word order exceptions can also be motivated for semantic, pragmatic, or information structure purposes. The following chapter is devoted to exploring every exception to the word order generalization above, individually, within corpora of each of these six early IE daughter languages, in order to show that the excep-

tions not only do not preclude a right-T analysis, but in many cases even point toward right-headedness in T themselves.

If we do conclude that right-T analyses of these data are more likely, then the resulting reconstruction for PIE is straightforward. Since all of the auxiliary constructions in the oldest daughter languages point toward [Comp:Right] features for T (and V), our correspondence set unanimously points toward reconstructing these features for T and V in the proto-language as well. The primarily SOV word order of the daughter languages pointed out time and time again over the past 120 years would indeed indicate right-headedness in the proto-language then; we just needed to look at the auxiliary constructions innovated in each of the daughter languages to conclusively demonstrate it.

1.3.4 Notes on poetry

The fact that much of the earliest IE data comes from weight-sensitive poetry might worry many readers, since meter can indeed affect and constrain word order, and all of the poetry in my corpora is strictly metered. We will see the very real effects of meter in the next chapter, as most of the oldest data is poetic, and much of that poetry shows significant syntactic differences from the earliest prose. This does not mean, however, that the syntax of old Indo-European poetry is beyond analysis. Wackernagel (1943) comments on the relationship between old IE syntax and poetry, mentioning first of all just how much poetry diverges from prose and natural speech in both syntax and word choice, but going on to talk about the ways we can avoid the pitfalls of poetic meter, and in some cases even benefit from it.

In some cases the differences between poetry and prose are a disadvantage, since we cannot be as certain that our data reflects native speech, but poetry can also reveal grammatical syntactic operations that may not be represented in prose genres, and preserve archaisms not present in contemporary language. Plus, old Indo-European poetry is, by its very nature as a significantly orally transmitted medium, highly formulaic and predictable. Wackernagel noted multiple tendencies of old IE poetic syntax, for example its propensity to strand emphasized constituents at ‘endpoints’, whether that be important NPs at the end of the clause (or colon), or important individuals at the end of a list. Enclitic behavior also seems undisturbed by poetic meter. We do often see word order divergence for purposes of alliteration, though that tends to be more focused in the Western, European tradition, and also in order to feature or highlight *figura etymologica*. Being aware of these systematic formulae goes a long way toward allowing us to distinguish true syntactic archaism from stylistic word orders that would likely be ungrammatical otherwise²¹.

Ultimately, the best way to control for the unpredictability of meter is to compare prose with poetry whenever possible, and to favor prose syntax over poetic, while keeping in mind the possible archaisms the poetry could be preserving. As a result, I have also gathered data from the earliest prose when contemporaneous with my poetic data, so that I can more easily compare the two. Also, whenever my data for a given language comes from poetry alone I have included examples with auxiliaries in as many locations in the meter as possible in order to reduce these concerns. Even though poetic language can (and clearly does) influence word order, it remains itself constrained by rules of

²¹For one recent take on how to incorporate a modern understanding of metrical issues into syntactic analyses of old Indo-European poetry, see Wenthe (2012)’s work on syntax v. meter in the placement of Vedic clitics

grammaticality, and preserves intact the vast majority of the language's structural syntactic relationships.

CHAPTER 2

AUXILIARY CONSTRUCTIONS ACROSS THE EARLY IE LANGUAGES

In this chapter I will provide the exceptional auxiliary data from each of my IE corpora. I will break down the (often shared) etymological origins of each participle and auxiliary, and will list and discuss every counterexample to the clause-final Part-Aux word order generalization discussed in the previous chapter.

Figure (2.1) below summarizes the exceptional word orders seen across my corpora and compares them with the number of examples from each corpus that follows the clause-final participle-auxiliary generalization. In this table, ‘P’ stands for ‘participle’, ‘A’ stands for ‘auxiliary’, ‘X’ denotes any other word/words, and ‘#’ denotes the beginning or end of a clause. So, ‘PAX#’ means that the word order in those exceptions is “participle, auxiliary, then some other element(s)” clause-finally.

Language	PAX#	AP#	PXA#	#PA	APX#	#AP	Total	PA#
Hittite			3			2	5	129
Tocharian	12	9	4	5			30	88
Sanskrit	2						2	94
Greek	6		1				7	48
Latin	16	18	10		4		48	189
Gothic	1	1	1				3	127
Total	36	28	19	5	4	2	94	675

Figure 2.1: Exceptional word orders across my old IE corpora

A few generalizations immediately jump out from the data above. There are three word order exceptions seen across multiple languages, PAX#, AP#, and PXA#, of which PAX# is by far the most numerous, which leads me to believe that these were either inherited from PIE or that these are straightforward innovations from whatever clause structure PIE passed down to its daughters.

Either way, these are exceptional orders that must be clearly derivable from whatever structure I propose for the parent language. Also, each class of exception shared by multiple languages shows similar percentages of exceptions in each language, though this may not be statistically significant due to the relatively small size of these corpora. The other three exceptional word orders are unique to their respective languages, and are possibly innovative in those particular branches.

Next, three languages show a significant percentage of word order exceptions, Latin, Tocharian, and then Greek, in that order, with Latin and Tocharian poetry showing much larger numbers and classes of exceptions than Greek. In these three languages exceptional word orders seem to be much more common than in the Hittite, Sanskrit, or Gothic corpora, which are near-exceptionless. As we will see, neither of these tendencies is straightforwardly reconstructible for PIE due to the most commonly accepted genetic relationships between these languages, so regardless of whether PIE was mostly exceptionless or mostly exceptionful, it must have been amenable to switching this tendency. The disharmonic nature of the left-C, right-T clause structure I reconstruct for PIE could drive this ‘instability’, and could foreshadow the tendency of the much younger IE daughter languages to innovate significantly varied clause structures.

2.1 Hittite

Hittite is a language of the extinct Anatolian family, widely believed to be the first branch of Indo-European to diverge from the proto-language (Klein *et al.*, 2017a, 233–234). This makes it of paramount importance to Indo-European re-

construction, as it can be compared directly with the reconstructed ancestor of all of the other Indo-European languages to reconstruct the oldest stage of Proto-Indo-European. The Anatolian languages show significant differences from the other IE branches: the verbal systems of Anatolian languages are much simpler, they only have common and neuter gender (lacking the feminine agreement of the other old IE languages), and they show split-ergative case marking with neuter nouns. Other unique features of the Anatolian languages are *wh*-in-situ syntax seen in relative constructions, and the elaborateness and rigidity of their clause-initial particle/clitic chains that appear in second position after either a preposed constituent or the expletive *nu* ‘now’.

Hittite in particular is the earliest-attested Indo-European language, attested from the early 16th to the 13th centuries BCE, and is divided into Old (until 1500 BCE), Middle (from 1500–1375 BCE), and Neo-Hittite (post-1375 BCE) stages across the four hundred years of its attestation. Our records are approximately 30,000 clay tablets written in an Akkadian cuneiform syllabary incorporating ideograms from Akkadian and Sumerian. The majority of these clay tablets were excavated at the site of ancient Hattusa, near modern Boğazkale, Turkey, with smaller significant finds elsewhere, and are contemporary with the language’s speakers.

As mentioned by (Melchert, 1994, 8–9), some consider Hittite to have been a ‘chancery language’, but the fact remains that it underwent significant evolution during its years of attestation, and likely reflects the syntax of Hittite’s speakers to a reasonably high degree. The texts themselves also vary widely in genre. We have administrative and legal texts, histories, myths, detailed ritual instructions, and more, giving us a wide variety of syntactic comparanda over

the four hundred years of Hittite attestation.¹

2.1.1 Auxiliary constructions in Hittite

Auxiliary constructions in Hittite are not present in the oldest texts, and first show up in Middle Hittite, and are composed of either the BE-verb *ēš-*, derived from the reconstructible PIE copula **h₁es-*, or *ḫark-* ‘have’, most commonly derived from PIE **h₂erk-* ‘hold’, along with nominative-accusative singular neuter past participles ultimately derived from the PIE **-nt-* participles, which are passives from transitive verbs, making this construction a semantic match for the Germanic and Romance present perfect. The HAVE-auxiliary is used with all transitive verbs and a small subset of intransitive verbs, while the BE-auxiliary is used with the remainder of the intransitive verbs (Shatskov, 2012). The data is consistent with the standard distribution of HAVE and BE auxiliaries cross-linguistically (and elsewhere within IE), with HAVE for transitives and unergatives, and BE for unaccusatives (Kayne 1993, Bentley & Eythórsson 2004, etc.). As mentioned in the introduction, I’ll be ignoring serial verb constructions with *pai-* ‘go’ or *uwa-* ‘come’, as these potentially multiclausal constructions might not show us the relationship between inflection in T and the lower isoclausal verbal domain.²

Most syntactic analyses in the Anatolian literature either avoid the topic of headedness altogether, or default to a head-initial analysis (e.g. Garrett (1994), Huggard (2011)). Sideltsev (2014) specifically argues instead for right-headedness within TP and left-headedness above TP for Hittite. He bases this

¹For more information about the Hittite corpus, see Laroche (1971). For detailed grammatical and corpus info, see the discussion and references in (Klein *et al.*, 2017a, Ch. IV).

²For more information on the Hittite auxiliary system, see Shatskov (2012).

claim primarily on the “rigidity” of clause-final verbs, and the rarity of postverbal subjects and objects, but more importantly he also notes the behavior of the auxiliaries *ḫark-* ‘have’ and *ēš-* ‘be’, which he claims always follow nominative-accusative singular neuter *-nt* participles clause-finally, as seen in (16) below:

- (16) [(*našma*)] ÉSAG *kuiš* ZI-*it*
or granary somebody.NOM.SG.C by.his.will
kīnu-an *ḫar-z[(i)]*
break-PRTC.NOM.SG.N have-3SG.PRS
“Or somebody has broken open a granary by his own will”
(MH/MS (CTH 261.3) KUB 13.1(+) rev. iv 20'-23')

Sideltsev does not cite any sources for this claim, however, and does not provide us with any corpus data. So, I gathered all potential auxiliary constructions from the Hittite corpus on the Hethitologie Portal Mainz (HPM) website, for a total of 129 tokens drawn from treaties, decrees, myths, prayers, and rituals, to see if his generalization is borne out. And indeed, the generalization holds better than for any of the ancient Indo-European languages in the following sections: only nine clauses showed any order other than clause-final participle+auxiliary. Three of these nine showed part-aux order followed only by a vocative, one splits the clause-final BE-verb from the participle with a nominal (and turns out to not be a counterexample anyway), and two nearly identical tokens place the participle and BE-auxiliary clause-initially, followed by the rest of the clause.

Here are a handful of the examples that show the majority word order, with the auxiliary at the right edge of the clause, immediately preceded by the participle:

- (17) *mān ēšḫanašš=a* *kuiški* *šarnikzil*
if blood-GEN.SG=and someone-NOM.SG.C restitution-ACC.SG.N

piyan *harzi*
 given-PTC.NOM.SG.N have-3SG.PRES
 “If someone has also given restitution for blood” CTH 258.I.2.19.

- (18) *našma=wa=šmaš=kan* *arha kuiški*
 or=QUOT=you-DAT.PL.PTC away someone-NOM.SG.C
huittiyan *tallian*
 summoned-PTC.NOM.SG.N invoked-PTC.NOM.SG.N
mugan *harzi*
 supplicated-PTC.NOM.SG.N have-3SG.PRES
 “or someone has summoned, invoked, or supplicated you” CTH 484.I.6.49.

- (19) *n=at=za* *kāš wappuwaš* *IM-aš*
 and=them=REFL that riverbank-GEN.S mud-NOM.SG
tarahhan *harzi*
 overcome-PTC.NOM.SG.N have-3SG.PRES
 “The clay of the riverbank has overcome them” CTH 398.IX.63.

2.1.2 Exceptions to the Part-Aux generalization

2.1.2.1 Postposed vocatives

The following three examples place vocatives after the copula. Since the vocatives here are likely either postposed topics or right-adjoined extrasyntactically, these do not constitute a problem for my generalization.

- (20) TI-*anza=wa=za ēš* ^dÉ.A
 living COP.2SG.IMP Ea
 “Lebend sollst du sein, Ea!” E. Rieken et al.
 “Be living, Ea!” CTH 345.I.3.1 198.

- (21) TI-*anza=wa=za ēš* ^dÉ.A
 living COP.2SG.IMP Ea

“Lebend sollst du sein, Ea!” E. Rieken et al.
 “You should be alive, Ea!” CTH 345.I.3.1 170.

- (22) *zik=wa=za* TI-*anza* *ēš* *hattannaš?* *haršumnaš*
 you living COP.2SG.IMP wisdom-GEN.SG spring-GEN.SG
 E[N-a]š?
 Lord
 “Du sollst leben, H[err?] der Quellen der Weisheit!” E. Rieken et al.
 “Thou shalt live, L[ord?] of the spring of wisdom!” CTH 344 68.

2.1.2.2 Participle and copula separated by an element

There are three examples that I am aware of that feature an element occurring between the clause-final participle and auxiliary.

The first example, (23) below, places *kuit* ‘because’ after the participle and immediately before the auxiliary. This order, however, is likely phonologically conditioned; *kuit* avoids prosodically prominent left-edge positions, and prosodically weak constituents like *kuit* cannot be supported by *nu* plus a clitic chain, according to Craig Melchert (personal communication)³. The other potential explanation is that the participle has moved into the left periphery somewhere below the location of the clitic chain, yet above the location of the conjunction lower in the clause, likely for contrastive focus, as we will see in the next few examples. Either way, left-T analyses will face exactly the same situation.

- (23) *nu=mu ištamaššan* *kuit* *harker*
 and=me heard because have-3PL.PRET
 “since they had heard about me” KBo 5.8 i 23-24

³Thanks to Craig Melchert for providing me with the final three examples in this section, as well as his expertise with the most likely analyses for their behavior.

In the following two examples (25) and (24) we see practically the same word order we saw above, with the participles occurring before variants of *kuit*. One important difference, however, is that *kuit* above is a conjunction, while below they are pronouns. In (24), we see the act of taking contrasted with the act of harming, with the participle being clearly contrastively focused and moving into the left periphery below the clitic chain accordingly. We also see two constituents appearing before *because* in (24); *I* has been topicalized, and *not anything* has been contrastively focused.

- (24) *ammuk* *Ú-UL* *kuitki* *kuit* *dammišhan* *harmi* *Ú-UL=ma=kán*
 I not anything because harmed have-1SG not=or
dān *kuedanikki* *kuitki* *harmi*
 taken anyone anything have-1SG
 “since I have not harmed anything or ever taken anything from anyone”
 HKM 68:4-6

In this second example, (25) below, we see two different violations being contrasted: the act of taking with the act of giving⁴. Finally, in (25) we see the relative pronoun occurring right before the clause-final auxiliary, but recall that Hittite shows *wh-in-situ* behavior in relative clauses.

- (25) *našma=šši* *ZAG* *anda* *tepnuzi* *našma=šši* *píyan* *kuit* *harmi*
 or=him boundary in reduce-3SG or=him given what have-1.SG
nu=šši=kán *arḥa* *kuitki* *dai*
 and=him away anything take-3SG
 “or reduces his boundary or takes anything away from him that I have given him” Bo 86/299 iv 18-19

The examples in this section show that Hittite *can* show word orders other than clause-final Part-Aux, but that these exceptions are both rare and straightforward, in every case here resulting from contrastive focus.

⁴Thanks to Craig Melchert and Michael Weiss for this analysis.

2.1.2.3 Clause-initial copula and auxiliary

The final two word order exception examples in the corpus are the most interesting. They are identical, and show clause-initial participle-auxiliary order, with the participle serving as the host of the clitic chain.

- (26) *tarmān=war=at ēšdu* KAxU-*it* EME-*it* ^DUTU-*i*
nailed COP.3SG.IMP mouth-INST.SG tongue-INST.SG sun.god
kattan
down
“Let it be nailed with mouth and tongue, O Sun god.” CTH 404.1.II 160

- (27) [*tarman=war*]=*at ēšdu* *iššit* EME-*it* ^DUTU-*i*
nailed COP.3SG.IMP mouth-INST.SG tongue-INST.SG sun.god
[*katta*]*n*
down
“Let it be nailed with mouth and tongue, O Sun god.” CTH 404.1.III 76

This #PA constituent order is unique to these Hittite examples, and show no parallels across the other old IE languages. The copula is followed by two instrumentals, a vocative, and a directional adverb. The simplest analysis would just be to claim that all of these adverbial elements are right-adjoined above T, requiring no movement operations other than the participle acting as host for the clitic chain. Otherwise, the easiest operation that can account for these data is Right Dislocation of the elements following the copula. This Right Dislocation operation will be discussed fully in the next subsection.

It’s worth pointing out that the few auxiliary examples with only two non-clitic constituents - the participle and auxiliary - show two different ways of hosting the clitic chain. The first is for the participle to host the clitic chain, immediately followed by the verb, as seen above in (27). The other is for the

heavily semantically bleached particle *nu* ‘now’ to host the clitic chain instead. To my knowledge, there is no agreed upon difference between sentences that host clitic chains with *nu*, and those that host clitic chains with the first word of the sentence, but the contrast is nonetheless interesting.

- (28) *nu=war=at=za tarahhan harzi*
 and=QUOT=it=REFL overcome have-3SG
 “Er hat es überwunden.” D. Bawanyeck
 “He overcame it” CTH 398 98.

2.1.2.4 Conclusion: Hittite’s T domain is right-headed

Hittite almost exceptionlessly shows clause-final Part-Aux word order in this corpus, with each of the few exceptions to this generalization straightforwardly explainable. This is consistent with a right-headed analysis of Hittite within TP, as Sideltsev claimed, with both the auxiliary and participle remaining in their base-generated positions in practically every example. In order to derive these word order data, left-T analyses must move everything in the clause into the left periphery in every single token in the corpus, with no semantic explanations for these movements, and all of these movements must target positions below the location of the clitic chain in the syntax. A parameterized, disharmonic approach to Hittite syntax, however, straightforwardly generates every token in the corpus.

2.2 Tocharian

Tocharian is an extinct Indo-European branch spoken along the northern Tarim Basin in what is now the Xinjiang province in northwestern China. It is the eastmost ancient IE language family, and had two attested languages, called Tocharian A and Tocharian B, which descend from a common reconstructible Proto-Tocharian. As discussed in Klein *et al.* (2017b), our texts mainly date from the 6th to 8th centuries CE, but with a few as early as the 4th century and as late as the 12th, and have been discovered at multiple sites along the northern edge of the Tarim Basin, from the Turfan region in the east to the area around Kucha in the west. Tocharian B is found throughout this area, while Tocharian A texts are found exclusively in the east.

The corpus mostly contains Buddhist religious literature, consisting of adaptations and translations of Indian texts, written in the *brāhmī* script on rolls of paper and pieces of wood. According to Pinault (1989), the Tocharian religious corpus is quite varied, including monastic rules and rituals, sayings and stories of the Buddha, commentaries, poetic hymns, and scientific treatises, but we also have secular works covering administrative and legal affairs, as well as a few histories and even a love poem! Much of the corpus is fragmentary and a large number of the manuscripts have yet to be translated and published. For my purposes in this work, the primary source will be the Comprehensive Edition of Tocharian Manuscripts (CEToM) website, an ever-expanding, easily searchable collection of Tocharian A and B texts.⁵

⁵For more information on the Tocharian corpus and grammar, see the discussion and references in Klein *et al.* (2017b). For an exhaustive exploration of the word order of the Tocharian finite verb, see Zimmer (1976), though by its nature it doesn't provide much information about Tocharian's auxiliary constructions.

Adams (2006) divides the Tocharian B corpus into four periods based on textual and Carbon-14 evidence: Early (before 600 CE), Middle (between 600 and 900 CE), Late (between 900 and 1100 CE), and Very Late (after 1100 CE). I will be following the stages used in CEToM, wherein Early corresponds to ‘Archaic’, Middle corresponds to ‘Classical’, and everything after Classical is termed ‘Late’.

Tocharian’s prominence in this chapter is due to its importance for PIE reconstruction, as many Indo-Europeanists (e.g. Weiss (2018), Klein *et al.* (2017a, 234)) believe that it was the second language to split off from its parent, after the Anatolian languages. Tocharian can therefore be compared with the reconstructed ancestor of the other eight branches of Indo-European directly to reconstruct the second-oldest layer of PIE.

Tocharian is attested significantly later than most of the other languages used for my reconstruction here, however, and as a result its phonology, morphology, and syntax has undergone significant innovation. Even so, as we will see, Tocharian’s clausal syntax still shows surprising similarities to its sisters (especially Old Latin), and the generalizations that hold for the other ancient Indo-European languages for our purposes hold for Tocharian as well.

2.2.1 Auxiliary constructions in Tocharian B

According to Adams (2015), Tocharian possesses periphrastic perfect, future, necessitive, and potential constructions consisting of innovated participles or gerundives and an inflected BE-auxiliary. This BE-verb *nes-* is suppletive, but most of its forms likely stem from the PIE copula **h₁es-*, also reflected in the

Hittite auxiliaries from the previous subsection. The variety of auxiliary constructions seen in Tocharian is much larger than in the other old IE languages, and is indicative of the extensive innovation seen in the language. Even so, the word order generalizations seen across all of these constructions is surprisingly consistent with what we see elsewhere across the old IE languages.

I gathered all collocations of BE-verbs and participles or gerundives from the translated portion of the Comprehensive Edition of Tocharian Manuscripts (CEToM) that could prove to be auxiliary constructions. As we can see in Figure 2.2, there are a total of 88 of these potential auxiliary constructions in my corpus. 65 of these (74%) place the auxiliary clause-finally immediately following the participle. Also, note that there are no examples of prose clauses ending any other way.

Period	Type	Part-Aux-#	Other
Archaic	Verse	2	0
Classical	Verse	30	20
Classical	Prose	21	0
Late	Verse	7	0
Late	Prose	4	0
Other		1	3
Total		65	23

Figure 2.2: Clause-final word order in Tocharian periphrastic constructions

This generalization closely matches the word order we would expect from a clause structure with a right-headed TP, and also closely matches the other old Indo-European language data. Also, remember that some of these examples are compositional (i.e. *not* auxiliary constructions), with the BE-verb and the participle/gerundive retaining their individual semantics.

Below are a handful of the sixty-five examples showing the majority word order found in the data, with the auxiliary occurring clause-finally after the participle. The remainder can be found in Appendix B.

- (29) *māpi rä«me»r kselle* *šaitä*
indeed quickly extinguished-GV.NOM.SG COP.2SG.IMF.ACT
“then you would not have been extinguished [so] quickly, would you?”
THT 273 b5 Archaic Literary Verse
- (30) *toyä ašiyana po läläṃṣuwa stāre*
these nuns all worked be.3PL.PRET
“These nuns have worked everything” PK AS 18B a2 Classical Literary
Prose
- (31) *mā tot ñiś pintwāt warpalle nesau*
not so.much I alms-OBL.SG accepting-GV COP.1SG.PRES
“I will not accept (any) alms” THT 107 b10 Late Literary Verse/Prose

2.2.2 Other auxiliary clausal word orders

There are four categories of exceptions to the word order generalizations described above in Tocharian. The first category shows the expected order of participle+auxiliary clause-finally, but with some element(s) postposed immediately following ‘be’ (PAX#). The second category consists of examples with a single element appearing between the clause-final participle and auxiliary (PXA#). Third are examples where the participle and auxiliary appear clause-initially (#PA), and finally there are examples where the auxiliary appears earlier in the clause than the participle (AP#).

2.2.2.1 Postposed elements (PAX#) and Right Dislocation

This most populous class of exceptions both in Tocharian and across the old IE languages features one (or more) elements appearing after the participle+BE; these examples show the expected order of participle and BE, but with one or

two elements placed after the copula clause-finally. There are five examples of postposed NPs with structural cases in the corpus, and seven examples of postposed oblique cases or adjuncts, comprising over half of the total exceptions and accounting for fourteen percent of the auxiliary constructions in the Tocharian corpus.

This large class of cross-linguistic counterexamples to the Part-Aux-# generalization seems to be straightforwardly Right Dislocation (RD), of the sort seen in Kuno (1978), Kayne (1994), and Whitman (2000). As such, my analysis is to posit, after Kayne (1994), a biclausal structure in which the (surface-level) first clause lands in the specifier position of a functional category which then takes the second clause (the one containing the Right Dislocated element(s)) as its complement, as seen in Figure 2.3 below. This analysis of RD follows the left-operation only stipulation required by the Cyclic Linearization model of Fox & Pesetsky (2005).

(32) “They_i’re hard workers, those students_i!”

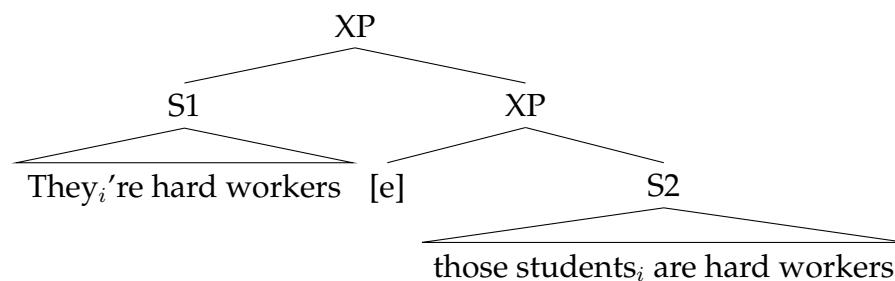


Figure 2.3: Structure of Right Dislocation (from Whitman 2000)

Languages with null pronominals often don’t show the mandatory resumption we saw in English RD above and instead make use of small *pro*, as seen in example (33) from Japanese below, which also happens to feature multiple RD. As the early IE languages explored in this dissertation are all pro-drop,

there will be no resumptive pronouns, and I will assume small *pro* for all Right-Dislocated arguments.

- (33) Japanese
 pro_i pro_j *hon-o* *ageta-yo*, *John_i-ga* *Mary_j-ni*
 PRO_i PRO_j book-ACC gave-MOD John-NOM Mary-DAT
 “He_i gave a book to her_j, John_i to Mary_j.”

Also, it should be noted that any argument of the verb can be Right Dislocated, and that multiple RD of arguments is common in languages with null pronominals, as discussed by Endo (1996), but even occurs in modern Indo-European languages, as seen in Samek-Lodovici (2015, 163–236). Further, Samek-Lodovici discussed how the participles in auxiliary constructions can be Right Dislocated as well, as seen in their example (34), which also features multiple RD, but this time of a direct object and participle.

- (34) Italian
Lo abbiamo a MARCO_F, il tavolo_R, riportato_R
 it have-1PL to Mark the table bring.back-PART
 “We brought the table back to MARK.” Samek-Lodovici (2015, 186)

All of these RD patterns are present in at least some of the old IE languages in this and the following sections, and the PAX# class of exceptions to the PA# generalization itself appears in Homeric Greek, Old Latin, and possibly even Vedic Sanskrit prose and Gothic.

2.2.2.1.1 Structural Cases

There are five examples in my Tocharian corpus featuring PAX# word order where the postposed element is a structural case, four examples with nominatives and one with accusative.

Postposed Nominatives

- (35) *mentsisā* *kr_ui* *wikalle* *tako_i* *läkle*
 grief-PERL.SG if disappear-GV.NOM.SG COP.OPT.3SG pain-NOM.SG
yesäñ *sem*
 you-GEN.PL this-NOM.SG
 “If this sorrow of yours could be driven away by grief, [...]” THT 295 b8
 Archaic Literary Verse

Here the postposed element is the subject of the clause, and is straightforwardly derivable through the RD process explained above, though it should be noted that the word order within the Right Dislocated NP is also unusual; we would expect *sem yesäñ läkle*, the exact opposite of what we have⁶. (36) below shows the same overall constituent order, and is derivable the same way:

- (36) *cī* *lyelyakormem* *ket* *nai* *kca*
 you-OBL.SG having.seen-ABL.SG what-GEN indeed any-OBL
wawāskau *ste* *arañce* *yainmu*
 moved-PART.NOM.SG COP.3SG heart-NOM.SG reached-PART.NOM.SG
(tr)aike
 confusion-N/O.SG
 “Having seen you, by whatever indeed is the heart, having reached confusion, moved?” PK NS 18 a3 Classical Literary Prose/Verse
- (37) *empele* *rano* *yāmu* *sey-ne*
 terrible-NOM.SG however done-PART.NOM.SG COP.IMF.3SG-OBJ
yāmor *su,* *onmin* *no postām*
 deed-NOM.SG this-NOM.SG remorse-N/O.SG but afterwards
yamašate *mrau(skāte)*
 do-PRET.MID.3SG feel.disgust-PRET.MID.3SG
 “Even though this horrible deed had been done by him, nevertheless he felt remorse afterwards [and] felt revulsion.” PK AS 7C a6 Classical Literary Verse

In the interesting example (37) above, the subject is stranded clause-finally, but an adjective describing that subject appears clause initially, also showing

⁶Thanks to Michael Weiss for pointing this out.

the unexpected noun-demonstrative syntax we saw in (35) above. (38) below has almost exactly the same situation, just in the plural. The same adjective is stranded initially, away from the rest of its DP which shows up following the copula clause-finally. These also look to be cases of Right Dislocation, with the adjective describing the null co-indexed subject of the upper clause. As we will see in some of the following IE languages, this pattern of moving the modifiers of a Right Dislocated phrase along with the rest of the first clause while stranding the head of the phrase in the second clause is not uncommon, and this process of ‘hyperbaton’ has been well described in the Classics literature for centuries.

It should also be noted that in both of these examples the stranded nouns form *figura etymologica* with the participles in the main phrase, all from the root *yam-* ‘do’, which, as we mentioned in the introduction, are often manipulated syntactically for stylistic reasons.

- (38) *empelona* *ra* *yāmwa* *tākam* *yāmornta*
horrible-NOM.PL also done-PART.NOM.PL COP.SUBJ.3PL deed-NOM.PL
āñm *n(ā)kālñesa* *nuttsāna* *pest* *klautkontrā*
self-OBL.SG blame-PERL.SG annihilated-NOM.PL EMPH become-3SG
“If horrible deeds have been done, by self reproach they become entirely annihilated.” PK AS 7C b2 Classical Literary Verse

Postposed Accusatives

- (39) (*twe* *tār*)*k(au)* *nest* *nūwalñe*
you-NOM.SG left-PART.NOM.SG COP.2SG roaring-OBL.SG
“you have emitted a [lion’s] roar” PK NS 32 b5 Classical Literary Prose/Verse

We only have one example of a postposed internal argument, again display-

ing Right Dislocation syntax.

2.2.2.1.2 Postposed Oblique Cases/Adjuncts

Many of the postposed elements in this section are adjoined elements of some sort, from oblique cases to adverbs and particles. As noted by the Ernst (2014, 108–130), right-adjunction is common in scopal analyses of adverbial syntax, and many of these cases fit the semantics we would expect from right-adjoined elements.

Postposed Genitives

- (40) *s=āttsaik śaul śawaṣṣālle ste śamāneṃts*
DEM=only life-NOM.SG lived-GV.NOM.SG COP.3SG monk-GEN.PL
“[...] by (alms bread) only life is to be lived by monks” THT 50 a6 Classical Literary Verse

Our first example is a good one. The most straightforward option is to interpret this sentence as copular, perhaps something like “by (alms bread) only is life to be lived by monks”. In that case, this sentence is not an auxiliary construction. If it *is* an auxiliary construction, then everything depends on the interpretation of *śamāneṃts* ‘of monks’. If *śamāneṃts* is to be taken as “to be lived **by monks**”, then it certainly scopes high enough to adjoin above the BE-auxiliary in T. “By monks, life is only to be lived by alms bread”, or the like. If it is to be taken as part of the NP, “life **of monks**”, then we have the opposite situation to the one we saw earlier, with the head of the NP appearing in the first clause, and the modifier of that head being Right Dislocated to the right of the copula. The high-scoping interpretation, however, seems more likely, since hyperbaton

usually strands the head of a DP and not the modifiers.

Perlative

- (41) *tetrīku* *po* *trikau* *nesau*
 confused-PART.NOM.SG all-NOM.SG led astray-PART.NOM.SG COP.1SG
lakle(sa)
 suffering-PERL.SG
 “I have gone astray, all confused I am through the suffering” THT 17 a2
 Late Literary Verse

Both of these perlative examples are perfective passive BE-auxiliary constructions. If “through suffering” scopes high enough in the clause to be right-adjoined, no departure from a simple right-TP analysis is required. Same with “by possessions” below, though Right Dislocation would also work for these two examples if they are taken as VP adjuncts.

- (42) *semi* *trikoş* *ş[em]* *wai(peccesa)*
 some-NOM.PL confused-PART.NOM.PL COP.IMF.3PL possession-PERL.SG
 “Some had been led astray by possessions” THT 24 a2

Locative

- (43) *ñ(a)ke şp wce* *ka camelne* *tetemu*
 now and second-OBL.SG indeed (re)birth-LOC.SG born-PART.NOM.SG
şai matārāṃne
 COP.IMF.3SG monster-LOC.PL
 “And now in the second birth indeed he [= Vajraka] has been born among the sea monsters.” PK AS 6A b5 Classical Literary Verse

Same as above, this locative example, if taken as a VP adjunct, can be straightforwardly derived through Right Dislocation.

Vocative

- (44) *karuṃ* *palsko* *te-yknesā lwāññe*
compassion-NOM.SG mind-NOM-SG thus animal-OBL.SG
rupne *tukau* *sai-c* *tot lalam(ška)*
form-LOC.SC hidden-PART.NOM.SG COP.IMF.3SG-OBJ so tender-VOC.SG
“Thus your compassionate mind was hidden in animal appearance, o so
tender one.” THT 3597 b5 Classical Literary Verse

As we saw with vocatives in Hittite, this is likely either right-adjunction of vocatives, or vocative topic postposing.

Adverbs

- (45) *-aupāntsa* *tu* *ksa* *krui nesalle*
thing-NOM.SG this-NOM.SG any-NOM if been-PART.NOM.SG
sai *tne*
COP.IMF.3SG here
“[...] if this had been any [...]thing here.” THT 64 b3 Classical Literary
Verse

This adverbial example also straightforwardly demonstrates Right Dislocation.

2.2.2.1.3 Two postposed elements

In (46) below, we have the actual complementizer stranded clause-finally along with a final adverb, which gives evidence for TP fronting in Tocharian B. If “by the four exercises” is right-adjoined with high scope as we saw in some of the examples above, we here see TP fronting around the complementizer and otherwise showing exactly the word order we would expect for elements within TP.

This example also raises serious problems for left-headed TP analyses, since it's unclear how exactly we derive exactly the opposite word order that we would expect from a left-T language all within the left periphery *and* above the complementizer. This example strongly favors a right-headed TP analysis of Tocharian syntax.

- (46) *mant se* *pals(k)o* *mā yairu*
 thus this-NOM.SG spirit-NOM.SG not practiced-PART.NOM.SG
tākam *kwri štwēr wara-(šlyñesa)*
 COP.SUBJ.3SG if four exercise-PERL.SG
 "Likewise, if this spirit has not been exercised by the four exercises[...]"
 PK AS 6C a7 Classical Literary Verse

2.2.2.2 Element separating participle and auxiliary (PXA#)

In this next class of exceptions, we have some element occurring between the participle and the auxiliary. This is the second class of exceptions shared by multiple old IE languages, and in general will be accounted for through topicalization of VP. In the Tocharian examples below, however, more complex movements must be relied upon, for both right-T and left-T analyses.

Internal argument

- (47) *(še)[mi]* *wnolmi* *t[e]trikos* *ytarim*
 some-NOM.PL creature-NOM.PL confused-PART.NOM.PL paths-OBL.PL
šem *aknātsaññesa*
 COP.IMF.3PL ignorance-PERL.SG
 "Some creatures had gone astray out of ignorance." THT 29 b5

Here we have an interesting example, showcasing an internal argument between the participle and BE-auxiliary, appearing with a perlocative following the auxiliary, though the participle and auxiliary still occur in the expected order.

The right-dislocated perrelative doesn't cause any trouble, but the unexpected location of the internal argument is problematic. There are a few approaches to explaining this example, with none of them completely satisfying, but the most likely explanation is that this is a cleft construction of some sort, meaning something like "Some creatures going astray was due to ignorance." In this case there is no auxiliary construction, and the participle and its object go with the subject.

Another more convoluted possibility is that "some creature" is topicalized, and "confused" has been focused. Or, it could be the case that Tocharian shows some variability in the order of its constituents within VP - the participle could be moving into a specifier low in the clause for some reason, for example, perhaps even into a low Focus position, though evidence for this sort of position elsewhere in Tocharian is sparse, and this explanation may be too powerful given the sparse data supporting it.

Finally, these word order irregularities could be for metrical reasons; recall that the only exceptions to clause-final Part-Aux word order occur in poetry, and that in prose the generalization is exceptionless.⁷ Either way, this example is no easier to derive for a left-headed analysis, and has the same problems.

- (48) *keklyauṣ(wa)* *eñ(ku* *p)elaiknenta* *ṣaim*
 heard-PART.NOM.PL seized-PART.NOM.SG law-NOM.PL COP.IMF.1SG
po *märsā(wa)*
 all-OBL.SG forget-PRET.1SG
 "The laws heard I had grasped [but now] all I have forgotten." THT 15
 a2 Classical Literary Verse

Here again we see the discontinuous constituency/head stranding that we

⁷One final undesirable explanation for this exception, for reasons of the Final-Over-Final Constraint (FOFC, as discussed in the concluding chapter), is that Tocharian has innovated some left-headed functional category above VP, and the participle has undergone head movement to this position. Thanks to John Whitman for this possibility.

saw earlier, but this time with only the participle appearing between the noun and its modifier. The participle modifying ‘law’ here, ‘heard’, has clearly been moved into the left periphery; again, this could be topicalization of part of the subject, and focusing of the participle as we might also see in (47) above. It’s also possible that some sort of phonological or metrical process has stranded the participle within the NP.⁸ Again, however, this example is just as problematic for left-headed analyses as for right-headed, if not more so.

Genitive

- (49) *se(ṃ) t(e)-yäknesa yāmor yāmu ket*
 this-NOM.SG in.this.way deed-NOM.SG done-PART.NOM.SG who-GEN
tākam
 COP.SUBJ.3SG
 “By whom a deed of this kind may have been done.” PK AS 7C b3 Clas-
 sical Literary Verse

This interesting headless relative example gives us some insight into the landing sites available during wh-movement in Tocharian, though as we will see, this sentence may not be as straightforward as it looks. As demonstrated by Hale (1987), many old Indo-European languages have at least one syntactic landing site available above a moved wh-word, and it appears that Tocharian is no exception. I am agnostic about which specifier in the left periphery wh-movement targets in the old IE languages, but it must be lower than spec-ForceP, since we see syntactic landing sites in the left periphery above the moved wh-word as discussed in Hale (1987), etc. With the copula being left behind, it appears that vP (or similar phrase) has been topicalized around the wh-word and

⁸For example, recent work by Gunkel (2020) has shown that stress plays a prominent role in Tocharian B poetic meter. Our understanding of the constraints influencing old IE poetic syntax is still being refined, and much research remains to be done before these factors are fully understood.

copula, with the topicalized phrase still acting as a constituent, showing the expected internal syntax. Another likely possibility/contributing factor is that the *figura etymologica* seen in *yāmor yāmu* may be causing minor violations of the syntax for poetic purposes, especially when the meter is taken into account.

In a left-TP analysis, there would have to be at least two positions above the wh-word landing site in order to derive the correct surface word order, which to my knowledge is not otherwise required for Tocharian B. Again we see that these examples are at least as inscrutable for left-T analyses as they are for right-T.

- (50) *mā lauке kca kätkau sū preke*
 not long some-OBL crossed-PART.NOM.SG this-NOM.SG time-NOM.SG
ste
 COP.3SG
 “Not long the time has gone” THT 77 a5 Classical Literary Prose/Verse

Here we see only the VP topicalized, resulting in the subject and the copula remaining stranded lower in the clause. A left-TP analysis would provide a similar explanation.

2.2.2.3 Initial participle followed immediately by the auxiliary (#PA)

The examples in this section can most easily be explained by Right Dislocation, as we have seen many times before.

- (51) *y(ku) šait klyomai kātsane*
 gone-PART.NOM.SG COP.IMF.2SG noble-VOC.SG belly-LOC.SG
 “You, o noble one, have entered into the belly” PK AS 17C b4 Classical
 Literary Prose/Verse

In this first example, it is likely that both the vocative and the locative are either right-adjoined above TP, requiring no transformation to derive the surface word order, or Right Dislocated(52) below shows similar syntax, with the subject and object being Right Dislocated. A left-T analysis would be significantly more unwieldy, requiring either independent movement of both the participle and auxiliary into the left periphery, or Right Dislocation combined with some sort of topicalization of the participle in the first clause.

- (52) *yaitu* *sai* *sū* *(krentauna)ssem*
 adorned-PART.NOM.SG COP.IMF.3SG this-NOM.SG virtues-OBL.PL
tsaiññentsa
 ornament-PERL.PL
 "He had been adorned with the ornaments of the virtues." THT 77 a6
 Classical Literary Prose/Verse

- (53) *seṣārpu* *tāka* *srukalleśa* *ktsaitse(ñ)e*
 explain-PART.NOM.SG COP.PRET.3SG dying-PERL.SG old.age-NOM.SG
 "Old age has been explained by being bound to die." PK AS 7K b1 Clas-
 sical Literary Verse

In (53), the perlocative phrase has been right-adjoined to the clause, and the subject has been Right Dislocated to the right of it.

- (54) (—) *ārttau* *tāka* *poyśi*
 (—) approved-PART.NOM.SG COP.PRET.3SG omniscient-NOM.SG
kāṣṣiṣṣe *sūtār* *warñai*
 of.the.teacher-NOM.SG sūtra-OBL.SG beginning.with
 "(The good Law?) has been approved beginning with the Sūtra belong-
 ing to the omniscient, the teacher." PK NS 22 a2 Classical Literary Verse

This last example likely has something preceding the participle in the same clause, but we can't tell from the manuscript. Taken as is, everything following the copula appears contained in an postposed clause, likely right-adjoined to the matrix clause.

2.2.2.4 Participle following auxiliary (AP#)

2.2.2.4.1 Clause-finally

Tocharian shares examples of this type with Latin, and both languages have a significant number of these examples in their corpora. It's noteworthy that most of these examples are also the ones analyzable as compositionally copular. Not all of these examples are transparently compositional, however, and those that are not must be adequately explained. The most straightforward right-T explanation for these tokens is that the participle has been Right Dislocated. For left-T analyses, everything but the auxiliary, participle, and, often, the subject, must be moved, independently, into the left periphery.

- (55) *klainamp//eṣe wnasā lāmālñe, ñi*
 women=together.with pleasure-PERL.PL staying-NOM.SG me-GEN.SG
ak(essu) se sāk ñi wṣeñña
 finally this-NOM.SG left-PRET.3SG me-GEN.SG place-NOM.SG
ostäṣṣa postaña tākam aususā
 of.house-NOM.SG last COP.SUBJ.3SG inhabited-PART.NOM.SG
 "Staying with pleasure with women, that [has come to] an end for me;
 this place of houses will be the last inhabited by me." PK AS 12H b3/4
 Literary Verse

- (56) *keṣṣe ce_u laklesa (prā)kre ṣeyem*
 of.hunger this suffering-PERL.SG hard-NOM.SG COP.İMF.3PL
memīyo(ṣ)
 stricken-PART.NOM.PL
 "By the pain of hunger, they have been terribly stricken." PK AS 17J a6
 Classical Literary Prose/Verse

- (57) *saṃwartwiwart kalpanma māk(a) cwi*
 destruction.and.evolution kalpa-NOM.PL many this-GEN.SG
ṣeyem kätkauwa
 COP.İMF.3PL crossed-NOM.PL

"Numerous kalpas of destruction and evolution had been crossed by him." PK AS 6A b6 Classical Literary Verse

- (58) *kārtsauññempa ket pasko mā tākaṃ*
 virtue-COM.PL who-GEN mind-OBL.SG not COP.SUBJ.3SG
yairu te-yknesa
 practiced-PART.NOM.SG thus
 "Whose mind has not been exercised with virtue in that way." PK AS 6C
 b6 Classical Literary Verse

The adverb in the example above has been right-dislocated with the participle, and does not create problems for our analysis.

2.2.2.4.2 Separated by adverb

All three of these examples can be explained by right-dislocating the adverbs in question alongside their participles.

- (59) *ñi se pilko ste prākr= eñku*
 I-GEN.SG this-NOM.SG view-NOM.SG COP.3SG firmly seized-NOM.SG
 "By me is this view firmly held." THT 23 b4 Classical Literary Verse

- (60) *(osta)-smeñcantse śana śai tswaiññe ka*
 housekeeper-GENS.G wife-NOM.SG COP.IMF.3SG just indeed
sruk(au)sa
 died-PART.NOM.SG
 "The wife of a housekeeper had just died" THT 25 b6 Classical Literary Verse

- (61) *kektsenne śai olypotse tetrenku*
 body-LOC.SG COP.IMF.3SG very clung-PART.NOM.SG
 "He was very much fond of his body" PK AS 6B a5 Classical Literary Verse

2.2.2.4.3 Followed by emphatic particle

Both of these tokens feature emphatic enclitic particles attached to right-dislocated auxiliaries.

- (62) *mā nāno ñiś ostāṣṣai wṣeññaine nesew wṣille ntā*
 not again I of.house-PL place-LOC.SG COP.1SG live-GV.NOM.SG EMPH
 "Never again will I dwell in a house-dwelling." PK AS 12H b5

- (63) *rāmer wāko // īprerntse ante kānte*
 quickly split-OPT.3SG // of.sky-NOM.SG surface-NOM.SG hundred
pākentāsā (k_uce) nāno ñāś ostāṣṣai wṣeññaine nesew
 piece-PL which-OBL again I of.house-PL place-LOC.SG COP.1SG
wṣille ntā
 live-GV.NOM.SG EMPH
 "Sooner would the surface of the sky break into a hundred pieces, than
 that I will live in a place of houses again." PK AS 12H b4/5

2.2.2.5 Unclassified

- (64) *yāmwa ket tākam kakraupauwwa*
 done-PART.NOM.PL who-GEN COP.SUBJ.3SG gathered-PART.NOM.PL
ṣāp yāmornta
 and deed-NOM.PL
 "by whom deeds have been done and accumulated" PK AS 7B a2 Classical Literary Verse

This final example has a bit of everything. A participle has somehow been extracted from conjoined participles lower in the clause and topicalized above the wh-pronoun, the auxiliary appears to the left of these conjoined participles, and the subject is the final constituent in the sentence. The main problem for my analysis is why the subject is clause-final; how the auxiliary ends up above

the conjoined participles (from which one has been extracted) is a problem for any analysis.

Most immediately, we notice that again we have a *figura etymologica* being formed by *yāmwa* and *yāmornta*, appearing as bookends at the beginning and end of the clause, so I believe it most likely that the syntax of this clause is entirely constructed around this parallelism. As I mentioned in the Introduction, §1.3.4, the effect of *figura etymologica* on the syntax of old Indo-European languages has been discussed as far back as Wackernagel, decades before the Tocharian languages were even discovered.

In this example, I think that both the conjoined participles and the subject have been Right Dislocated, but that the conjoined participles have been somehow coerced above *yāmornta* so that it can be clause-final. Finally, *yāmwa* has been extracted and topicalized from the copy of the conjoined participles in the first clause in order to place it clause-initially. I don't believe that this example reflects the normal syntax of a native speaker of Tocharian B, and I again point the reader toward the fact that *all* of the prose examples in the corpus place Part-Aux clause-finally.⁹

2.2.3 Conclusion: Tocharian B's T domain is right-headed

Though some of the data gets a bit messy (for any proposed analysis), the vast majority of the Tocharian data points toward a right-headed TP domain. Greater than 70% of the data unambiguously supports a right-headed analysis, and the

⁹It may also be relevant that *yāmornta* is picked up with a correlative a few lines later in the text, so its clause-final position could have some discourse function related to that later correlative construction.

majority of the exceptions are either due to the right-adjunction or Right Dislocation that we will see again and again in the remainder of this chapter. Not to mention the fact that all of the exceptions occur in the poetic corpus, many of which are *figura etymologica*, and that the prose corpus is entirely unexceptional. In order to derive almost the entire Tocharian auxiliary corpus, left-T analyses would have to again move most constituents of the clause into the left periphery through independent movement operations that do not appear motivated by the data. Like we saw with Hittite, a parameterized, disharmonic approach to Tocharian syntax most straightforwardly derives the auxiliary syntax of the Tocharian corpus.

2.3 Vedic Sanskrit

Vedic Sanskrit is an ancient language of the Indo-Iranian branch of IE spoken in northwestern India. It is the earliest-attested dialect of Sanskrit, recorded in the Vedic religious texts compiled from the middle of the 2nd millennium BCE into the 1st millennium BCE, with the prose texts forming my corpus being composed toward the end of this period. These works in the Vedic corpus were composed and transmitted orally, with the earliest manuscripts dating thousands of years later, from 11th century Nepal. We owe an immense debt to the ancient Indians who preserved these precious texts with such remarkable accuracy for thousands of years, not least because Sanskrit's substantial corpus and conservative phonology and morphology has made it incredibly valuable for our reconstruction of Proto-Indo-European.¹⁰

¹⁰For more information on the Sanskrit corpus and grammar, see the discussion and references in Klein *et al.* (2017a).

2.3.1 Auxiliary constructions in Vedic Sanskrit

Schaufele (1991), one of the most complete analyses of Sanskrit word order, follows most of western scholarship in assuming base SOV word order, and claims that the majority of phrases are head-final. Similarly, Hock (1984) notes that 97% of Vedic prose texts are verb-final, compared to only 65% of poetic texts¹¹, and as we will see below, this pattern holds for auxiliary constructions in the Brahmanas as well. The first auxiliary constructions we see showing up in the Sanskrit corpus are the periphrastic perfects, composed of an innovative deverbal noun in -ām and the perfect of the root $\sqrt{\text{kr}}$ 'do/make' < PIE $*k^w\text{er-}$ ¹². As Whitney (1879) notes about the periphrastic perfect,

Of this perfect no example occurs in [Rig-Veda] or [Sama-Veda] or [Vajasaneyi-Samhita], only one - *gamayāṁ cakāra* - in [Atharva-Veda], and but half-a-dozen in all the various texts of the Black Yajur-Veda, and these not in the mantra-parts of the text. They are also by no means frequent in the Brahmanas, except in [Śatapatha-Brahmana]. (where they abound: chiefly, perhaps, for the reason that this work uses in considerable part the perfect instead of the imperfect as its narrative tense)" (p. 383).

Here, then, we see the initial innovation and spread of auxiliary constructions in Sanskrit. Others follow later, using $\sqrt{\text{as}}$ 'be' and $\sqrt{\text{b}^h\text{ū}}$ 'become' as the

¹¹Note that this lines up pretty closely with what we see from the Latin, Tocharian, and Homeric verse texts, though unfortunately auxiliary constructions in Sanskrit were innovated after the composition of the poetic Vedas, so we have no way of knowing what word order auxiliaries would have shown. The Hittite corpus is also prose and mirrors my Sanskrit corpus' rigid verb-finality, but Latin prose continues to show much freer word order.

¹²For more information on this construction in Sanskrit, and its parallels in later Greek and Latin, cf. Itzès (2007).

auxiliaries, but to ensure that I capture the earliest possible layer of Sanskrit auxiliary syntax, I'll only be using the perfects with $\sqrt{\text{kr}}$ in my corpus, which, aside from the Atharvaveda example, is entirely prose, and from a later period of Vedic than the earlier poetic texts.

Just as Whitney states, the Śatapatha Brahmana by far contains the most periphrastic perfects, but to make sure my periphrastic construction corpus size is comparable with those of the other languages, I also collected all examples from the Aitareya Brahmana and the Jaiminiya Upanishad Brahmana to survey both the middle and late Vedic periods, along with the single example from the Atharvaveda, for a total of 94 tokens. All examples were pulled from the Thesaurus Indogermanischer Text- und Sprachmaterialien (TITUS) database. According to Lowe (2017), the Brahmana corpus in its entirety is roughly twice the size of the Rig Veda, at around 400,000 words, but the subset of the prose corpus I use here is smaller than the 200,000-word Rig Veda. The relatively small number of periphrastic perfect examples seen in this relatively large corpus, along with their concentration in the Śatapatha Brahmana, is indicative of the incipient nature of this construction in Sanskrit. The Śatapatha and Aitareya Brahmanas likely date from around 900-700 BCE, while the Jaiminiya Upanishad Brahmana is from a few hundred years later.

When we look at the data, we see that Hock's word order percentages are borne out for auxiliary constructions as well, with 97 of these 103 tokens showing clause-final PART-AUX word order, and show by this handful of examples below. The remainder can be found in Appendix C.

- (65) *āsūn pitṛb^hyo gamayāṁ cakāra*
 breaths father-DAT.PL going do-3SG.PERF
 "he made his breaths go to the fathers" (AV 18.2.27)

- (66) *rṣayo ha sattram āsām cakrire*
 rṣi-NOM.PL EMPH session-ACC.SG sitting do-3PL.PERF.MID
 “The rṣis sat in a session” (JUB 4.14.5, Oertel 1896)
- (67) *at^hainam ata.ūrd^hvam agnim āhavanīyam upast^hāpayām*
 him thereafter fire-ACC Ahavaniya summoning
cakāra
 do-3SG.PERF.ACT
 “Then thereafter he summoned him to the Ahavaniya fire” (AB 7.17.1)

2.3.2 Exceptions to PART-AUX

There are only three exceptions to my PART-AUX generalization, all of which are PAX#.

2.3.2.1 Postposed people

The three examples each feature the expected word order, but with the name of a person following the auxiliary clause-finally.

- (68) *sa hekṣām cakre Viśvāmitro*
 SA EMPH-looking do-3SG.PERF.MID Visvamitra
 “Visvamitra then looked after them:” (AB 6.18.2, Haug 1863)

In this case, we have the subject of the clause following the auxiliary. The most straightforward way to handle this would be same Right Dislocation that we saw in previous sections. For left-T analyses, the auxiliary must first be focused, followed by topicalizing the participle. This may be less elegant, but is by no means problematic.

- (69) *tau ha mad^hyame sampādayāṃ cakratuḥ*
 they.two EMPH middle-LOC.SG agreeing do-3DU.PERF
Śunahśepe
 Sunahsepa-LOC
 "Thus they agreed upon the middle one, Sunahsepa" (AB 7.15.7, Haug 1863)
- (70) *'vikṛtaṃ hāṣṭamaṃ janayāṃ cakāra Mārtāṇḍaṃ*
 unformed-ACC.SG eighth-ACC.SG birthing do-3SG.PRET Martanda
 "the eighth, Martanda, she brought forth unformed" (ŚBM 3.1.3.3, Eggeling 1882)

In the two examples above, we have instead what appears to be one of two possibilities: either these names form discontinuous constituents with the DPs they agree with earlier in the clause, or they are "afterthoughts" that restate the grammatical relationships of the clause they're attached to. In the second case, the example above might be instead translated as something like "Thus they agreed upon the middle one, **upon** Sunahsepa". If this is the case, then this can be seen as something like "resumptive agreement", a right-adjoined hanging topic, and would not be problematic to this analysis.

If, instead, these are actually discontinuous constituents, then we would have to adopt the same sort of explanation that we did for Tocharian in the previous section, and for Latin and Greek in the following sections: namely, the heads of NPs are somehow allowed to be stranded when the phrases containing them are topicalised. In both examples, we have what appears to be topicalization or focusing of the entirety of TP, stranding the head of the DP subcategorized for by the verb.

Left-T analyses do have it slightly easier here, in that they can separately focus and topicalize the participles and DPs, making the stranding of the head

of the DP a bit more local. I think it more likely, however, that these are not part of the same DP, making these examples no more problematic than usual for either left- or right-TP analyses.

2.3.2.2 Embedded clauses

The first three examples in this section are extraposed embedded quotative clauses occurring to the right of the clause-final auxiliary. With the crosslinguistic tendency to extrapose direct quotations, I do not consider these postposed embedded clauses problematic, but their behavior is interesting, and I feel that briefly mentioning them is warranted.

- (71) *sa hy enat prat^hamo vidāṃ cakāra*
 SA indeed it-ACC.SG first knowing do-3SG.PERF
brahmeti
 brahman-NOM.SG-QUOT
 "for he first knew it to be the brahman" (JUB 4.21.2, Oertel 1896)

- (72) *sa hy enat prat^hamo vidāṃ cakāra*
 SA indeed it-ACC.SG first knowing do-3SG.PERF
brahmeti
 brahman-NOM.SG-QUOT
 "for he first knew it to be the brahman" (JUB 4.21.3, Oertel 1896)

- (73) *sa prajāpatirvidāṃ cakāra svo vai mā*
 SA Prajapati-knowing do-3SG.PERF own indeed me
mahimāheti
 greatness-spoke-QUOT
 "Prajapati was aware that it was his own greatness that had spoken to him" (SBM 2.2.4.6, Eggeling 1882)

These examples above are translated as indirect quotations (and in the case of the first two, as being non-finite), but due to the quotative particle *iti* and the

pronoun usage of each example, these are more correctly translated as direct quotations which more naturally follow the matrix clause.

- (74) *sa yadatirecayām cakruḥ yat^hā girirevam*
 SA when-too.much-releasing do-3PL.PERF thus hill-like
tadāsa
 it-COP.3SG.PERF
 “Now, wherever they had done too much it was like a hill” (ŚBM 11.2.3.8, Eggeling 1882)

Here also, postposing the following clause is unproblematic for any analysis.

The two examples below are especially interesting, as both have postposed relative clauses that appear to modify the subjects of the preceding clauses. Here again, however, I believe we merely have a case of afterthoughts not meant to be construed with the preceding clause, most likely right extraposition of the type discussed in Müller (1995). If they are to be analyzed without extraposition, then they are equally problematic for both left-T analyses and right-T analyses.

- (75) *tadd^hedaṃ satyamīkṣām cakre*
 this-that truth-seeing do-3SG.PERF.MID
yadasureṣvāsa
 which-Āsura-LOC.PL-COP.3SG.PERF
 “The truth (which was in the Asuras) beheld this” (ŚBM 9.5.1.14, Eggeling 1882)

- (76) *anṛtam=u hekṣām cakre*
 untruth=and indeed-seeing do-3SG.PERF.MID
yaddeveṣvāsa
 which-god-LOC.PL-COP.3SG.PERF
 “And the untruth (which was in the gods) beheld this” (ŚBM 9.5.1.15, Eggeling 1882)

2.3.2.3 Conclusion: Sanskrit's T domain is right-headed

Sanskrit overwhelmingly shows clause-final PART-AUX word order in this 103-token corpus, with all apparent exceptions to this generalization explainable without resorting to movement of the participle or auxiliary. This is consistent with a right-headed analysis of Sanskrit within TP, with both the auxiliary and participle remaining in their base-generated positions in every example. In order to derive these word order data, left-T analyses must move everything in the clause into the left periphery in every single token in the corpus, with no semantic explanations for these movements. Just as we saw with Hittite, a parameterized, disharmonic approach to Sanskrit syntax straightforwardly generates every token in the corpus.

2.4 Homeric Greek

Homeric Greek is the language of the ancient Greek epics, the *Iliad*, *Odyssey*, and the Homeric Hymns. The language itself is a literary dialect with both Ionic and Aeolic features, and likely dates to around the 8th century BCE, with the Hymns being written a few hundred years later and older sections of the *Iliad*, such as the *Catalogue of Ships*, potentially dating significantly earlier. It is the oldest dialect of Greek with a corpus substantial enough to be used for clausal syntactic work.

Like the Sanskrit Vedas, the Homeric epics were composed and transmitted orally, though they were likely first written down much closer to the date of composition than the Vedas were, probably at some point between the 8th and

6th centuries BCE. Ancient Greek, like Sanskrit, has proven incredibly influential to our understanding of Proto-Indo-European due to its phonological and morphological conservatism.¹³

2.4.1 Auxiliaries in Homeric Greek

As Goldstein (2015) mentions about Herodotean Greek and the later Classical language, "Ancient Greek is unique in its degree of word-order variation" (p. 18), which ultimately leads him to conclude that Greek clausal syntax was non-configurational at the time of Herodotus. However, according to Taylor (1994), the earlier Homeric Greek was primarily OV, with the younger Greek texts developing more frequent VO word order later, which means that even if Greek in Herodotus' time was non-configurational, the earlier Homeric Greek could show more structural regularity (and indeed my data here supports that claim)¹⁴.

The oldest periphrastic constructions in Greek, composed of the BE-verb + the perfect middle participle, show up as early as Homer (Bentein, 2012), though by the time of Herodotus the participle generally follows the copula in the sentence (Ceglia, 1998). If we can show that Homer shows the opposite order, then significant syntactic change has occurred between the Homeric and Herodotean periods. This would mean that even if there is not enough evidence to make an explicit decision about the behavior of TP in Herodotus, the older Homeric evi-

¹³For more information on the Greek corpus and grammar, see the discussion and references in Klein *et al.* (2017a).

¹⁴As Tate (2010, 66–81) pointed out, Homeric composition was built upon a spectrum of syntactic templates that represented the speech and grammars of their composers, whose structural and syntactic regularities were so important to composition that occasionally novel morphological forms had to be created to ensure consistency of syntactic structure.

dence could be more open to a right-headed TP analysis.

2.4.2 The data

Auxiliary constructions in Homeric Greek are limited to periphrastic perfects composed of a perfect middle participle and *eimí* ‘be’. This auxiliary is from the same PIE copula **h₁es-* that gave rise to the BE-auxiliaries we saw in the Hittite and Tocharian corpora, but the perfect middle participles that it co-occurs with are instead originally from PIE **-mh₁no-*. I looked at all such periphrastic perfects in Homer, collected by Bentein (2016).

Work	Part-Aux	Part-Aux-X	Other	Total
<i>Iliad</i>	19	3	0	22
<i>Odyssey</i>	17	3	0	20
<i>Hymns</i>	3	1	2	6
Total	39	7	2	48

Figure 2.4: Clause-final word order in Homeric participle-verb collocations

As shown in Figure 2.4, there are 48 total perfect middle participle + ‘be’ collocations across the *Iliad*, *Odyssey*, and *Hymns*. 39 of these examples (81%) place the finite verb immediately following the participle clause-finally as seen in the selection of examples below. The remainder can be found in Appendix D.

- (77) *me:d’ éti Te:lemák^hoio patè:r kekle:ménon eé:n*
 and.not still Telemachus-GEN father called-PART.NOM COP.1SG.OPT
 “Let me nevermore be called Telemachos’ father.” (Il. 2.260)

- (78) *hoppotéro:i t^hanátoio télos*
 which-SG.MASC.DAT death-SG.MASC.GEN end-SG.NEUT.NOM
pepro:ménon estín
 established-PART.NOM COP.3SG.PRES
 “for which of these two the fate of death has been ordained.” (Il. 3.309)

- (79) *aì gàr emoì* *toiósde* *pósis*
 if for me-SG.FEM.DAT one.like.this husband-SG.MASC.NOM
kekle:ménos *eíe:*
 called-PART.NOM COP.3SG.PRES.OPT.ACT
 “If only one such as he would be called my husband!” (Od. 6.244)

Already we see close parallels between the Homeric data and the Tocharian data we just looked at, with Homeric pointing toward right-headedness within TP with the vast majority of its tokens as well, and the exceptions to Part-Aux order consisting of six PAX# examples and one PXA# example, both of which mirror Tocharian exceptions.

2.4.3 Other word orders

2.4.3.1 Copular/compositional examples

The following examples all favor compositional interpretations, with ‘be’ retaining its original copular semantics and not acting as a true auxiliary. As such, as discussed in §1, the examples listed here are not useful for determining the relationship between the inflection on T and the lower verbal domain.

- (80) *he:mĩn d’ eínatós esti* *peritropéo:n*
 we-DAT but ninth COP.3SG revolving-PART.NOM.SG
eniautòs *ent^h áde mimnóntessi*
 anniversary-NOM.SG here stay-PART.DAT.PL
 “This is the ninth of the circling years that we wait here.” Il. 2.295.

In this example, there is no construal of the copula with this present active participle that can give us good periphrastic semantics. More likely the participle here should instead be construed with ‘anniversary’. As we will see, none of

the present active participles in the Homeric corpus can be interpreted as part of an auxiliary construction, leading to the conclusion that only perfect middle participles can be used in Homeric auxiliary constructions.

- (81) *dè:n d' áneo:i è:san tetie:ótes*
 long-ADV but silent-NOM.PL COP.3PL.IMF sorrowing-PART.NOM.PL
huĩes Ak^haiō:n
 son-NOM.PL Achaeans-GEN.PL
 "Long were they silent in their grief, the sons of the Achaeans." Il. 9.30, 9.695, Murray (1924).

Word order here suggests that "silence" is being predicated of the Achaeans, with the perfect active participle "sorrowing" describing the Achaeans and not acting as part of a periphrastic perfect.

- (82) *ou gár ti glukút^humos anè:r ě:n*
 not because any sweet.of.mood-NOM.SG man-NOM.SG COP.3SG.IMF
oud' aganóp^hro:n, allà mál' emmemaó:s
 and.not gentle.of.mood-NOM.SG but very hasty-PART.NOM.SG
 "Since this was a man with no sweetness in his heart, and not kindly but in a strong fury;" Il. 20.467, Murray (1924).

In this interesting example the copula has been elided in the second half of the sentence, but since conjunctions cannot conjoin copular and auxiliary clauses across one inflected copula, and the first half of the sentence clearly contains a copula predicating simple adjectives of *anè:r* which are in contrast with the participle, the second half of the sentence must be copular as well.

- (83) *ē: kai épeita leugaléoi t' esómest^ha kai ou*
 in.truth and then wretched-NOM.PL both COP.1PL.FUT and not
dedae:kótes alkén
 learned-PART.NOM.PL strength-ACC.SG.FEM
 "We must be weaklings in such a case, not men well-seasoned in battle."
 Od. 2.61, Lattimore (1967).

In this example, “not knowing valor” describes how they will *be*, not what they will have done. Also, again, we have an adjectival copular clause conjoined with one containing a participle like we saw in (82) above, so this clause must also be copular.

- (84) *mé: tis éti próp^hro:n aganòs kai é:pios*
 not any yet earnest-NOM.SG mild-NOM.SG and gentle-NOM.SG
éstō: ske:ptoũk^hos basileús, medè
 COP.3SG.IMP staff.bearing-textscnom.sg king-NOM.SG and.not
p^hresìn aísima eidós
 mind-DAT.PL.FEM destined-ACC.PL.NEUT known-PART.NOM.SG
 “No longer now let one who is a sceptered king be eager to be gentle and kind, be one whose thought is schooled in justice, [...]” Od. 5.8-9, Murray (1919).

Yet again, an elided copula shared across a conjunction with a copular clause must itself be part of a copular clause, so this cannot be a periphrastic perfect, and must be interpreted closer to “nor let him be knowledgeable of righteousness in his mind”.

- (85) *hót^hi per páros éskēn ánakti k^hlaíne:isin*
 where all formerly COP.3SG.IMP lord-DAT.SG cloak-DAT.PL.FEM
malakē:is estro:ménōn
 soft-DAT.PL.FEM spread-PART.NOM/ ACC.SG.NEUT
 “Which was already laid with soft coverings for the hero.” HH5 157-8, Murray (1919).

In this example, the syntax is ambiguous between a compositional meaning and a periphrastic meaning, however, and could be construed as an auxiliary construction. But, even if this usage is periphrastic, it can be derived from right-T syntax through focusing the copula.

- (86) *k^halepòn gàr epistaméno:i per*
 difficult-NOM.SG.NEUT for knowing-PART.DAT.SG EMPH

eónti

COP.PART.DAT.SG

"This will be hard for him, though he be able." Il. 19.80, Murray (1924).

Here the dative present participle clearly means "to the knowing one", and cannot be construed as a periphrasis.

There is one example in the corpus, 87 below, that foreshadows the ambiguity that will ultimately lead to the use of the verb *ék^hon*: 'have' as an auxiliary, which we see become commonplace in later Greek (and Latin). Also, this example does not show the expected clause-final Part-Aux word order, with the subject undergoing the same Right Dislocation operation that we have seen in the previous sections. The semantics of this sentence are clear from context, however, and must describe the gates being held open, not having been opened. This example therefore cannot be construed as an auxiliary construction, and must instead be compositional.

- (87) *all' anapectaménas* *ék^hon* *anéres*
but spread-PART.ACC.PL.FEM have-3PL.IMF man-NOM.PL
"but men were holding them wide apart" Il. 12.122, Murray (1924).

2.4.3.2 Participle and copula separated by a particle or adverb

This leaves us with seven examples of auxiliary phrases that could potentially pose a problem for a right-headed TP analysis of Homeric Greek, which fall into two categories: one example where an emphatic particle or adverb intervenes between the participle and the copula, and six examples where a single word follows the participle and copula clause-finally.

remaining genitive is a stranded portion of an NP occurring earlier in the clause. The dative usage appears to be simple adjunction.

With Genitive

- (89) *moĩran* *d' ouĩ tiná p^he:mi* *pep^hugménon*
 fate-ACC.SG.FEM but not any say-PRES.1SG fled-PART.MID.ACC.SG
émmenai andrō:n
 COP.INF man-GEN.PL
 "But as for fate, I think that no man yet has escaped it." Il. 6.488, Murray (1924).

In this first example, the postposed genitive plural "of men" is right-adjoined high in the clause for contrastive focus reasons, to compare men to the gods, who may indeed be able to escape their fates. Another explanation would be the Right Dislocation we've seen across the previous IE languages.

- (90) *hēktor* *nūn dē: págk^hu lelasménos* *eis*
 Hector-VOC.SG now indeed entirely forgotten-PART.NOM.SG COP.2SG
epikóuro:n, hoĩ sét^hen heĩneka tē:le p^hilo:n *kaĩ*
 ally-GEN.PL, that you-GEN for.sake.of far loved.ones-GEN.PL and
patrĩdos aĩe:s t^humòn apop^ht^hinút^housi
 father-GEN.SG.FEM land-GEN.SG.FEM life-SG.ACC lose-3PL
 "Hector, now you have utterly forgotten your armed companions who for your sake, far from their friends and the land of their fathers, are wearing their lives away, [...]" Il. 16.538, Murray (1924).

This *epikóuro:n* 'allies' is a partitive genitive to be construed as the internal argument of 'you have forgotten'. Deriving this word order is straightforward through Right-Dislocation. A left-TP analysis, on the other hand, must deal with how to get only the participle above the copula while not only bringing the low-scope adverb 'entirely' along for the ride, but also simultaneously stranding its internal argument back within the verbal domain.

- (91) *oudè gàr oud' emé p^he:mi lelasménon*
 and-not for and-not for.myself say-PRES.1SG forgotten-PART.ACC.SG
émmenai alkē:s
 COP.INF strength-GEN.SG.FEM
 "For I tell you, neither am I one who has forgotten his war strength [...]"
 Il. 13.269, Murray (1924).

Here again we have a Right-Dislocated partitive genitive internal argument of 'forget'. In (92) below we have the same structure, but now with 'flee' instead of 'forget'.

- (92) *oud' ént^ha pep^hugménos ě:en aét^hlo:n*
 but.not there fled-PART.NOM.SG COP.3SG.IMF contest-GEN.PL
 "Not even then was he free of his trials [...]" Od. 1.18, Murray (1919).

With Dative

- (93) *epei oú ti memigménon estìn homíloi*
 because not any mixed-PART.ACC.SG.NEUT COP.3SG crowd-DAT.SG
 "Since it is not mingled with the common lot [...]" Od. 8.196, Murray (1919).

This dative example is relatively similar to the genitive examples we saw above. The main difference is that 'with the throng' is adjoined instead of selected as an argument. This leads to two possible interpretations for a right-TP structure: either the dative is right-adjoined, in which case the rest of the clause can remain in base-generated position; or the dative is Right Dislocated.

2.4.4.2 Postposed structural cases

We do have two clear examples of actual structural cases being postposed behind the participle and copula.

With accusative

- (94) *oùtis, hòn ou pō: p^he:mi pep^hugménon*
 Noman-NOM.SG who-ACC.SG not yet say-1SG fled-PART.ACC.SG
eĩnai ólet^hron
 COP.INF ruin-ACC.SG
 "this Nobody, who I think has not yet got clear of destruction [...]" Od.
 9.455, Murray (1919).

Here we have a postposed accusative directly following the participle and copula clause-finally within a relative clause. This is again straightforwardly accounted for in a right-TP analysis through Right Dislocation. In a left-TP structure, on the other hand, the participle alone must be somehow extracted from the verbal domain without bringing along its internal argument.

- (95) *tō:n d' állo:n ou pér ti pep^hugménon*
 the-GEN.PL and other-GEN.PL not all anything fled-PART.ACC.SG
ést' Ap^hrodíte:n ouíte t^heō:n makáro:n ouíte
 COP.3SG Aphrodite-ACC and.not god-GEN.PL blessed-GEN.PL and.not
t^hne:tō:n ant^hró:po:n
 mortal-GEN.PL man-GEN.PL
 "But of all others there is nothing among the blessed gods or among mortal men that has escaped Aphrodite." HH5 34.

In this example we see Aphrodite, again the internal argument, being Right Dislocated, along with some afterthought adjuncts.

Note that a large number of the Homeric exceptions seem to constitute a common poetic form, as they often involve negation and "escaping" or "avoiding", so this poetic syntax may be stylistic/formulaic.

2.4.5 Conclusion: Homeric Greek's T domain is right-headed

As we've seen with the other IE languages, Homeric auxiliaries overwhelmingly occur clause-finally following their participles, and in the rare examples when they don't, the exceptional word orders are all straightforwardly derivable from a right-TP structure through the same operations that we have seen for the other old IE languages. For any syntactic theory that values economy of movement a right-TP analysis of Homeric must be considered the most attractive, especially in light of the large number of examples that would be unwieldy to derive in a left-headed TP analysis. Again, a parameterized, disharmonic approach to Homeric syntax most straightforwardly derives the auxiliary syntax of the corpus.

2.5 Old Latin

Latin is the language of Latium, the area around Rome, attested as early as the 6th century BCE, with the Old Latin texts forming my corpus dating from early to mid 2nd century BCE. Latin is important for Indo-European reconstruction, though its significant innovations make it less useful than its sisters that either diverged from the parent language at an earlier date, are earlier-attested, or both.¹⁵

¹⁵For more information on the Latin corpus and grammar, see the discussion and references in Klein *et al.* (2017b).

2.5.1 Clause structure in Latin

The most thorough works on phrasal headedness in Italic are Ledgeway (2012) and Danckaert (2012) and (2017). Ledgeway describes in detail the gradual change from head-final to head-initial exhibited throughout Latin to the modern Romance languages. His conclusion, however, is that both TP and CP *emerged* over the (pre-)history of Latin and Romance. The CP argument originates in the idea that PIE lacked clausal embedding discussed in §1; again, see Probert (2014) for arguments to the contrary. Ledgeway himself uses the left periphery to account for much of Latin’s free word order, which is mirrored by other early IE languages. Also note that we do see complementizers already in the earliest Latin data, and that when they appear, they show up heading a clause-initial CP.

For TP, the claim is that the development of TP corresponds to the rise of the left-headed auxiliary constructions seen in later Romance. But, clause-final auxiliary constructions with Part-Aux word order are already ubiquitous in Old Latin, both with ‘be’ and later with ‘have’, as seen in (96) below.¹⁶

- (96) *cum cognitum habeas [quod sit summi rectoris [...]
when known you.have what is supreme.GEN ruler.GEN
numen]
divine.will.ACC
“When you realize the will of the supreme lord” (Cic. *Fin.* 4.11, Ledgeway (2012))*

I would argue therefore that the major innovation from Latin to Romance was not the development of TP, but was more likely the switch of TP-

¹⁶De Acosta (2011) explores in detail the rise of these HAVE-auxiliaries from adnominal, attained state, and affectee constructions throughout the history of Latin and Romance.

headedness from clause-final to clause-initial.¹⁷

Danckaert (2012) explores in great diachronic detail the syntax of the Latin left periphery in embedded clauses, and Danckaert (2017) analyzes the development of Latin clause structure in general. For our purposes, Danckaert (2012) notes the great diversity of topicalization, focus, and left-dislocation constructions in Latin, consistent with our Tocharian data, though in some ways even more productive, especially in the later Classical language. Danckaert (2017) notes that Plautus, who provides us with the largest early Latin corpus, shows OVAux word order 83% of the time, and that 60% of the Latin corpus between 200BCE and 200CE shows OVAux word order. This is both closely consistent with the numbers we saw for Tocharian and Homeric above, and potentially indicative of the later shift from right-headedness in TP to left-headedness explored by Ledgeway. Danckaert proposes a competing grammars¹⁸ analysis for the admittedly complex Classical Latin data, stating that TP and VP are descriptively right-headed in some derivations and left-headed in others, with earlier Latin requiring more and more right-headedness in TP.

Similarly, Devine & Stephens (2006) provides an incredibly detailed exploration of the variety seen in later Classical Latin word order and tying it to information structure, though from the perspective of a nonparametric view of syntactic headedness. As a result, while Devine and Stephens describe many of

¹⁷Clitic movement in PIE was to the C domain, and it may be that patterns of frequent movement of lexical verbs into the left periphery contributed to this eventual reanalysis of V in a left-headed T.

¹⁸A competing grammars analysis as defined by Danckaert (2017, 300) is: "Approach to language change initiated in Kroch (1989), which says that it is possible for two or more grammatical variants (phonemes, lexical categories, functional categories) which are in principle incompatible with one another, to be simultaneously available to a single speaker (who produces the relevant variants at different rates). This situation often leads to one competing variant ousting the other(s)." Danckaert's hypothesis is that Latin speakers could produce clauses that were left-headed in TP and VP as well as clauses that were right-headed in TP and VP.

the same word order generalizations I explore in the data presented here, the mechanisms they posit to drive this variation often differ substantially from my own to fit into a model that only allows for left-headed projections. Like Danckaert, they note the “typological” differences between contemporary speakers of the language (p. 127), but attribute this to what they call “specifier syntax” and “V-bar syntax” instead of Danckaert’s competing grammars hypothesis which is more in line with the disharmonic headedness account for Old Latin provided in this section. For auxiliaries specifically, Devine and Stephens restrict their analysis to the works of Caesar, and many of the generalizations they draw from Caesar’s auxiliary data significantly differ from the generalizations seen in my data from over a century earlier.

Though it may ultimately be the case that a competing grammars analysis is required to account for the complex word orders we see in Classical Latin (which could be indicative of a change in progress to the V2 order seen in early Romance), Danckaert’s Old Latin data seems to be significantly more amenable to the sort of right-headed TP analysis I propose for Tocharian and Homeric, as we will see in my own corpus below.

2.5.1.1 The auxiliary data

The two Latin auxiliaries are *esse* ‘be’, yet again from the PIE copula **h₁es-*, and the younger *habere* ‘have’, from PIE **g^heh₁b^h-*. The perfect passive participles used in these auxiliary constructions are from the PIE **-to-* participle. The periphrastic constructions I will be including in this corpus are the periphrastic perfects with *habere*, along with the Latin periphrastic conjugations using *esse*: the perfect passive, pluperfect passive, subjunctive perfect passive, subjunctive

pluperfect passive, future passive, and perfect infinitive.

In order to create an Old Latin corpus on par with the other auxiliary corpora collected here, I have gathered every auxiliary construction of the types listed above from Plautus' *Amphitryon* (ca. 190 BCE), for a total of 97 tokens, as well as from Cato the Elder's *De Agri Cultura* (ca. 160 BCE), for a total of 94 tokens. *Amphitryon* is written in verse, and *De Agri Cultura* is the earliest extensive prose work in Latin, so together they form a corpus of near equal parts poetry and prose, reminiscent of the Tocharian corpus explored in §2.2. All of the auxiliary constructions in *Amphitryon* were BE-auxiliaries, and only three of the examples from Cato could be construed as HAVE-auxiliaries. As seen in the table below, 68% of the corpus shows the expected order of PART-AUX clause-finally, while all other word orders in the corpus only account for 32% of the examples. Also note that the prose text overwhelmingly places the auxiliary clause-finally after the participle, which parallels the even more striking Tocharian data, where the prose corpus *only* showed clause-final Part-Aux word order. And, as we will see, the derivations of the exceptional word orders seen in *De Agri Cultura*'s prose are much more straightforward than the exceptional orders seen in *Amphitryon*'s verse. Of the eight *De Agri Cultura* exceptional word orders, two feature contrastively focused participles, three show straightforward participle Right Dislocation, and the other two show right-adjunction of non-adverbials.

Work	Part-Aux	Part-Aux-Adv	Other	Total
<i>Amphitryon</i>	48	13	36	97
<i>De Agri Cultura</i>	82	3	8	94
Total	130	16	44	191

Figure 2.5:
Clause-final word order in Latin auxiliary constructions

Below are a few examples of clause-final Part-Aux word order, along with the one example in the corpus that uses HAVE-auxiliaries. The remainder of the

examples in my corpus showing this word order can be found in Appendix E.

- (97) *sed quid tu foras egressa*
but why you outside departed-PART.PERF.PASS.NOM.SG.F
es?
COP.2SG.PRES.ACT.IND
“But why have you come outside?” Am. 1078
- (98) *certe advenientem hic me hospitio*
certainly arriving-PART.PRES here me-DAT.SG reception-ABL.SG
pugneo accepturus
punch-ABL.SG receive-PART.FUT.ACT.MASC.NOM
est
COP.3SG.PRES.ACT.IND
“Arriving here, he’ll certainly greet me with a punchy reception.” Am. 295
- (99) *Biennium in sole sinito positum esse*
two.years-ACC.SG in sun-ABL.SG COP.INF.ACT
“Let it stand for two years in the sun.” DAC 105.2
- (100) *Id in suggestu inter dolia positum*
it-NOM.SG in platform-ABL.SG between jar-ACC.PL place-PART
habeto
have-2SG.FUT.IMP
“Keep it on the elevation among the jars.” DAC 154.1

Finally, from the table showing the various word orders seen across the old IE languages, reproduced below, we see that Latin, like Tocharian, shows a high degree of word order variability, sharing PAX# and PXA# word orders with a few other languages, Tocharian included, but also showing AP# and APX# word orders not seen elsewhere in my old IE corpora. Also notable is the fact that all four exceptional word orders are shown in both the verse and prose Latin texts.

Language	PAX#	AP#	PXA#	#PA	APX#	#AP	Total	PA#
Hittite			3			2	5	129
Tocharian	12	9	4	5			30	88
Sanskrit	2						2	94
Greek	6		1				7	48
Latin	16	18	10		4		48	189
Gothic	1	1	1				3	127
Total	36	28	19	5	4	2	94	675

Figure 2.6: Exceptional word orders across my old IE corpora

2.5.2 Postposed exceptions (PAX#)

As we've seen in the earlier sections, there are two kinds of elements that are postposed following the clause-final auxiliary: structural cases and adverbs/oblique cases. The first necessarily involves some sort of transformation, again the Right Dislocation we saw for the other languages, while the other most often involves right-adjunction of the adverb, NP, or prepositional phrase, but can also involve Right Dislocation. There are sixteen total PAX# examples in my corpus, but, notably, only two examples with structural cases, and all in verse, from *Amphitryon*.

2.5.2.1 Structural cases

- (101) *nam noctu hac soluta est navis nostra e*
for night-ABL this-ABL untied-PART 3SG.COP ship-NOM our-NOM from
portu Persico
port-ABL Persian-ABL
‘‘For this very night our ship was untied from Port Persicus.’’ Am. 412.

In this first example, note that the subject of the clause appears immediately following the participle and copula clause-finally. For right-TP analyses, the

easiest way to account for these examples is again to Right-Dislocate the subject. Importantly, according to the structure we proposed for Right Dislocation operations, the final prepositional phrase must be Right Dislocated along with the subject of the sentence, since it appears after the subject clause-finally. And, as we have seen in the other sections in this chapter, left-headed TP accounts of this word order must move each element of the clause into the left periphery one constituent at a time to completely reverse the expected word order, which, for most of the example sentences from these old IE languages, cannot easily be independently motivated.

- (102) *faciundum est mi illud*
 done-GV 3SG.COP me-DAT that
 “It’s necessary for me to do that” Am. 891.

In this example we see Right Dislocation of *two* constituents, the subject of the clause and a dative. This is not out of the ordinary for languages that utilize Right Dislocation along with pro-drop (again, see e.g. Endo (1996) for discussion and references).

2.5.2.2 Oblique cases, prepositional phrases, and adverbs

- (103) *ut cum exercitu hinc profectus sum ad Teleboas*
 since with army-ABL hence advanced-PART COP.1SG toward Teleboans
hostis
 foreigners
 “ever since I advanced with my troops against the Teleboian army” Am. 734.

Most of these examples involve high right-adjunction of prepositional phrases or oblique NPs with adverbial meaning, easily explained by either

right-adjunction or Right Dislocation. In the sentence above we have a high-scoping directional prepositional phrase, for example. Most of this section will have the same analysis of the constituents in question under right-headed TP and left-headed TP analyses, though again, the remainder of the constituents in each of these clauses better fit a right-T analysis.

- (104) *neque se Luna quoquam mutat atque uti exorta*
 and.not itself moon-NOM in.any.place move-3SG and as rose-PART
est semel
 3SG.COP once
 “and the moon isn’t moving anywhere and is as it has risen.” Am. 274.

Again in this example, we have the predicted word order, but with “once” right-adjoined. It is worth pointing out that in this example a left-headed TP analysis would not need to right-adjoin the adverb, but would instead again have to move basically every word in the clause separately above the copula into the left periphery to generate the same word order base-generated by right-TP analyses.

- (105) *Onerandus est pugnīs probe*
 load-GV 3SG.COP fist-PL.ABL well
 “He needs to be well loaded with fists” Am. 328.

This example (105) can be accounted for by right-adjunction of the ablative.

- (106) *aliud nomen quaerundum est mihi*
 other name seek-GV 3SG.COP me-DAT
 “It’s imperative for me to seek another name” Am. 422.

Here also (106), due to the possessive-dative nature of this construction in which the dative is usually seen as the agent, the better analysis may be to Right

Dislocate the dative, as we saw with the structural case example (102) earlier in this section.

- (107) *Nunc, ne legio persentiscat, clam illuc redeundum*
now not legion-NOM perceive-3SG.SUBJ covertly there return-GV
est mihi
3SG.COP me-DAT
“Now, so that my legion won’t know, I must return there secretly.” Am. 515.

The example above and the one below are possessive-dative constructions practically identical to (106).

- (108) *Quotiens dicendum est tibi*
how.many told-GV 3SG.COP you-DAT
“How many times do you need to be told?” Am. 619.

- (109) *ita cuique comparatum est in aetate hominum*
thus each-DAT connected-PART 3SG.COP in life-ABL man-PL.GEN
“Thus are each of us connected in the life of men.” Am. 630.

Here again (109) we have a right-adjoined prepositional phrase.

- (110) *res done est bene*
thing borne-PART 3SG.COP well
“Things have gone well” Am. 783.

And here we have a right-adjoined adverb “well”.

- (111) *si quidem haec iam mulier facta est ex viro*
if indeed he now woman made-PART COP.3SG from man-ABL
“if indeed (s)he has been made a woman from a man/her husband.”
Am. 813.

This example and the one below are more right-adjoined prepositional phrases.

- (112) *Si quid dictum est per iocum*
 if which said-PART COP.3SG through joke-SG.ACC
 “If something is said in jest” Am. 920.
- (113) *tamen quin loquar haec uti facta sunt hic*
 however indeed speak-1SG.FUT these that done-PART 3SG.COP here
 “However I will indeed speak of these things just as they were done here.” Am. 560.

In this example (??) above, we have an occurrence of right-adjoined “here”.

- (114) *nimis demiror, Sosia, qui illaec illic me*
 excessively wonder-1SG.PASS Sosia how she-SG.NOM there me-SG.DAT
donatum esse aurea patera sciat
 given-PART.SG COP.INF gold-SG.ABL platter-SG.ABL know-3SG.SUBJ
 “I marvel, Sosia, how she knows that I was gifted with a golden bowl there” Am. 766.

In this final interesting example from *Amphitryon*, note how the entire clause in question is center-embedded right before the clause-final matrix verb ‘knows’, which is suggestive of right-headedness in TP, but this is not the focus of the current work. For our purposes, the pertinent phenomenon is the right adjoined ablatives after the infinitive but before the matrix verb.

The three examples below are all from *De Agri Cultura*. The first example, (115), shows right-adjoined locations and prices.

- (115) *trapetus emptus est in Suessano HS CCCC et*
 mill bought-PART.SG 3SG.COP in Suessan.area sesterces 400 and
olei P. L.
 oil pounds 50

“A mill has been bought near Suessa for 400 sesterces and fifty pounds of oil.” DAC 22.3

This second example has a right-adjoined prepositional phrase.

- (116) *nam venae omnes ubi sufflatae sunt ex cibo*
for veins all when gorged-PART.PL 3PL.COP from food
“For when all the veins are gorged with food” DAC 157.7

Finally we have an example where *well* is right-adjoined after the participle.

- (117) *ubi cocta erit bene*
when done 3SG.COP.FUT well
“when it is well done” DAC 156.9

2.5.3 Intervening exceptions (PXA#)

These examples all involve at least one element intervening between the participle and the auxiliary, and most can be accounted for by fronting projections below TP. There are eight total examples in my *Amphitryon* corpus showing PXA# word order, and all of them are very brief, none more than six words and four constituents. The two examples from the *De Agri Cultura* corpus also show this brevity. This could be significant, but if so, I don’t have an explanation at this time.

- (118) *nam vos quidem id iam scitis concessum et*
for you-PL certainly it already know-2PL passed-PART.NOM and
datum mi esse ab dis aliis
given-PART.NOM me-DAT COP.INF from god-PL.DAT other-PL.DAT
“For you certainly know already now that it has been yielded and granted to me from the other gods” Am. 11.

In this example, the conjoined VP of the embedded clause has been fronted, which was likely required by the syntax for the Wackernagel clitic pronoun *mi* to have a host (or has undergone a process of prosodic flip *a la* Halpern (1995), whichever analysis you prefer). This leaves the infinitive in T, followed by a right-adjoined prepositional phrase.

- (119) *Lassus sum hercle, navi ut vectus*
 tired COP.1SG Hercules-SG.VOC ship-DAT / ABL that conveyed-PART
huc sum
 hither COP.1SG
 “By Hercules I’m tired, that by ship I have been brought here!” Am. 329.

In the lower clause, the VP “conveyed” has been focused, leaving the adverb “hither” and the copula below.

- (120) *rursum si reventum in gratiam est*
 back if returned-PART in thanks-ACC 3SG.COP
 “when I have returned in thanks” Am. 942.

In the same way, “returned” has been focused, leaving the rest of the clause below.

- (121) *facta pax est*
 made-PART peace 3SG.COP
 “Peace has been made” Am. 963.

In this example, we again have only the VP focused above the external object.

- (122) *vota quae sunt*
 vowed-PART which 3PL.COP
 “those offerings I vowed” Am. 964.

Same here, but notably the VP has been focused above the relative pronoun in this example. Again, this is a well-known phenomenon in early Indo-European languages, analyzed by Hale (1987, 8–69) and others.

- (123) *victi* *utri* *sint* *eo* *proelio*
 conquered-PART.PL which.of.two 3PL.COP.SUBJ this-ABL battle-ABL
 “that they who were conquered in this battle” Am. 225.

Finally, this is another clear example of straightforward VP focus above the relative pronoun, with a right-adjoined ablative adverbial NP. Straightforward examples of VP focus like these are useful for the next section, since the topicalization we see below around the focused element requires only one step beyond the transformations we saw in this section.

In the first *De Agri Cultura* example below, (124), we see the participle ‘dislocated’ focused in order to contrast with the black ulcers that are being treated in the previous section.

- (124) *Et luxatum* *siquid* *est*
 and broken-PART.SG if.anything 3SG.COP
 “and if anything has been dislocated” DAC 157.4

In the final example from *De Agri Cultura*, we see ‘tested’ being focused for emphasis.

- (125) *expertum* *hoc est*
 tested-PART.SG this 3SG.COP
 “This [remedy] has been tested” DAC 157.10

2.5.4 Examples where the auxiliary precedes the participle

In this section are examples where the auxiliary immediately precedes the participle, usually clause-finally. These examples mirror the Tocharian examples of the same class, and will for the most part be explained the same way: Right Dislocation of the participle. These exceptional clauses are mostly short, and are therefore not necessarily straightforwardly derivable, since multiple movements could result in the same surface ordering of constituents. The parallels are notable between these data and the examples that Danckaert (2017) cites to argue for his competing grammars analysis of later Classical Latin, and the examples in this section are also often reminiscent of the V2 syntax seen in the early Romance languages. Some examples have too many constituents occurring before the auxiliary for a V2 analysis to be applicable to all of the data here, however, so the analysis that accounts for the most data at this point in Latin’s history is the same Right Dislocation that we see in the other old IE languages. Finally, as in all examples from Plautus, one must keep metrical concerns in mind, which seem to allow for a higher degree of word order variation in Latin than we see in the other old poetic traditions we’ve seen so far. Only four of these examples are from *De Agri Cultura*.

- (126) *menses iam tibi esse actos vides*
month-PL.ACC now you-SG.DAT COP.INF driven-PL.ACC see-2SG
“You are now approaching your monthlies, you know” Am. 500.

In this example we have a high-scoping accusative of duration followed by “now”, below which we see a dative pronoun, followed by the BE-auxiliary and the participle at the end of the clause. This clause itself has again been embedded just to the left of the matrix verb, showing again how clausal complements

to matrix verbs often appear to their left. The most straightforward account for this example is Right Dislocation of the participle, as seen in, for example, modern Italian as described by Samek-Lodovici (2015, 186). Compare this example with §2.5.6 below, in which we see the expected word order participle-infinitive-matrix verb.

- (127) *atque id me susque-deque esse habituram putat*
 and it me-ABL up.and.down COP.INF held-PART.SG.ACC think-3SG
 “and thinks it will be held as nothing by me” Am. 886.

Here we see much the same: a clause embedded just left of its right-T matrix verb, with the embedded participle being Right Dislocated. The fact that this word order has shown up in two consecutive embedded clauses is likely just a coincidence, as many of the examples that follow in this section are matrix clauses.

- (128) *nolle esse dicta quae in me*
 not.wish-INF COP.INF said-PART which-PL.ACC against me
insontem protulit
 innocent-SG.ACC produce-3SG.PERF
 “wishing the things he said against innocent me hadn’t been said.” Am. 890.

Here we have a multiclausal structure, “wishing not to have been said”, followed by a postposed relative clause. The most straightforward analysis of this and the following examples is Right Dislocation of the participle, but they could also be early instances of the reanalysis that we see in the development of early Romance T to C V2 word order, and/or the complex Classical data cited by Danckaert (2017) for his competing grammars analysis. Either way, this is exactly the sort of environment we would expect for this early Romance reanalysis to occur.

- (129) *nisi me esse oblitum existimas*
 unless me-SG.ACC COP.INF forgotten reckon-2SG
 “unless you think it was forgotten by me” Am. 1024.

In (129) we see the same ordering we saw in (127) and (128) above: a center-embedded clause with a Right Dislocated participle.

- (130) *neque postquam sum natus habui nisi te*
 and.not after COP.1SG born-PART have-1SG.PERF unless you
servom Sosiam
 slave-SG.ACC Sosia-SG.ACC
 “and not since I was born have I had a slave “Sosia” except you.” Am. 611.

Here we have a short prepositional clause “since I was born”, in which again we see the participle Right Dislocated.

- (131) *Fateor, nam sum obtusus pugnis pessime*
 confess-1SG.PASS for COP.1SG blunted-PART fist-PL.DAT/ABL horribly
 “I say, I’ve been beaten with fists quite horribly.” Am. 606.

(131) again shows a Right Dislocated participle, but this time taking a right-adjoined oblique NP and adverb along with it, as we have seen before.

- (132) *utut es facturus*
 however COP.2SG done-PART
 “however you are to do it” Am. 397.

Again, due to how few words are in the clause, Right Dislocation of the participle gives a word order reminiscent of what we would expect from a left-headed TP, but this is not in keeping with the overwhelming rest of the Latin auxiliary evidence (though it is a structure ripe for reanalysis).

- (133) *numquam etiam quicquam adhuc verborum est prolocutus*
 never and any yet word-PL.GEN COP.3SG uttered-PART
perperam
 falsely
 “And never yet have any words been uttered by him falsely” Am. 248.

Here we have some clause-initial adverbs and conjunctions in the CP domain, followed by Right Dislocation, with a right-adjoined adverb clause-finally.

- (134) *ita divis est placitum*
 thus god-PL.DAT 3SG.COP pleased-PART
 “Thus are the gods pleased” Am. 663.

The examples above and below again show Right Dislocation.

- (135) *quia pudicitiae huius vitium me hinc absente*
 because virtue-GEN her crime-ACC me-ABL hence being.away-ABL
est additum
 3SG.COP added-PART
 “Because her crime of virtue has happened with me away” Am. 811.

- (136) *ea dona, quae illic Amphitruoni sunt*
 these prize-PL.ACC which there Amphitryon-DAT 3PL.COP
data, abstulimus
 given-PART.PL steal-1PL.PERF
 “These prizes, which were given to Amphitryon there, we stole” Am. 138.

In (136) above and the example below we have relative clauses showing participle Right Dislocation.

- (137) *ibo ad portum atque haec uti sunt facta ero*
 go-1SG.FUT to harbor-ACC and these that 3PL.COP PART master-DAT
dicam meo
 tell-1SG.FUT my-DAT

“I’ll go to the harbor and I’ll tell my master these things that were done”
Am. 460.

- (138) *ea quae sunt facta infecta ut*
these which 3PL.COP done-PART.PL not.done-PART that
reddat clamitat, quae neque sunt facta neque
return-3SG.SUBJ cry-3SG which and.not 3PL.COP done-PART and.not
ego in me admisi arguit
I to me-ACC admit-1SG.PERF declare-3SG
“The things which were done he would make not done, and he declares
the things which weren’t done and that I never admitted” Am. 884.

Same for these parallel relative clauses in (138). As I mentioned in the introduction to this subsection, these short clauses with the inflected auxiliary in second position *could* be showing early V2, but this analysis cannot account for all of the data in this section, while Right Dislocation of the participle can.

- (139) *iustam rem et facilem esse oratam a*
just-SG.ACC thing and easy-SG.ACC COP.INF spoken-PART.ACC from
vobis volo
you-PL.ABL want-1SG
“It is a just and easy thing that I wish to be spoken by you.” Am. 33.

In (139) above, we see a passive ACI clause embedded to the left of the matrix verb, in which the inflected auxiliary occurs in first position, followed by the participle, and then finally the prepositional phrase. This example cannot be attributed to V2, of course, and is likely instead a case of a fronted auxiliary and right-adjoined adjunct.

- (140) *ita tanta mira in aedibus sunt facta*
thus such wonderful-PL in house-PL.ABL 3PL.COP done-PART.PL
“Thus were such amazing things done in that house.” Am. 1055.

This final example from *Amphitryon* again straightforwardly shows participle Right Dislocation.

The first example from *De Agri Cultura* below is the only one to place a constituent after the participle clause-finally. This example again could be showing early V2 word order, but it's also possible that the accusative of duration has been right-adjoined, and the participle has been Right Dislocated.

- (141) *ubi erit lectum dies triginta*
 when -3sg.cop.fut gathered-PART.SG days thirty
 “when for thirty days it will have gathered” DAC 26.1

The other three examples from *De Agri Cultura* show straightforward participle Right Dislocation.¹⁹ It is notable that all four of these Aux-Part examples from *De Agri Cultura* only show up in embedded clauses.

- (142) *ubi erit subactus*
 when 3SG.COP.FUT driven-PART.SG
 “when it has been broken” DAC 161.1

- (143) *donec cremor crassus erit factus*
 until juice thick 3SG.COP.FUT done-PART.SG
 “until it makes a thick cream” DAC 86.1

- (144) *si non erunt redditae*
 if not 3PL.COP.FUT returned-PART.PL
 “if they are not returned” DAC 144.2

¹⁹Or V2, if one wishes to argue for that structure. Four examples of this pattern is a significant number for the size of the *De Agri Cultura* corpus, and they do show up in embedded relative clauses, which is an expected environment for T to C raising, which both fits my right-T, left-C analysis of Latin clause structure and foreshadows the increasing word order variation that lead Danckaert to a competing grammars analysis for the later, more complex, Classical Latin data.

2.5.5 Split NP examples

There are only a few of these, showing various word orders, but they all have interesting implications for the nature of Latin clausal syntax and constituency. Notably *all* of these examples are from *Amphitryon*; none of them occur in the earliest Latin prose.

- (145) *haec illic est pugnata pugna usque a*
 this there COP.3SG fought-PART fight-SG.NOM continuously from
mani ad vesperum
 morning to evening
 “This fight was fought there continuously from morning to evening”
 Am. 252.

In this incredibly complex example we see a clause-initial modifier of an NP showing up much later, followed by an adverbial “there”, then the inflected BE-auxiliary, followed by the participle, and only then do we see the head of the NP, followed again by more adjuncts. This word order doesn’t lend itself well to left-T or right-T analysis (though if I’m being honest, a left-T analysis might be more straightforward). The right-T explanation that makes the most sense is likely Right Dislocation of the head of the NP, “fight”, which brought along with it many of the other lower adjuncts in the clause. In the first clause, we see fronting of the auxiliary and topicalization of the subject modifier to a location quite high in the left periphery. A V2 account of these data would be similar, with the movement of the auxiliary into the left periphery perhaps constituting head movement instead of A-bar movement. Either way, these analyses of this example are somewhat unsatisfying. It should be mentioned however that the *figura etymologica* of *pugnata pugna*, combined with the metrical restrictions of the line, could have resulted in stylistic ungrammaticality here.

- (146) *post ob virtutem ero Amphitruoni patera*
 after for valor-ACC master-DAT Amphytryon-DAT dish-NOM
donata aurea est
 given-PART gold-NOM 3SG.COP
 “Then, for valor, a golden bowl was presented to my master Amphitruon” Am. 260.

Here we have my favorite example in this entire dissertation. As written, we have a discontinuous constituent “golden bowl” split by the participle, and then followed by the inflected auxiliary. I struggled for hours trying to figure out a way to make sense of this syntax, and then I decided to check the textual transmission²⁰. It turns out that this line of the original *Amphitryon* text was emended by Camerarius in the 16th century: it originally read *patera donata est aurea*, but Camerarius changed it to *patera donata aurea est* because *est aurea* doesn’t fit the scansion of the line. The original *est aurea* exactly matches the discontinuous constituent Right Dislocation we’ve seen elsewhere in Latin and across the other old IE languages, and is much more likely to reflect the original syntax of the line. Camerarius’ metrical concerns are real, but even if *est aurea* does not reflect the original as written, this syntax is much more in keeping with the rest of the Plautine corpus than *aurea est*. This example shows how important modern theoretical syntax can be, not only for syntactic reconstruction, but even for questions of textual transmission and interpretation as well.

- (147) *qui Pterela potitare solitus est rex*
 which Pterela-NOM drink-INF accustomed-PART 3SG.COP king-NOM
 “from which King Pterelas was accustomed to drink” Am. 260.

In (147) again we see a split Right Dislocated NP subject, but notably in this example we also see an embedded infinitive appearing just to the left of the

²⁰Thanks to Michael Weiss for this idea, without whom I would still be agonizing over this data.

participle, which is exactly where we would expect complements to appear in a right-T, right-V structure. Note the alliteration in this sentence, though attributing this split NP to alliteration alone may be a stretch.

- (148) *Amphitruonis obsignata signo est*
 Amphitryon-GEN sealed-PART mark-ABL 3SG.COP
 “it has been sealed with Amphitryon’s signet” Am. 420.

This example is more difficult, and is reminiscent of the handful of exceptions with the same PXA# word order that we saw in Tocharian, which we concluded were due to metrical reasons (again, the only exceptions to Part-Aux word order in the Tocharian corpus were poetry examples). Here we have a discontinuous constituent split by a participle, followed by a copula, and here also it seems that meter might be playing a part, especially since the expected word order, *Amphitruonis signo obsignata est*, doesn’t fit the trochaic septenarius.

- (149) *nostro qui est susceptus semine*
 our-ABL which 3SG.COP received-PART seed-ABL
 “who is begotten from my seed” Am. 1139.

Again we likely see meter influencing word order, along with the discontinuous Right Dislocation we’ve seen elsewhere as well. If one wished, this data could also support incipient V2 in Old Latin, depending on how one analyzes the left periphery in this example.

- (150) *nam iusta ab iustis iustus sum orator*
 for just from just-PL.ABL just-SG.NOM COP.1SG orator-SG.NOM
datus
 given-PART
 “for I, a just pleader, have been sent for justice from the just.” Am. 34.

In (150), we see clearly poetic language around the *figura etymologica* based on the root *iust-*. Just as we saw with one of our Tocharian examples, this *figura etymologica* is likely exerting some degree of pressure on the syntax of this example, and could be contributing to the Right Dislocation of both this discontinuous NP as well as the participle²¹.

- (151) *quo pacto* *sit* *donis*
 who fastened-PART.DAT / ABL 3SG.COP.SUBJ gift-PL.ABL
donatus *plurimis*
 given-PART.SG.NOM many-PL.ABL
 “who, being fastened, would be given many gifts” Am. 138.

In this example again, we see a *figura etymologica* interacting with meter to produce this interesting poetic formula featuring both discontinuous constituents and Right Dislocation of the NP and the participle. In this example and the previous one (150), one could also argue that these examples constitute incipient V2 in Latin, but the presence of these clear *figura etymologica* complicates the situation.

2.5.6 Interesting embedding examples

Here are collected all of the examples that follow my PART-AUX generalization, but which are also embedded just to the left of clause-final matrix verbs.

- (152) *inimicos* *semper* *osa* *sum* *optuerier*
 enemy-PL.ACC always hated-PART COP.1SG see-INF
 “I always loathed looking at enemies” Am. 900, Nixon (1916)

²¹Note again that Italian, Latin’s direct descendant, still shows multiple Right Dislocation of participles and NPs (though admittedly not so discontinuous), as described in Samek-Lodovici (2015, 186).

- (153) *Equidem ecastor vigilo, et vigilans id quod factum*
 truly by.Castor be.awake-1SG and awake that which done-PART
est fabulor
 COP.3SG speak-1SG
 “Truly by Castor I am awake, and awake I relate that which was done.”
 Am. 698.
- (154) *nam iam ad regem recta me ducam resque ut*
 for now to king-ACC straight me-ACC lead-1SG.FUT things.and that
facta est eloquar
 done-PART 3SG.COP tell-1SG.FUT
 “For now I’ll take myself straight to the king to tell him what was done.”
 Am. 1041.
- (155) *quae illi ad legionem facta sunt memorat*
 which there to legion-ACC done-PART 3PL.COP recount-3SG
pater meus Alcumenae
 father-NOM my Alcmena-DAT
 “My father is recounting the things which happened there to the legion
 to Alcmena” Am. 133.
- (156) *nisi etiam hoc falso dici insimulaturus es*
 unless also this false say-INF.PASS accused-PART COP.2SG
 “unless you have insinuated that this is to be called false too.” Am. 901.

In this final example from *Amphitryon* we see the embedding order reversed, with the matrix auxiliary clause importantly demonstrating that not only are complement clauses left of the matrix verb, but also to the left of the participle in auxiliary constructions as well. Again, this is not the focus of this dissertation, but this embedding order strongly adds to the evidence indicating that verbal complements occur to the left a right-headed TP and right-headed VP.

Below is the single example from *De Agri Cultura* in which the embedded clause occurs immediately to the left of the matrix verb.

- (157) *per aestatem ita uti dictum est fieri*
 through summer thus as said-PART.SG 3SG.COP do-INF.PASS
oportet
 be.proper-3SG
 “Thus should it be done through the summer as has been stated.” DAC
 151.4

2.5.6.1 Abbreviations

In *De Agri Cultura* we see that Part-Aux word order is apparently common enough in Old Latin for Cato to create abbreviations based on the commonly used phrase *supra scriptum est* ‘written above/abovementioned’. There is one example of *SSE* (*supra scriptum est*) ‘abovementioned’, and one example of *QSSE* (*quae supra scripta est*) ‘which is abovementioned’ in the text.

2.5.7 Conclusion: Old Latin’s T domain is right-headed

Latin closely mirrors the much freer word order that we saw in Tocharian, both in its generalizations and in its exceptions. The majority of my corpus agrees with the overall word order generalizations seen across Old Latin in Danckaert (2017), showing clause-final PART-AUX word order the majority of the time. And, as we saw in the latter half of this section, when Latin deviates from PA# word order, these deviations are all straightforwardly derivable from right-T, right-V syntax in the same way that the Tocharian examples we saw earlier are derivable, usually through Right Dislocation. Yet again, a parameterized, disharmonic approach to Old Latin syntax gives us a straightforward account of its generalization and its exceptions, though whether this sort of approach can account for the later Classical Latin data remains up for debate.

2.6 Gothic

Gothic belongs to the extinct East branch of the Germanic language family, and is the earliest attested Germanic language with a significant corpus. The bulk of the corpus is from the *Codex Argenteus*, a copy of a fairly conservative translation of the Greek Bible from the 4th century CE. The Germanic languages themselves have a number of innovations that distinguish them from the older Indo-European languages, and which make it less useful than its sisters for reconstructing Proto-Indo-European. Among these are a greatly simplified verbal system, novel definiteness distinctions, and the development of its characteristic V2 syntax.²²

As a result of this latter development, the modern Germanic languages have long been one of the foremost families in the discussion of left-C, right-T syntax, and similar arguments have been made for the ancient Germanic languages as well. Sapp (2016), for example, presents a detailed argument for base SOV word order and head-final VPs in Old High German. He derives surface V2 word order in Germanic through raising of the verb to C, following most analyses of modern German. He mentions that his analysis is compatible with that of Lenerz (1984), who had earlier posited head-final TP structure for OHG. Jäger (2008) also proposes a head-final TP for OHG, with a right-headed Neg head located in between the right headed V and T phrases.²³ In her analysis, the Neg head *ni* cliticizes to the finite verb by first raising V to Neg, then the Neg-V complex to T.

²²For more information on the Gothic corpus and grammar, see the discussion and references in Klein *et al.* (2017b).

²³This is identical to the analysis of Tocharian negation presented in Hearn (2019).

The most complete syntactic reconstruction of Proto-Germanic is Walkden (2014), who looks across the earliest attested Germanic languages to reconstruct the verbal syntax of matrix, embedded, and interrogative clauses of the proto-language. He concludes that Proto-Germanic must have had either (or both) V2 or V3 word order, and that (at least) Proto-Northwest-Germanic had at least two left-peripheral specifier positions available. My Gothic data here corroborates both Walkden's conclusions about Proto-Germanic, as well as his observation that syntactic reconstruction is a difficult undertaking, which should be approached with appropriate care.

In this section I add to the literature supporting right-T, left-C analyses of early Germanic by looking at embedded periphrastic constructions in the Gothic corpus. As is well known, this type of syntactic analysis is difficult for Gothic due to effectively the entire corpus consisting of Biblical translations from Greek in which the syntax of the Gothic closely replicates that of the Greek. Further, the Koine Greek used in the Bible has significantly departed from the clear right-T syntax of Homer 800 years earlier, further obscuring Gothic word order. Syntactic analysis of Gothic, as a result, often consists of determining where, how, and why the Gothic syntax departs from the Greek.

Fuss (2003) has already determined that Gothic does show V2 matrix clause syntax by demonstrating that when Gothic word order disagrees with the original Greek word order, it always shows the word order we would expect from a V2 language. Here, I show (as much as possible) that in embedded clauses auxiliary constructions in Gothic mirror the auxiliary construction data we have seen across the other old Indo-European languages. Since many accounts of modern and early Germanic syntax point toward a left-C, right-T analysis, and since the

syntax we see in embedded clauses in Gothic mirrors the auxiliary syntax we’ve seen everywhere else in early IE, it makes sense that the similar behavior we see elsewhere in early IE reflects left-C, right-T syntax as well.

2.6.1 The data

Gothic auxiliaries are composed of a BE-verb, yet again from PIE **h₁es-*, plus a past passive participle, from the PIE **-no-* / *-to-* participles. At this point we can step back and again take stock of the morphology of the auxiliary constructions across the old IE languages in Figure (1.2), reproduced as Figure (2.7) below.

Language	‘Be’ Auxiliary?	Other Auxiliary?	Participle	Part-Aux-#
Hittite	<i>ēš-</i> < <i>*h₁es-</i>	<i>hark-</i> ‘have’ < <i>*h₂erk-</i>	past < <i>*-nt-</i>	95%
Tocharian	<i>nes-</i> < <i>*h₁es-</i>	–	pret. part., gerundives	74%
Sanskrit	–	<i>√kr</i> ‘do’ < <i>*k^wer-</i>	verbal noun	95%
Greek	<i>eimí</i> < <i>*h₁es-</i>	<i>ek^ho:</i> ‘have’ < <i>*seǵ^h-</i>	perf. mid. < <i>*-meno-</i>	81%
Latin	<i>esse</i> < <i>*h₁es-</i>	<i>habere</i> ‘have’ < <i>*ǵ^heh₁b^h-</i>	perf. pass. < <i>*-to-</i>	63%
Gothic	<i>ist</i> < <i>*h₁es-</i>	–	past pass. < <i>*-no-</i> / <i>-to-</i>	100% ¹⁹

Figure 2.7: Summary of auxiliary constructions across six early IE languages

Five of the six languages have an auxiliary construction that uses a BE-verb derived from **h₁es-*, but all other auxiliaries used have independent etymologies. Also, note that almost all auxiliary constructions use different participial forms, including the ones using the **h₁es-*-derived auxiliaries.

Back to Gothic, from the Gothic auxiliary corpus gathered by Katz (2019), I pulled every non-conjoined embedded clause containing an auxiliary construction, for a total of 129 examples. Only three of these showed word orders different from the original Greek, fourteen translate a Greek periphrasis, and the remaining one hundred eleven translated a single Greek verb with a Gothic periphrastic construction.

Most immediately apparent is the fact that every single token of the 111 periphrastic translations of synthetic Greek verbs shows Part-Aux word order, regardless of where in the clause the Greek verb appears.

- (158) *eidótes hóti eis apologían toũ euaggeliou keĩmai*
witandans þatei du sunjonai aiwaggeljons gasatips im
 knowing that for defence-DAT.SG gospel-GEN.SG set-PART COP.1SG
 “knowing that for the defense of the gospels I have been set” (Philippians 1:16, Katz 2019)
- (159) *en hō:i kai humeĩs sunoikodomeĩst^he eis katoike:térion toũ t^hoũ en pneúmati*
in þammei jah jus miþgati^mridai sijup du bauainai gudis in
in whom also you together.built-PART COP.2PL for habitation of.God in
ahmin
spirit
 “In whom also you are/have been built-together for a habitation of God in the Spirit” (Ephesians 2:22, Katz 2019)
- (160) *hóti anapépautai tò pneūma autoũ apò pánto:n humō:n*
unte anahueilaips warþ ahma is fram allaim izwis
 because refreshed-PART become-3SG.PRET spirit his by all of.you
 “because became refreshed his spirit by you all” (2 Corinthians 7:13, Katz 2019)

This is a telling result for embedded clauses, especially when taken alongside Fuss’ observation that matrix clauses instead show V2 behavior when they differ from the Greek syntax. In fact, the only examples we see of embedded clauses placing the auxiliary before the participle at all are the twelve Greek periphrastic examples that show different word order, which the Gothic always mirrors exactly:

- (161) *kai ē:lt^hen eis tē:n nazará, hoũ ē:n tet^hramménos*
jah qam in Nazaraip, þarei was fodips
 and come-3SG.PRET to Nazareth where COP.3SG.PRET fostered-PART

"And he came to Nazareth, where he had been fostered" (Luke 4:16, Katz 2019)

- (162) *tóte emné:st^he:san hótī taūta ē:n ep' autō:i gegramména*
þanuh gamundedun þatei þata was du þamma
 then remember-3PL.PRET which that COP.3SG about him
gameliþ
 writtenPART

"then they remembered that which was/had been written about him"
 (John 12:16, Katz 2019)

It seems most likely that Wulfila knew that verbal word order in embedded clauses should be Part-Aux, and followed this generalization in every case, except where specifically contradicted by the Greek. The only hints we get as to the location of this original Part-Aux embedded verbal word order in the overall clausal syntax come from the three examples where the Gothic syntax disagrees with the Greek:

- (163) *hína mē: heīs hupèr toū henðs p^husioūst^he katà toū hetérou.*
ei ains faur ainana ana anþarana ufblesans ni
 that one before another against apostle puffed.up-PART not
sijai
 COP.3SG.SUBJ

"that one in favor of one, over another apostle not be puffed up" (1 Corinthians 4:6, Katz 2019)

In this first example we see that Gothic seems to prefer clause-final Part-Aux word order, since "in favor of another" occurs before the verbal complex in Gothic. Also, interestingly, we see negation appearing directly before the auxiliary, which is not uncommon in Gothic. Two suggestions for this negation behavior readily come to mind: this could be lexical negation of the copula, or this could be an actual right-headed Neg head located between VP and TP, just

as we saw in Jäger (2008)’s analysis of Old High German, and Hearn (2019)’s analysis of Tocharian.

- (164) *eidò:s toũto, hóti dikaío:i nómos ou keĩtai*
^a*witands þatei garaihtamma **nist** witop satip*
^b*witan[d]s þatei garaihtamma witop **nist** satip*
 knowing that for.righteous law **not.COP.3SG enacted-PART**
 “Knowing that for a righteous person the law has not been enacted” (1 Timothy 1:9, Katz 2019)

Here we have two competing Gothic manuscripts with different word orders, both of which put the negated copula before the participle, which is not what we would expect from an embedded clause. If we recall what we saw from the previous example, however, in which negation occurs immediately before the auxiliary, and combine that with the fact that negation univerbates with *ist* and that Wulfila prefers to follow Greek word order as closely as possible, we start to get an idea of what is probably going on. Since negation precedes the verb in the Greek, negation must also precede the verb in the Gothic as well. However, since negation is part of the copula, the entire negated copula must instead be placed before the participle to replicate the Greek word order closely enough for the author. The word order difference we see between the manuscripts may be due to the confusion created by this competition between the expected position of negation relative to the expected position of the copula: we see in fact that manuscript A seems to default back to matrix clause-esque V2 word order to avoid the unnaturalness of the syntax in manuscript B.

2.6.2 Conclusion: Gothic's T domain is right-headed

What we can glean from this hundred or so examples of Gothic syntax peeking through Greek is consistent with what we've seen from our other ancient IE languages, and from what the existing literature confirms for the other old Germanic languages: in matrix clauses, Gothic has developed V2 word order, but in embedded clauses Gothic still shows right-T syntax, with the option to undergo the same Right Dislocation we have seen in the other ancient IE languages.

CHAPTER 3

RECONSTRUCTION AND CONCLUSION

3.1 Reconstructing TP for PIE

3.1.1 Can we reconstruct auxiliary constructions for PIE?

Just as we saw with complementizers in §1, auxiliaries are ubiquitous in the early IE languages, either already present at their earliest attestation or innovated during their early attested history, but their presence cannot be securely reconstructed for PIE since 1) the earliest constructions don't always use the same lexical verb for the auxiliary, 2) the participle forms used in the auxiliary constructions are not cognate, and 3) the constructions themselves were often innovated within the attested history of the languages, and innovations, by definition, cannot be reconstructed. We don't see the Sanskrit periphrastic perfect showing up, for example, until after the Rig Vedic period, initially constructed with $\sqrt{k}r$ 'do', and only much later with \sqrt{as} 'be' and $\sqrt{b^h\bar{u}}$ 'become'. Latin auxiliary constructions, however, initially use the BE-verb and later develop with the *habere* 'have'. The oldest periphrastic constructions in Greek show up in Homer, mostly with 'be', but there are also a few examples of proto-auxiliary collocations with $\acute{e}k^ho$: 'have', which become productive in later Greek. Hittite auxiliaries show up first in Middle Hittite, and we suspect from the absence of the 'have' auxiliaries in the other Anatolian languages that at least they were innovated fully within Hittite.

Some scholars have reconstructed prehistoric periphrastic constructions

from univerbated inherited verb forms (like the Latin imperfect as described by Weiss (2009, 414), or Balles (2008)'s reconstruction of the Old Indic *cvi* construction), but it is not known if these date back to PIE, or were innovated separately in the branches that possess them. Even more reminiscent of my methods here, Costello (1984) reconstructs periphrastic passive constructions for PIE based on the existence of etymologically unrelated periphrastic passive constructions in the IE daughter languages. This is crucially different, however, from the reconstruction proposed here (and in my opinion constitutes a misapplication of the Comparative Method): I do not believe that if daughter languages have a *construction*, their parent must have it as well regardless of etymology, but rather that if daughter languages show the same structural *features*, we must reconstruct those features for the parent as well regardless of etymology. This is in keeping with recent generative syntactic reconstruction literature (Walkden 2014, Roberts & Roussou 2003, etc.).

If we are eventually able to securely reconstruct these specific constructions for PIE, it would strengthen the case for my own reconstruction since every one of these potentially reconstructible constructions show exactly the order of constituents I predict, with the univerbated verb forms and passive constructions showing Part-Aux word order, and showing the old IE languages' propensity for clause-final verb order.

So, again, we have independent innovation of the same syntactic construction across a family of related languages, which, as we saw with the innovated complementizers, can give us insight into the structural features of the syntactic heads these innovated constructions fill. This is especially the case if all of the earliest attested daughter languages agree in the syntax of their separately

innovated auxiliary constructions.

3.1.2 Setting up a correspondence set

As with Indo-European complementizers and the C domain, in lieu of a reconstructible auxiliary construction shared by the daughter languages, our correspondence set for the T domain must instead be composed of the syntactic features of the functional heads associated with the various auxiliary constructions innovated by each of the daughter languages. So, instead of trying to reconstruct both the phonological form *and* position of T, I reconstruct just the position itself, regardless of what phonological form this position takes in the daughter languages. I therefore set up a correspondence set for the underlying syntactic structure, composed of the feature sets of the innovated auxiliaries in each of the daughter languages, and ignore the specific phonological forms of each auxiliary construction.

And, as we have seen both from the word order generalizations from each of the daughter languages and from the nature of the exceptions to this word order generalization in each daughter language, all of the ancient IE languages explored here point unanimously toward a right-headed T domain for the proto-language. In every language the vast majority of auxiliary constructions place the auxiliary clause-finally, directly after the participle. In every language with a significant number of exceptions, the most numerous class of exceptions to this generalization consists of elements right-adjoined above the clause-final Part-Aux constructions. Further, in every language the exceptions show the same proclivity toward Right Dislocation, with many of the languages even showing the same ability to optionally strand pieces of DP constituents when Right

Dislocating.

These patterns strongly indicate right-headed T domains in every daughter language,¹ and, when paired with the fact that most of these languages also show clausal embedding directly before the participle, further indicates that these languages are right-headed in their V domains as well. Our correspondence set therefore unanimously points toward Proto-Indo-European having been right-headed in both T and V. When combined with our left-headed reconstruction for C from §1, we finally arrive at what we’ve been waiting for: a clause structure reconstruction for Proto-Indo-European that is left-C, right-T, right-V.

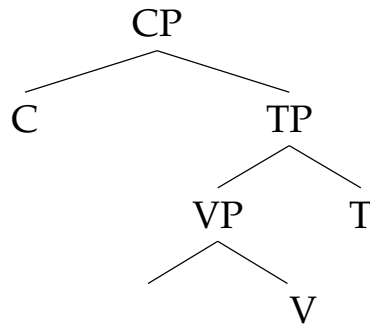


Figure 3.1: Reconstructed Proto-Indo-European clause structure

3.2 Rigidity of clause-final Part-Aux order in PIE

In Hittite we saw very rigid clause-final Part-Aux word order, to the extent of being practically exceptionless. In the other branches, however, we saw varying degrees of freer word order, while still maintaining a strong majority of sentences with clause-final Part-Aux order. So, while it may seem pretty straight-

¹Again, based on the assumption that the auxiliaries in these languages are base-generated in right-headed aspectual phrases and move up to the right-headed T.

forward to reconstruct much freer word order for nuclear Proto-Indo-European (that is, PIE minus Anatolian), we still have to decide what specific word order rigidity to reconstruct from the comparison of nuclear Proto-Indo-European with Anatolian. Should we conclude that PIE had freer word order, and Anatolian innovated its fixed clause-final order, or should we conclude that PIE had fixed clause-final order, and the freer orders of the “younger” branches are the innovation?

Without a better consensus on directionality in syntactic change, any proposal I would make here would be speculative. If I *were* to speculate, however, I think it most likely that nuclear PIE preserves the original inherited system. Since we see various developments in nuclear PIE branches to SVO, left-headed word orders, V2 clausal syntax, and even rigid SOV, it seems that the freer word order systems are more likely to lead to later diversity than a fixed clause-final word order. If this is the case, then reconstructing freer word order for PIE means that this system only had to develop once, in the prehistory of PIE itself. Plus, the majority of our Hittite corpus is prose; perhaps if we had more poetic texts we would potentially see a greater flexibility in word order closer to the other old IE languages.

The final piece of evidence that I think points toward freer syntax in PIE is that the word orders seen across the non-Hittite Anatolian languages reflect the same syntactic developments that we see in nuclear PIE. In Luvian, for example, we see the freer word order maintained, with exactly the same sorts of fronting and Right Dislocation processes that we see in the nuclear IE daughter languages, as shown in (165) below. In the first clause we have an auxiliary construction in which we see the same short clause participle-fronting that as

we saw in all of the other old IE languages except Sanskrit, and in the second clause the direct object ‘evil word’ has been Right Dislocated behind the verb ‘I washed’, just like in all of the other freer IE languages².

- (165) *launaimis= as asd tarussa tiyammis*
wash-PART.NOM 3SG.NOM be-3SG.IMP statue-N/ A earth-NOM
[DINGIR^{MEŠ}-e]*nzi huhhursantinzi* GUNNI-[*tis a*]= *tta zaui*
god-NOM.PL *h.*-NOM.PL hearth-NOM CONN PTC here
lahuniha adduwalza utarsa a= ta appa
wash-1SG.PRET evil-N/ A word-N/ A CONN 3SG.N/ A.N back
[DINGIR^{MEŠ}-[...-]]
god-PL
“Be it washed, the statue, the earth, the gods, the *h.*’s, the hearth. I have washed here the evil word, and the gods ... it back.” KUB 35.54 iii 35-38 (Cun. Luvian).

Lydian too shows relatively strict OV word order in prose, set against much freer word order in poetry, as we have seen all across the old IE languages. Perhaps even more telling, in Lycian we also see the development of SVO word order, mirroring the much later nuclear IE developments not discussed in this dissertation, though it should be noted that our SVO determination for Lycian relies mostly on tomb inscriptions, which may display stylized syntax.

3.3 Alternatives to reconstructing mixed headedness for PIE

I have argued here that the disharmonic headedness data that we see in the Indo-European daughter languages was likely inherited from their parent, but there are, of course, other possible explanations. In this section I will show that these are unsatisfactory, and that the proposed reconstruction is the best

²For the Anatolian data from this subsection, as well as additional Anatolian information, see Klein *et al.* (2017a, Chapter IV).

possible explanation.

The first alternative is that disharmonic headedness was an areal feature that somehow spread throughout the Indo-European languages at a post-PIE date. The problem with this hypothesis is that the IE languages are so widely dispersed that this areal feature spread must have either occurred early enough as to be indistinguishable from PIE (in which case we should likely reconstruct it anyway in absence of data to the contrary), or that this feature spread occurred across an infeasibly broad geographic area³.

A closely related alternate hypothesis is that disharmonic headedness was innovated in one (or more) Indo-European language, and later spread to the others through borrowing. Similar to the areal feature hypothesis, though, for this feature to have been borrowed into *all* of the earliest IE languages it would have to either happen early enough as to be indistinguishable from PIE, or to travel unreasonably far, especially in the case of branches like Tocharian.

A final alternative is that these auxiliary construction innovations somehow conspired to produce the disharmonic headedness that we see in each of the daughter languages completely independently of each other. In this scenario PIE had harmonic clausal syntax of some sort, most likely left-headedness in C, T, and V, and most/all of the daughter languages separately innovated disharmonic headedness after the breakup of the proto-language. However, the likelihood of all of the daughter languages agreeing this closely by chance is (to put it mildly) prohibitively low, and hypotheticals of this sort, without significant additional evidence, contradict the Comparative Method. For example, if

³Not to mention that to the best of our knowledge Tocharian was almost entirely surrounded by Turkic languages for a large part of its history and prehistory, yet failed to adopt rigid head-finality.

all daughter languages in a given language family show /k/, it would be ludicrous to reconstruct /t/ for the parent language without a very good reason for doing so. Since all of the IE daughter languages show disharmonic headedness, in lieu of evidence to the contrary we must reconstruct disharmonic headedness for PIE as well.

One criticism of the syntactic reconstruction I undertake here that has been brought to my attention, which is closely related to the conspiracy criticism discussed above, is that similar reconstructions of modern languages that have a documented ancestor show that this sort of syntactic reconstruction gives the wrong results. For example, we know that all of the Romance languages are left-T, and that their shared ancestor Latin was (according to the analysis I propose here) right-T. Wouldn't my reconstruction of Proto-Romance contradict what I've said about Latin, and doesn't this botched reconstruction show that feature-based syntactic reconstruction is unreliable?

In short, no. On the one hand, in comparing the Romance languages we aren't trying to reconstruct Classical Latin; we're trying to reconstruct the latest shared ancestor of these Romance languages, Proto-Romance, which we can do with considerable accuracy. On the other hand, Classical Latin fossilized hundreds of years before spoken Latin underwent the significant changes that later led to early Romance. Even if pre-PIE at some point *was* left-headed in T, by the time it split into the separate daughter branches it was right-headed.

3.4 Implications of this dissertation

This idea of comparing parallel syntactic innovations to reveal inherited underlying structural similarities constitutes a new tool available for syntactic reconstruction. It provides a new argument not only in favor of reconstructing SOV word order for PIE, but of reconstructing a specific corresponding underlying syntax for this word order. Combined with the complementizer data discussed in §1, it provides evidence for reconstructing a left-headed CP and right-headed TP for PIE. This structure was then inherited and made explicit through the innovation of auxiliary constructions in the earliest IE daughter languages. The more complete understanding of PIE syntax this dissertation offers will better inform not only Indo-Europeanists, but also typologists and theoretical diachronic syntacticians as well.

This project illustrates just how valuable and robust feature-based syntactic reconstruction can be. As Kim (2018) states, it is currently assumed that the innovations useful for subgrouping “may be phonological, morphological, or lexical”. This project and others like it can help show the value of syntactic isoglosses for subgrouping purposes as well, and can even take the original idea a step further, showing that in some cases we can reconstruct syntactic information where we cannot reconstruct phonological or morphological information. Also, now not only can we subgroup based on inherited syntactic constructions, but also based on the syntactic features gleaned even from constructions independently innovated in the daughter languages.

3.4.1 Directionality

One of the benefits adding simplicity and straightforwardness to the analyses and reconstruction presented here is how little it relies on directionality in syntactic change. The only major development is the separate innovation of auxiliary constructions in the various daughter languages, but these innovations only involve associating new phonological forms with syntactic heads, without changing any of the structural features of the heads in the process. If my correspondence set did not point so unanimously in the direction of left-C, right-T, this reconstruction of PIE clause structure would likely have been more complicated, and less reliable.

That is not to say that this work has nothing to contribute to our understanding of directionality, however, or that directionality cannot be useful for syntactic reconstruction. We see the development of periphrastic auxiliary constructions replacing equivalent synthetic verb forms in every single Indo-European daughter language, for example, so clearly something in the morphology/syntax of PIE lends itself to the development of periphrases, and thus clearly synthetic verb forms can be reconstructed as the predecessor of periphrastic constructions, given appropriate evidence. Further, we see in this Indo-European data that stricter word order can give rise to freer word order, and vice versa. In the development of V2 syntax in Germanic we see that T-to-C raising is a possible outcome of right-T syntax, and in the further development of SVO word order in English this T-to-C raising can in turn lead to the ultimate development of left-T syntax from right-T syntax.

Despite the unpopularity of directionality in syntax, most often due to tele-

ological concerns, it is a reality of diachronic syntactic development as there are only so many transformations that are predicted to be possible from a given set of structural features in the enumeration, and a finite number of collocations from which reanalyses can drive structural change. As Walkden (2014, 48) says, “directionality of syntactic change is a fact”. A better understanding of directionality can only improve our syntactic reconstructions, narrowing down the possible ancestors of a particular syntactic structure in the same way that our understanding of phonological and morphological directionality of change narrows down the possible ancestors of a given sound or morpheme.

Our understanding of syntactic directionality is far too limited, and is, I believe, one of the most important areas for future research in diachronic syntax. What is needed most immediately is a comprehensive typological survey of all syntactic changes during the attested histories of the world’s languages, from which we can extrapolate the most common and probable directions for change.

3.5 Other takeaways: IE and the FOFC

The Final-over-final Constraint of Holmberg (2000) states that a right-headed projection may not dominate a left-headed one, and has been a hot topic in recent diachronic syntactic literature. If my analyses of the daughter languages and the reconstruction for the proto-language are correct, then the FOFC seems to be largely borne out by the IE data, as predicted by Biberauer *et al.* (2014). If PIE really was left-headed above TP and right-headed below TP, and the IE daughter languages all inherited the same syntactic structure, then at no time during the reconstructible history of the Indo-European languages (aside

from the apparent VOAux word orders innovated in Classical Latin, treated in Danckaert 2017, or a small handful of exceptional Tocharian poetic examples that we discussed in §2) did a right-headed projection dominate a left-headed one in the clausal syntax. This constraint is borne out both synchronically by the IE daughter language data collected here, and diachronically by our reconstruction of PIE's clausal syntax.⁴

3.6 Future directions for study

3.6.1 Multi-clausal verb constructions

In this dissertation I have mostly limited my corpus of early Indo-European clausal syntax to transparently monoclausal constructions, both to ensure that my analyses are as accurate as possible, as well as for space reasons. I did refer to clausal embedding data to add evidence of right-V syntax in the daughter languages, but I have specifically avoided multi-clausal and serial verb constructions. In the future I would like to investigate the syntax of these constructions more closely, with the goal of discovering what factors determine whether these clauses are center-embedded as complements of VP or postposed after the verb at the end of the matrix clause. Just a few possible factors I would like to look at that could be influencing these embedding locations are: clause type (relative, non-finite, finite, etc.), the weight of the embedded clause, the semantics of the embedded clause type, and whether the matrix clause has anything right-adjoined above TP.

⁴For discussion on the theoretical details and implications of deriving various O, V, and Aux word orders in LCA-based models or in the PF-interface approach taken here, the details of which are outside the scope of this dissertation, see Biberauer *et al.* (2014).

3.6.2 The IE nominal domain

Since feature-based syntactic reconstruction has worked wonders for us in the verbal and clausal domain here, I would like to apply the same methods to the nominal domains in the early Indo-European languages at some point in the near future to give us a better idea of what PIE nominal syntax looked like. There are many complicating factors that will make this project interesting, however. Some, but not all, of these languages develop determiners at some point during their histories, and these determiners can occur in multiple locations within the DP. Adjective order differences will have to be teased apart. Relative pronoun locations are notoriously varied in the early IE languages, showing everything from *wh-in-situ* in Hittite to head stranding in Slavic (and possibly Tocharian as well). Also, the discontinuous DPs present in many of the old IE languages will have to be accounted for.

One place to start would be getting a better handle on PP word order across the early IE languages, since PP headedness is the best predictor cross-linguistically for cross-categorical word order according to, among others, Ono *et al.* (2017). Once the typological profile of these languages are better understood, I have confidence that these DP discrepancies across the early IE languages can be accounted for.

3.6.3 Other language families

The central idea of this dissertation, reconstructing based on lexical innovations that make inherited syntax more transparent, can of course be extended

to other language families as well. In fact, I believe that the more analytic languages that have in the past posed problems for more traditional morphological and phonological reconstruction due to lack of morphology and shorter words are uniquely suited to this sort of approach. Their lower ratio of words to meaning/function makes them more likely to display the sorts of periphrasis/serialization constructions and complex DP syntax that this method works so well with. As such, in the future I would like to take a look outside the Indo-European languages and see just how much this approach to syntactic reconstruction can improve our understanding of other language families.

3.6.4 Post-Homeric Greek syntax

Finally, I would like to take another look at the data from Herodotus that led Goldstein (2015) to posit flat structure for post-Homeric Greek. I believe that the word-order patterns that we see in Herodotean Greek are too regular and predictable for it to be anything other than configurational, and I would like to take a stab at demonstrating this. If my analysis of Homeric Greek syntax is correct, and Homeric is right-headed in TP, then the left-T syntax we see in later Greek like the Koine must somehow be derivable from the Homeric word order.

One possibility that has been explored in the literature in the past, and that complements my Homeric analysis nicely, is that post-Homeric Greek may actually develop both left-T and right-T configurations for its synchronic clausal syntax. To demonstrate this, I would have to answer Goldstein's critiques of similar methods, show that the Herodotean syntax shows only word orders that we would expect to be derivable from right-T and left-T syntax, and it would also be helpful to demonstrate a method by which the right-T syntax of Homeric

Greek could develop into the (potentially) switch-headed syntax of Herodotus.

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APPENDIX A
HITTITE PA# EXAMPLES

The data and translations here are from the *Hethitologie Portal Mainz* website.
These examples constitute the remainder of my Hittite auxiliary corpus.

EXAMPLES WITH *HAR*- "HAVE"

- (1) addaš=miš=a=še kēdani ara iyan ḫarta
"and my father had done her justice on that occasion" CTH 9.6 41
- (2) perann=a=tta ŠA ^DUTU-ŠI UL waḫnuan ḫarzi
"and My Majesty does not give priority to you" CTH 42 21
- (3) perann=a=tta ŠA ^DUTU-ŠI UL waḫnuwan ḫarzi
"and My Majesty does not give priority to you" CTH 42 26
- (4) [nu=z]a mān antuḫšan kuinki aššuli [parā ḫūittiyan]ḫarmi
"if I have kindly highlighted any man (with the words:)" CTH 42 216
- (5) [n]ašma=za apūn antuḫšan idalawanni parā ḫūittiya[n ḫarm]i
"or (if) I highlighted this man negatively (by saying)" CTH 42 220
- (6) n[ašma=z]a KUR-e kuitki našma URU-an kuinki āššu parā ḫūittiyan ḫarmi
"or if I have kindly or negatively emphasized that country or I have kindly highlighted any country or any city" CTH 42 225
- (7) našma=za mān apāt KUR-e našma URU-an aššuli našma idālu parā ḫūittiyan ḫarmi
"or if I have kindly or negatively highlighted that country or city" CTH 42 229
- (8) [nu=ka]n kiššan kuit meman ḫarmi
"As for that, I said the following:" CTH 123 167
- (9) mān ēšḫanašš=a kuiški šarnikzil piyan ḫarzi
"If someone has also paid blood" CTH 258.1 19

- (10) mān=aš=za QADU DAM^{MEŠ}=ŠU DUMU^{MEŠ}=ŠU dān ḥarzi
 "If, however, he continues to keep them, together with his wife and children"
 CTH 258.1 23
- (11) mān taīzzilašš=a kuiški sarnikzel píyan ḥarzi
 "If someone has repented for a theft" CTH 258.1 25
- (12) nu daiyazilaš šarnikzel piyan ḥarzi
 "and repented for the theft" CTH 258.1 35
- (13) [n]=aš=za kuit kuit dān ḥarzi
 "whatever he took for himself" CTH 258.1 73
- (14) nu GEŠTU-an lagān ḥar(a)k
 "Keep your ear inclined." CTH 332.3 27
- (15) [Š]A DINGIR-LIM ^{GIŠ}ERIN=ma=wa [...] kar(a)ppan ḥarkanzi
 "But they have removed the cedars of the deity." CTH 341.III.1 122
- (16) nu=mu uddanaš GEŠTU-an p[arā] lagān ḥar(a)k
 "Keep your ear inclined [to]my words." CTH 345.I.1 131
- (17) nu=mu uddānaš [GEŠTU-an parā l]agān ḥar(a)k
 "Keep [your ear i]nclined to my words." CTH 345.I.3.1 90
- (18) [nu=mu u]ttanaš GEŠTU-an parā lagān ḥar(a)k
 "Keep your ear inclined [to my words]." CTH 348.I.1 103
- (19) [GIM-an ŠA] EN-YA ZI-aš taparriyan [ḥarta]
 "as the will of my Lord certainly intended." CTH 348.I.27 22
- (20) [...]pašša=ma=wa=z išḫimanaz apāš tarahḫan ḥardu
 "[...] but he should keep subject to the bond." CTH 351.1 40
- (21) [...] -a]z apāš tarahḫan ḥardu
 "They should be held subjected." CTH 351.1 41

- (22) [... t]ankuin=ma=wa=ššan daganzipan tarpalān [ḥardu]
 "The dark earth, however, he should keep provided with a sash." CTH 351.1 49
- (23) tapariyaza=ma [pa]rā karšan ḥarzi
 "But she keeps herself from commanding" CTH 363.1 155
- (24) [... GEŠTU^{hI}.A parā lagān ḥarten
 "Bend forth your ears!" CTH 370.I.78 4
- (25) n=at=za kāš wappuwaš IM-aš tarahḥhan ḥarzi
 "This clay of the riverside has overcome them." CTH 398 9
- (26) nu=war=at kuwapi DINGIR^{MEŠ} lamniyan ḥarkanzi
 "And where the gods intended it" CTH 398 100
- (27) nu ^{KUŠ}kuršu[š] karpan ḥarkanzi
 "They carried the *kursa*." CTH 402 5
- (28) n=at karpan ḥarzi
 "He wears that" CTH 402 12
- (29) nu kūn UN-an mān LÚ-iš iyan ḥarzi
 "If a man ritually treated that person" CTH 402 23
- (30) n=at kāša iškišaz karpan ḥarzi
 "He is carrying all that on his back" CTH 402 24
- (31) n=at iškišaz karpan ḥarzi
 "He wears that on his back" CTH 402 26
- (32) [m]ān=an [MUNUS-z]a[?]=[m]a iyan ḥarzi
 "But if (is) a [woman](who) treated her ritually" CTH 402 27
- (33) n=at=šan INA SAG.DU=ŠU šiyān ḥardu
 "Let her wear it on her head!" CTH 402 30
- (34) kī HUL-lu alwanzata šumeš tarman ḥarten
 "You, keep fixed this evil bewitching!" CTH 402 147

- (35) ^{KUŠ}kuršu[š karpan ḥarkanzi]
 "[carried]the *kursa*." CTH 402 189
- (36) n=an anda DUMU^{MEŠ} DUMU.DUMU^{MEŠ} ḥaššuš ḥa]nzaššuš ḥulaliyan
 ḥarkan[du]
 "Keep him surrounded by children, grandchildren, descendants!" CTH 402 254
- (37) nu=wa=šmaš āššui TI-anni parā tarnan ḥardu
 "Let him hold (harm away from) you, for (your) well-being (and your) life." CTH
 404.1.I 173
- (38) nu ^{TÚG}[NÍG.LÀM^{MEŠ}] kue waššan ḥarkanzi
 "The [luxurious clothes]they wore" CTH 404.1.I 224
- (39) nu=wa=šmaš [āšš]ui TI-anni parā tarnan ḥardu
 "Let him hold (harm away from) you, for (your) well-being (and your) life." CTH
 404.1.II 130
- (40) nu ^{TÚG}NÍG.LÀM^{MEŠ} kue [wašš]an ḥarkanzi
 "The luxurious clothes they wore" CTH 404.1.II 181
- (41) nu=wa=(t)t[a āššui TI-anni] parā tarnan ḥardu
 "Let him hold (harm away from) you, [for (your) well-being (and your) life]."
 CTH 404.1.III 48
- (42) [nu ^{TÚG}NÍG.LÀ]M^{MEŠ} [kue waššan ḥarzi]
 "The luxurious clothes which he put on" CTH 404.1.III 97
- (43) NINDA.ERÍN.MEŠ=[m]a [DUMU.MUNUS=pa]t karpan harzi
 "The same [girl], in person, keeps the soldiers' bread lifted" CTH 406 16
- (44) n=at mān kururaš kuiški DINGIR-LUM iyan ḥarzi
 "and if it has made any deity an enemy" CTH 410 3
- (45) kuiš=wa DINGIR-LUM KUR ^{LÚ}KÚR kī Úš-an iyan ḥarzi
 "What deity of the enemy country has made this plague" CTH 410 11

- (46) zig=ma kuiš DINGIR-*LUM* kī ḥenkan iyan ḥarti
"shall thou, deity, thou who hast made this plague" CTH 410 15
- (47) ANŠE.KUR.RA^{MEŠ}=wa tūriyan ḥarti
"You harnessed the horses." CTH 410 21
- (48) [...]x-ma DUMU^{MEŠ}=šUNU dNIN.É.MU.UN.D[Ù...] x x ZABAR karpan
ḥarkanzi
"[...]but their children carried NIN.É.MU.UN.DÙ [...] x of bronze [or ..]." CTH
415 84
- (49) mān=za DINGIR^{MEŠ} kūn memia[n] kiššan iyauanzi malān ḥarteni
"If you, O gods, agree to resolve this matter as follows" CTH 423 126
- (50) nu=za mān DINGIR^{MEŠ} kūn memian kiššan iyaua[nzi] malān ḥarteni
"Are you, O gods, agreed to resolve this matter in this way?" CTH 423 134
- (51) nu=za mān DINGIR^{MEŠ} kūn memian kiššan iyaua[nzi] malān ḥarteni
"If you, O gods, decide to deal with this matter in this way" CTH 423 141
- (52) kunn=a=wa=šši Ú.SAL-la DUTU-uš āra iyan ḥarak
"And this meadow, O Sun-goddess, make rightful for him!" CTH 450.1.1.2 73
- (53) [... ta]līyan ḥarzi
"[...]has lured." CTH 453.1 9
- (54) [... ant]uḥḥaš arḥa tallīyan ḥarzi
"The man has lured people away." or possibly "[...]has lured people away." CTH
453.1 15
- (55) [... KASKA]L=an tarnan ḥarten
"[...]you should free the way." CTH 453.4 44
- (56) [nu=]šši KASKAL-an tarnan ḥarten
"[...]you should free the way." CTH 453.4 46

- (57) mān=wa AMA=KA našma ABU=KA appezziaz kuitki waštanuwan ḥarkanzi
 "If your mother or father subsequently allowed the perpetration of some fault"
 CTH 476 49
- (58) našma=wa zik kā parā ḥandanni našma zašḥit kuitki waštanuwan ḥarta
 "or (if) you, here, in providence or in dream, you allowed the perpetration of
 (some) fault" CTH 476 50
- (59) n=at šer BĒL SÍSKUR šīyan ḥarzi
 "The sponsor of the ritual keeps them sealed" CTH 476 58
- (60) našma=wa=šmaš=kan arḥa kuiški ḥuittiyan tallian mugan ḥarzi
 "or someone has summoned you, invoked, supplicated" CTH 484.1 49
- (61) mān LUGAL MUNUS.LUGAL DUMU^{MEŠ}.LUGAL=ya kuiški kuitki iyan ḥarzi
 "If anyone has done anything to the king, the queen and the king's children"
 CTH 716.1 125
- (62) n=aš ḥarīan ḥarzi
 "and buried them" CTH 716.1 126

EXAMPLES WITH EŠ "BE"

- (63) [namma=kan zik ANA ^mMašḥuilu]wa SIG₅-anza ē[š]
 "[Further:] be kind to Mashuiluwa" CTH 69 146
- (64) ^mMašḥuiluwa=ma [tuk QĀTAMMA] SIG₅-anza ēšdu
 "Mashuiluwa should be as well-disposed to you." CTH 69 147
- (65) nu=za=kan ištarna SIG₅-anteš ēšten
 "You should be good to each other." CTH 69 168
- (66) [karu]KUR ^{URU}Amurra U[L] IŠTU ^{GIŠ}TUKUL ŠA KUR ^{URU}ḥatti tar(ah)ḥ[a]n ēšta
 "[Previously] Amurru had never been subjugated by the power of Hatti." CTH
 105 6

- (67) našma=tta karū ku[iēš] linkiyaš UN^{MEŠ}-uš ešir
 "or if those who used to be sworn men" CTH 123 105
- (68) n=at=šamaš peran paprante[š ašandu]
 "and they [shall be] defiled before them!" CTH 137.1 51
- (69) ŠA ^dtelipinu KASKAL-aš IŠTU ĀŃ.DÙG.GA pappar(a)ššanza ēšdu
 "Telpinu should be sprinkled with fine oil." CTH 234.7 53
- (70) nu=wa utnē paḥšanuwan ēšdu
 "The land should be protected." CTH 321 5
- (71) [U ŠA ^dtelipinu] ZI-KA ŠA DUMU.LÚ.U₁₉.LU^{MEŠ} uddanāš QĀTAMMA
 takšanza ē[šdu]
 "likewise yours should be connected to the soul of the words of men." CTH 324.1
 98
- (72) [... galankanteš aša]ndu
 "Should be reassured!" CTH 324.2 54
- (73) [... k]alankanteš [ašandu]
 "[...] [should be] satisfied!" CTH 324.4 26
- (74) z[ig=a I]TTI LUGAL MUNUS.[LUGAL] ANA KUR ^{URU}ḥatti QĀTAMM[A]
 ḥandanza ē[š]
 "but also be loyal to the king, the queen (and) to the land of Hatti!" CTH 324.7 58
- (75) nu=šši[...]galangaza ēš
 "Rest assured!" CTH 326 48
- (76) n=aš=ši=pa anda mugānza ē[šdu]
 "He should be called to her equally." CTH 326 50
- (77) kardimiyaz [šāuwar ka]rpiš ḤUL-luš memiaš arḥa [QĀTAMMA wa]ršamaš iwar
 karšanza [ēšdu]
 "Anger, resentment, rage (and) bad speech should be cut off just like firewood!"
 CTH 326 60

- (78) [namm]a=aš warnuwanza ēšdu
 "Furthermore they should be burned!" CTH 326 61
- (79) ... ŠA ^d10 ḫarš]annaš karpiš [kardimiyaz š]āwar ḪUL-lun memian [...
Q]ĀTAMMA ārranteš [ašandu]
 "[...] of the personal [weather god] anger, anger, resentment (and) bad speech
 [...] should be stopped as well!" CTH 326 72
- (80) [... galanganza ēšdu]
 "[... should be reassured]" CTH 327.1 62
- (81) [n]=aš=ši=[pa anda mugānza ēšdu]
 "He is to be spurred on her." CTH 327.1 64
- (82) [... galankanza? ēš?]
 "Be soothed!" CTH 332.2 23
- (83) nu talliyanza ē[š]
 "Be calm!" CTH 332.2 25
- (84) [nu=ššan par]ā kalankanz[a ēš]
 "Be soothed!" CTH 332.3 55
- (85) nu=ššan parā kala[nkanza] ēš
 "Be soothed!" CTH 332.7 12
- (86) [nu DINGIR.MAḪ-aš ZI-KA kara]z=tiš[š=a galankanteš] a[šand]u
 "O Hannahanna, your soul and inner part should be calm!" CTH 334.7 9
- (87) nu=ššan LUGAL MUNUS.LUGAL DUMU^{MEŠ} LUGAL]KUR ^{UR}[U_h]atti=ya parā
 galankanza [ēšdu]
 "The king, queen, princes, and the land of Hatti should be reassured!" CTH 334.7
 10
- (88) nu=ššan [LUGAL MUNUS.LUGAL DUM]U^{MEŠ} LU[GAL]KUR ^{UR}U_hatti[=ya
QāTAMM]A[?] talliy[anza ēšdu]
 "Likewise, the king, the queen, the princes, and the land of ḫatti shall be quiet!"
 CTH 334.7 13

- (89) [... kalanganza[?]] ēš
 "Be soothed!" CTH 335.3.1 20
- (90) ^dullu[(-) ...]TI-aš ēšdu
 "You should be spirited, Ullu!" CTH 341.III.6 42
- (91) TI-za=ma=aš ēšdu ^dt[a[?]- ...]
 "He, however, should be spirited, Ti-" CTH 341.III.6 44
- (92) [...[?]]TI-za ēš ^dul-lu
 "Be spirited, Ullu!" CTH 341.III.6 48
- (93) [...[?]]TI-aš ēšdu ^dkumarb[iš ...]
 "[...] should be spirited, Kumarbi!" CTH 341.III.6 53
- (94) kinunn=a=aš TI-za ēšdu[...[?]]
 "And now he should be spirited!" CTH 341.III.6 54
- (95) LUGAL-i=ma MUNUS.LUGAL-ri KUR.KUR^{MEŠ}-TIM ḫūmanda QĀTAMM[A]
 lagān ēšdu
 "just as the king and the queen shall be inclined to all countries!" CTH 342.2.1 39
- (96) kī ṬUPPU arḫa ḫarran ēšta
 "The board was rubbed off." CTH 344 291
- (97) T[I-anza=war=aš ēšdu[?]] ^dupelluriš GE₆-ya KI-[pi]
 "You should be spirited, Upelluri, in the dark earth!" CTH 345.I.3.1 201
- (98) KUR-e=aš=kan waḫanna pānza[?] [ēšta]
 "He went to roam around the country." CTH 364.2 47
- (99) [nu=šši=ka]n ZI-anza anda āšš[iyaunit šunnanza ēšta[?]]
 "The soul was filled with love for him." CTH 364.5 22
- (100) nu=war=aš ANA KUR ^{URU}ḫatti Û ANA KARAŠ ^{URU}ḫatti menaḫḫanda
 takšulānza ēšdu
 "They should make peace with the land of Hatti and with the camp of the city of Hatti!" CTH 394 84

- (101) nu=wa=za x[...]tarmanteš ešten
"Let [...]be nailed up!" CTH 398 138
- (102) nu alwanzata idalauēš tešḥuš tarmānteš ašandu
"May the sorcery and bad dreams be fixed!" CTH 402 133
- (103) GÉME^{HÁ}=ya=(t)ta ÌR^{MEŠ} peran ḥuiyanteš ašandu
"May servants and slaves be pleased toward you!" CTH 406 54
- (104) DINGIR.LÚ^{MEŠ}=ta [DINGIR.MUNUS^{MEŠ}] peran ḥuyanteš ašandu
"May the gods (and goddesses) be pleased toward you!" CTH 406 55
- (105) nu=war=at išpiyanteš ašandu
"And they should be saturated!" CTH 410 23
- (106) GIŠ^{GI}GIGIR=ya=wa=ta=kkan IŠTU Ì.UDU iškiyan ešdu
"And your cart should be smeared with sheepskin!" CTH 410 24
- (107) kē=ya=wa É DINGIR-LIM QĀTAMMA paḥḥašnuwanda ēšdu
"This temple should be just as durable." CTH 413 11
- (108) LUGAL-š=a MUNUS.LUGAL-š=a QĀTAMMA iyatnienteš ašandu
"So should the king and queen be just as increasing!" CTH 414.1 215
- (109) [ANA LUGAL=m]a=kan anda aššuli tall[iyan]teš neyanteš ēšten
"Be invoked and turn favorably toward the king!" CTH 423 89
- (110) nu išḥanāš DUTU-uš DIM-ašš=a galankanteš ēšte[n]
"Sun god of blood, weather god, be soothed!" CTH 443 43
- (111) [išḥanaš ^DUTU-]uš ^DIM-aš galankanteš [ēšt]en
"Sun god of blood, weather god, be soothed!" CTH 443 129
- (112) LÚ^{MEŠ} ḤUL-uaš=kan IGI^{HI.A}-x[-(x)]neyanteš ašandu
"May the eyes of the evil men be turned [...]!" CTH 453.2 17
- (113) x[...] EGIR-pa tarni=šši neya[n]teš ašandu
"[May ...]be turned back / forth in his head! CTH 453.2 18

- (114) [... ŠU^{HLA}-aš] ŠU.SI^{HLA}-eš EGIR-pa kalkalta[- ...]neyanteš ašandu
 "[May ...]the fingers [of the hands] be turned back/forth in his *kalkalta*!" CTH 453.2 19
- (115) [...] EGIR-pa paršenaš=šaš ne[yanteš] ašandu
 "[May ...]be turned back / forth in his buttocks!" CTH 453.2 20
- (116) nu=šši ZI-aš āru šuwaru TI-anza ēšdu
 "the soul should be powerful and spirited for him!" CTH 453.5 5
- (117) nu=šši ZI-ŠU a[ru šuwaru] TI-anza ēšdu
 "The soul should be powerfully spirited for him." CTH 453.6 3
- (118) LUGAL-uš MUNUS.LUGAL-ašš=a huišwanteš ašand[u]
 "May the king and the queen be spirited!" CTH 457.3 9
- (119) [LUGAL-uš utn]eandan ^{GIŠ}arimpaš MUNUS.LUGAL-(a)š=a TI-anza ēšd[u]
 "May the king, pillar of the country, and the queen be spirited!" CTH 457.3 10
- (120) [...] Û DUMU^{MES}.LUGAL huišwanteš ašandu
 "May the [...] and the king's sons be spirited!" CTH 457.3 11
- (121) ilalianza kaddu(t)=šmit walḥanza ēšdu
 "May the desired be beaten with his claws." CTH 457.7.1 27
- (122) n=e [w]alḥanza ēšdu
 "May she be beaten." CTH 457.7.1 34
- (123) kinun=a=wa=kan apāt paprātar ANA DINGIR-LIM arḥa arran ēšdu
 "But now that uncleanness is to be washed away by the deity!" CTH 472 50

APPENDIX B
TOCHARIAN PA# EXAMPLES

The data and translations here are from the *Comprehensive Edition of Tocharian Manuscripts* website. These examples constitute the remainder of my Tocharian B auxiliary corpus.

FUTURE CONSTRUCTIONS

- (1) ñäs mā yesaññe wase yokalle rekaunaṣṣe : mā tañ kc= āyor aille nesau mā=lyeke
"I will not drink the poison of your words, I will not give you nor anyone else a gift" THT 23 b5 Classical Literary Verse
- (2) mā ñis pratinmem klyautkalyñe nesau
"I cannot be put off my resolution" THT 100 b2 Classical Literary Both
- (3) mā tot ñis pintwāt warpalle nesau
"I will not accept (any) alms" THT 107 b10 Late Literary Both
- (4) wesāñ ñake ṣarnene kekamu nest mā ṣ pātrā (lkā)lle nest
"You have fallen into our hands and your father [you] will not (see [ever again])!"
THT 85 b6 Classical Literary Both
- (5) (mapi oro)ccu walo ṣañ pratinmem klau(tkalle nest)
"(You will not, oh gre)at king, revert from your own resolution?" THT 85 a4
Classical Literary Both
- (6) mañiye nes mā ṣp pātär lkälle nes
"You are our slave and will not see your father again" THT 86 a4 Classical Literary Both
- (7) eneṣle pañikte kṣṣintaṃts yaknene watk(ä)ṣälyñene spo(rto)le star-c
"Therefore you shall now behave according to the way [and] precept of the Buddha-teachers" THT 1106 a2 Classical Literary Prose

- (8) papāṣorñetse ayātośc(a) (ś)aul śailyñe(tse a)starñeś pātro eṅkaṣalya star-ca
 "(Because(?),) for the purity of living [your] life [ājīvapāriśuddhu], [which is] conductive to moral conduct, you shall seize the eating bowl" THT 1107 a4 Classical Literary Prose
- (9) te p(ā)tr(o) eṅk(aṣalya) s(ta)r-(c)
 "Therefore (you shall) seize the eating bowl" THT 1108 a3 Classical Literary Prose
- (10) t(ai)sa śaul śawaṣāle star-c(ä)
 "Thus you shall earn [your] living" THT 1108 a3 Classical Literary Prose
- (11) tā pātrai(sa) y(a)skaṣṣāle star-cä
 "you shall beg for [it] (with) this eating bowl" THT 1108 a4 Classical Literary Prose
- (12) mā śwātsitse pernesa śaul śaiyñe ṣparkāṣāle star-cä
 "But you shall not, for the sake of food, let fade away [this way of] earning [your] livelihood" THT 1108 a4 Classical Literary Prose
- (13) tane ñake wasanpāt yaskaṣṣālle star-c
 "Now here you shall ask to be ordained." THT 1112 b2 Classical Literary Prose
- (14) ñake no ysomo saṅkameṃ wasanpāt yaskaṣṣālle star-c
 "But now you shall ask the community as a whole to ordain you" THT 1113 a1 Classical Literary Prose
- (15) tesa wa(sa)m̐(tpāt) / / / / ñyāsä erṣalle star-c
 "therefore you shall raise desire (for the [beneficial] effects(?) of) ordi(nation)" THT 1118 b4 Classical Literary Prose
- (16) kus)e (k)au(c) (śa)nmām̐ ñiś lakam̐ cwi «śpā»lu wer ṣmalle ste
 "(If) one will come upwards [to me and] will see me, [even] (extr)eme hostility of his will lie [down]" PK AS 17D b3 Classical Literary Both

- (17) sã onkorño tañ šwālya mā ste
 "You shall not eat this rice porridge" THT 107 a6 Classical Literary Both
- (18) tane ţemi ksa onolmi yāmor yāmoŝ : nraiŋe cmelyesa ka(krau)pau ŝpā tākan-
 me
 "[there are] some beings who have done a deed, and by being reborn in hell it
 will be further accumulated by them." PK AS 7C a5 Classical Literary Verse
- (19) mā ŝ lalaŝcer mā yes cimpalyi neŝcer
 "and you do not make an effort, nor will you be able to" THT 1554 b3
- (20) cisa kreṃnt kālālyana tākam cwi aiskem ci eṃŝke tārkanam
 "[if] we find someone better than thee, we will give it to him while we leave thee
 [alone]" THT 107 b1/2

PERFECT CONSTRUCTIONS

- (21) sanune kekamu nesau
 "I have ... (much) run into danger" THT 79 6 Classical Literary Both
- (22) ñiś ostameṃ ltu nesau
 "I have left the house" THT 107 a5 Late Literary Both
- (23) (o)-st-yāṃŝ(e)ñcai lyelyku nest
 "O maker of houses, you have been seen" PK AS 6a Classical Literary Verse
- (24) wesāñ ñake ŝarnene kekamu nest mā ŝ pātrā (lkā)lle nest
 "You have fallen into our hands and your father [you] will not (see [ever again])!"
 THT 85 b6 Classical Literary Both
- (25) mapi kāryau nestä
 "You have not been bought" THT 1111 b1 Classical Literary Prose
- (26) ŝerŝkana se nomiyeŝŝe bhājaṃ rerinu star-me epe mā
 "Little sisters, is this jewel bowl given up by you or not" THT 107 b8 Late Literary
 Both

- (27) aṣaṇṇika rerinu star-me
"Venerable one, it is left by us" THT 107 b9 Late Literary Both
- (28) po krentaunasa kekenu ste
"He is in possession of all virtues" THT 91 b4 Classical Literary Both
- (29) mākṭe te pātro śuke eṇkaṣṣeṇca ste
"Just like the eating bowl siezes the essence" THT 1108 a5 Classical Literary Prose
- (30) toy aśiyana po lalāṃṣuwa stare
"These nuns had arranged all this" PK AS 18B a2 Classical Literary Prose
- (31) pātār mātārne tāṇwassu ṣaim
"I was beloved by my father and mother" THT 412 a3 Classical Literary Prose
- (32) māpi rā«me»r kselle ṣaitā
"then you would not have been extinguished so quickly" THT 273 b5 Archaic Literary Verse
- (33) (e)nt(e) aṇkaiṃ pilkontan(e) t(e)tr(e)ṇku ṣaiytā
"When you were attached to wrong views" THT 1105 b1 Classical Literary Prose
- (34) taisa ente nraintane tetemu ṣaiytā
"Just so when you were reborn in the hells" THT 1105 b2 Classical Literary Prose
- (35) m• s• lintse se (p)ilko tsāṇkau ṣai
"From Maskali this view had stemmed" THT 28 a8 Classical Literary Verse
- (36) jñātiṃ seyi granthi pilko prākṛe eṇku ṣai
"By Jñātiāśśs son, the (Ni(r))grantha, the view was firmly taken" THT 28 b5 Classical Literary Verse
- (37) ṣaṇ kartse kuce yāṃṣate tu wṇolmi keklyauṣoṣ ṣeyem
"[His] own good, which he had done, of it the beings had heard" THT 30 b2 Classical Literary Verse

- (38) (t)esa oṣap śpāl(m)eṃ wān(tar)e /// /// ārttalyi ṣeyeṃ
 "(There is no) thing, [that is] more excellent than this [= ordination?], (that the good beings) would have considered good" THT 1119 a5 Classical Literary Prose
- (39) klaiṇe teki piś-yi-(kne)sa tsāṅkau tākaṃ
 "If a five-fold female disease has emerged" PK AS 2A a1 Late Literary Prose
- (40) tū yairu tākaṃ
 "If one has practiced" PK AS 7B a4 Classical Literary Verse
- (41) •t • m(ā) c(ā)mp(a)mo tākaṃ
 "(If he himself) should not be able to do so" THT 1109 b1 Classical Literary prose
- (42) tañ (mai)yyane ñiś sanaṃ au(n)u takāwa
 "In your power I have met the enemy" THT 22 a6 Late Literary Verse
- (43) kuce wāntaresa kāṣī kekamu tāka
 "For what reason has the teacher come here?" PK NS 32 b4 Classical Literary Both
- (44) -(ra)ṇyakāṃṇe dhutagūṃ pañākte kāṣṣimtse ārtoṣ eṅku tāka
 "The one who has taken the Dhūtaguṇa consisting of dwelling in the forest, chosen by the Buddha lord, the teacher" PK NS 55 a1 Classical Literary Both
- (45) kuce wāntaresa kekamoṣ takās
 "For what business have you come?" THT 82 a1 Classical Literary Both
- (46) se vedanantse avasthālakṣaṃ weweṇu tāka
 "this has been called the condition-mark of the *vedanā*" THT 197 b5^L
- (47) tañ (mai)yyane ñiś sanaṃ au(n)u takāwa
 "with thy power I have wounded the enemy" THT 22 a5/6^C

NECESSITIVE CONSTRUCTIONS

- (48) amplākāmtte pärnā-sim mā pralle ste
 "It is not to be taken outside the monastery without permission!" MIK III 4048 2
 Nonliterary Prose
- (49) upekṣ warpalñe makte aiśalle ste
 "How is the experience of indifference to be understood?" THT 197 a2 Late Literary prose
- (50) teṃ yiknesa weweñu mā tākaṃ wa[c](e) kaum akaṣṣuki mā śilmaṃ-ne ārwe(r ya)maṣṣamtte mā wat mā yalle ste
 "[if] he [*scil.* the patron's messenger] has not spoken in this way and the messenger does not allow him [*scil.* the monk] [to stay] a second day [, saying]: 'we have made ourselves ready, or not,' [he is] not to go" THT 331 b3/4^L
- (51) samānentse prekṣātstse mā māškeṣle [*sic! lege:* māskeleye] ste
 "It is not the proper place of a monk to become a judge" THT 331 b1^L

POTENTIAL CONSTRUCTIONS

- (52) makte pi kca tā oṅkorñai ñiś śwātsi källälle ṣeym
 "How at all could I get to eat this rice porridge?" THT 107 a3 Late Literary Both
- (53) (a)–kañc śconīye mā sū ksa nesām kuse ñi(ś) maiyyasa cāmpalle ṣai ce er(k)atñene kalatsi
 "After all, [in this world] there is no such hate that by [its] strength would be able to bring me into this anger" PK NS 36 and 20 b3 Classical Literary Both
- (54) (akañc) śconīye mā su ksa nesām ce śaiṣṣene kuse ñi(ś) maiyyasa cāmpalle ṣai ce er(k)atñene kalatsi
 "(After all,) in this world there is no such hate that by [its] strength would be able to bring me into this anger" THT 93 b6 Late Literary Both
- (55) (ṣu) k pakenta tarne mā tsrälle ṣey
 "The skull could not have been separated in seven parts." THT 405 a5^C

APPENDIX C
VEDIC SANSKRIT PA# EXAMPLES

The data here are from the *Thesaurus Indogermanischer Text- und Sprachmaterialien* website. These examples constitute the remainder of my Vedic Sanskrit auxiliary corpus.

ATHARVAVEDA

- (1) ásūn pitṛb^hyo gamayāṁ cakāra
"he made his breaths go to the fathers" AV 18.2.27

AITAREYA BRAHMANA (translations from Haug 1863)

- (2) tad d^ha tat^hā śaṁsayāṁ cakāra
"Thus he indeed recited it" AB 6.30.7
- (3) tad d^ha tat^hā śaṁsayāṁ cakāra
"Thus he indeed recited it" AB 6.30.15
- (4) tāṁ vā etāṁ paśor vib^haktiṁ Śrautarṣir= Devab^hāgo vidāṁ cakāra
"This division of the animal Devabhaga, the son of Sruta, knew." AB 7.1.6
- (5) at^hainam ata.ūrd^hvam agnim āhavanīyam upast^hāpayāṁ cakāra
"Then thereafter he summoned him to the Ahavaniya fire" AB 7.17.1
- (6) so 'siṁ '1 niḥśyāna eyāyā+t^ha ha Śunaḥśepa īkṣāṁ cakre
"He then whetted his knife and went to kill his son" AB 7.16.2
- (7) sa ha Bulila āśvatara āśvir vaiśvajito hotā sann īkṣāṁ cakra
"That (famous) Bulila, the son of Akdtara, the son of Asva, being once Hotar at the Yis'vajit sacrifice, speculated about this matter" AB 6.30.7
- (8) te ha tadantarvedy āsāṁ cakrire
"Having learnt (that) they went to the place of his sacrifice and seated themselves within the precincts of the Veda." AB 7.27.1

JAIMINIYA UPANISHAD BRAHMANA (translations from Oertel 1896)

- (9) c^handob^hir eva vācā śaryātam mānavam svargam lokam gamayām cakāra
"By the metres, by speech, he caused Caryata Manava to go to the heavenly world" JUB 2.8.5
- (10) etām ha vai sāmnaḥ prattiṃ sudakṣiṇaḥ kṣaimir vidām cakāra
"Verily this delivery of the saman sudaksina Ksaimi knew" JUB 3.6.3
- (11) sa ha rat^ham āst^hāya prad^hāvayām cakāra
"He, mounting the chariot, drove off" JUB 3.8.5
- (12) etāvad d^haivoktvā rat^ham āst^hāya prad^hāvayām cakāra
"Having said this much, mounting the chariot, he drove off" JUB 3.9.8
- (13) sa ha tat^haiva palyayamānaś śmaśāne vā vane vāvṛtīśayānam upād^hāvayām cakāra
"He wandering about in the same way, drove up unto one covered lying in a cemetery or grove" JUB 3.31.3
- (14) tato haiva vidām cakāra brahmeti
"Then he knew, "it is the brahman" JUB 4.21.1
- (15) sa hekṣām cakre
"He considered:" JUB 2.7.3
- (16) tena haitena vasiṣṭ^haḥ prajātikāmo 'numantrayām cakre
"With this same vasistha, desirous of offspring, recited the after-verses:" JUB 3.18.6
- (17) ṛṣayo ha sattram āsām cakrire
"The rsis sat in a session" JUB 4.14.5

ŚATAPATHA BRAHMANA (translations from Eggeling 1882)

- (18) sa yát^hā bālīyānābālīyasa evamānupahūta eva yó droṇakalaśé śukra āsa tám
b^hakṣayāṃ cakāra
"and though uninvited, he consumed what pure (Soma) there was in the tub,
even as the stronger (consumes) that of a weaker" SBM 1.6.3.7
- (19) sá g^hṛtaṃ dád^hi mástvámiḥśāmītyapsú juhavāṃ cakāra
"he offered up in the waters clarified butter, sour milk, whey, and curds" SBM
1.8.1.7
- (20) etádd^ha vai mánurbib^hayāṃ cakāra
"At that time, namely, Manu became apprehensive (thinking)" SBM 1.8.1.16
- (21) śamyúrha vai bārhaspatyó 'ñjasā yajñásya samst^hāṃ vidāṃ cakāra
"Now it was Samyu Bārhaspatya who perceived, in its true nature, the consum-
mation of the sacrifice" SBM 1.9.1.24
- (22) śamyúrha vai bārhaspatyó 'ñjasā yajñásya samst^hāṃ vidāṃ cakāra
"(that) it was Samyu Bārhaspatya who perceived, in its true nature, the consum-
mation of the sacrifice" SBM 1.9.1.25
- (23) sá hainaṃ nàb^hirād^hayāṃ cakāra
"This (offering), however did not satisfy him" SBM 2.2.4.5
- (24) sá hainamab^hirād^hayāṃ cakāra
"This (offering) then satisfied him" SBM 2.2.4.6
- (25) devá ha vá asyāṃ yajñāṃ tanvāná imāṃ yajñānantárīyuh sá haiṣāmiyāṃ ya-
jñāṃ mohayāṃ cakāra
"Now while the gods were spreading (performing) the sacrifice on this (earth)
they excluded her (the earth) from the sacrifice" SBM 3.2.3.1
- (26) tavetíndra túríyamevá b^hājayāṃ cakāra
"'This is thine!' then he assigned to Indra a fourth part for his share" SBM 4.1.3.14
- (27) turíyamevá b^hājayāṃ cakāra
"thus he assigns to him (Indra) each time a fourth part for his share" SBM 4.1.3.15

- (28) sá śāryātéb^hyaścukrod^ha teb^hyó 'saṃjñāṃ cakāra
 "He was wroth with the Sāryātas, and sowed discord among them" SBM 4.1.5.3
- (29) sá vidām cakāra sa vai cyāvana iti
 "Then Saryāta knew that this was Kyavana ("this is Kyavana")" SBM 4.1.5.5
- (30) apakramādu haivaiṣāmetādbib^hayām cakāra
 "But he was afraid of their desertion" SBM 4.3.3.11
- (31) devéb^hyo ha vai vāco rāso 'b^hijito 'pacikramiṣām cakāra
 "Now, once on a time, the pith of Vāk (speech) wished to desert the gods who had won it" SBM 4.6.9.16
- (32) bṛhaspáterha vá ab^hiṣiṣcānátpr^hiví bib^hayām cakāra
 "For when Brihaspati had been consecrated, the Earth was afraid of him:" SBM 5.2.1.18
- (33) bṛhaspátirha pr^hiviyai bib^hayām cakāra
 "And Brihaspati also was afraid of the Earth:" SBM 5.2.1.18
- (34) váruṇādd^ha vá ab^hiṣiṣcānátpr^hiví bib^hayām cakāra
 "For the Earth was once afraid of Varuna, when he had been consecrated:" SBM 5.4.3.20
- (35) váruṇa u ha pr^hivyaí bib^hayām cakāra
 "And Varuna also was afraid of the Earth:" SBM 5.4.3.20
- (36) sa yát^hā bālīyānábaliyasa evamánupahūta eva yó droṇakalaśe śukra ása tám
 b^hakṣayām cakāra
 "and even uninvited he consumed what pure (Soma) there was in the tub, as the stronger (would consume the food) of the weaker" SBM 5.5.4.8
- (37) sa údyatādvájrádvṛtró bib^hayām cakāra
 "Vritra was afraid of the raised thunderbolt." SBM 5.5.5.2

- (38) sárvāṇi b^hūtāni sṛṣṭvā riricāná-iva mene sá mṛtyórbib^hayāṃ cakāra
 "Having created all existing things, he felt like one emptied out, and was afraid of death." SBM 10.4.2.2
- (39) uddālako háruṇiḥ udīcyānvṛtó d^hāvayāṃ cakāra
 "Now Uddālaka Âruni 3 was driving about 4, as a chosen (offering-priest), amongst the people of the northern country" SBM 11.4.1.1
- (40) tām haitām gótamo rāhūgaṇāḥ vidām cakāra
 "Now, indeed, it was Gotama Rāhûgana who discovered this (sacrifice)" SBM 11.4.3.20
- (41) hṛdayamāvyayāṃ cakāra
 "Then her heart took pity on him" SBM 11.5.1.10
- (42) rát^hamāst^hāya prad^hāvayāṃ cakāra
 "he mounted his car and drove away." SBM 11.6.2.4
- (43) ha yājñavalkyo rát^hamāstāyānuprad^hāvayāṃ cakāra
 "But Yâgñavalkya, mounting his car, drove after (the king)" SBM 11.6.2.5
- (44) vai prajāpatiḥ prajā d^hārayāṃ cakāra
 "because by it Pragâpati bore creatures" SBM 11.6.2.10
- (45) etām ha vai muṇḍib^hā audanyāḥ brahmahatyāyai prāyaścittiṃ vidām cakāra
 "Mundibha Audanya it was who discovered this atonement for the slaying of a Brahman" SBM 13.3.5.4
- (46) etēna hendrotó daivāpaḥ śaúnakaḥ janamejayām pārikṣitām yājayāṃ cakāra
 "Now, Indrota Daivâpa Saunaka once performed this sacrifice for Ganamegaya Pârikshita" SBM 13.5.4.1
- (47) tām ha kaśyāpo yājayāṃ cakāra
 "It was Kasyapa who officiated in his sacrifice" SBM 13.7.1.15
- (48) dad^hyān ha vā āt^harvāṇaḥ etām śukrámetām yajñām vidām cakāra
 "Now Dadhyañk Âtharvana knew this pure essence, this Sacrifice" SBM 14.1.1.18

- (49) át^ho pṛt^hivyù ha vá etásmādbib^hayāṃ cakāra yadvaí māyāṃ taptāḥ śúśucāno ná hiṃsyādíti
 "But, indeed, the Earth also was afraid of this lest this (Pravargya), when heated and glowing, might injure her" SBM 14.1.3.14
- (50) át^ho dyaúrha vá etásmādbib^hayāṃ cakāra yadvaí māyāṃ taptāḥ śúśucāno ná hiṃsyādíti
 "But, indeed, the Sky also was afraid of this lest this (Pravargya), when heated and glowing, might injure it" SBM 14.1.3.29
- (51) vásiṣṭho ha virājaṃ vidāṃ cakāra
 "Vasishtha knew the Virâg" SBM 12.6.1.38
- (52) tádd^hekṣāṃ cakra
 "he thought within himself" SBM 2.5.2.26
- (53) sá kṣatram váruṇaḥ bráhma mitrá^mupamantrayāṃ cakra
 "Varuna, the nobility, then called upon Mitra, the priesthood:" SBM 4.1.4.4
- (54) áⁿnaṃ vaí vratam yató 'nnaṃ spāśayāṃ cakra
 "ordinance means food: thus, whereby he did behold the food" SBM 7.5.1.25
- (55) téb^hyo devá vaivá prarocayāṃ cakrúḥ
 "Now whether it be that the gods caused it (the sacrifice) to attract (or, peep forth to) them" SBM 1.6.2.3
- (56) índro ha vá īkṣāṃ cakre
 "Indra thought with himself:" SBM 1.6.3.7
- (57) nilayāṃ cakre
 "he hid himself" SBM 1.6.4.1
- (58) tadb^hágo 'vekṣāṃ cakre
 "Bhaga looked at it" SBM 1.7.4.6

- (59) sá yatit^hīṃ tatsāmām parididēṣa tatit^hīṃ sāmāṃ nāvamupakālpypāsāṃ cakre
 "And in the same year which the fish had indicated to him, he attended to (the advice of the fish) by preparing a ship" SBM 1.8.1.5
- (60) índro ha vá īkṣāṃ cakre
 "Indra thought with himself:" SBM 2.1.2.14
- (61) tádd^hekṣāṃ cakre
 "he bethought him" SBM 2.2.1.13
- (62) sò 'gnímeva múk^hājjanayāṃ cakre
 "He generated Agni from his mouth" SBM 2.2.4.1
- (63) só 'rcañc^hrāmyanprajāpatirīkṣāṃ cakre
 "While praising and practising austerities, Pragâpati thoguht within himself" SBM 2.5.1.3
- (64) sá ātmāna evāgre stānayoḥ páya āpyāyayāṃ cakre
 "He made the breasts in the fore-part of (their) body teem with milk" SBM 2.5.1.3
- (65) índro ha vá īkṣāṃ cakre
 "Indra thought with himself:" SBM 3.2.1.26
- (66) sá ha saṃvatsare jáyamāna īkṣāṃ cakre
 "Now when he was born after a year's time, he thought within himself:" SBM 3.2.1.27
- (67) tádd^hekṣāṃ cakre
 "He thought within himself:" SBM 3.9.4.12
- (68) tádd^hekṣāṃ cakre
 "He thought within himself:" SBM 3.9.4.22
- (69) índro ha yātra vṛtrāya vājram prajahāra só 'balīyānmānyamāno nāstrṣṭīva bíb^hyannilayāṃ cakre
 "Now Indra, when he had hurled the thunderbolt at Vritra, thinking himself to be the weaker, and fearing lest he had not laid him low, hid himself" SBM 4.1.3.1

- (70) índro ha vá īkṣām cakre
"Indra thought within himself:" SBM 4.1.3.11
- (71) śáryāto ha vá īkṣām cakre
"Saryāta then bethought him" SBM 4.1.5.4
- (72) tānín̄dra upamantrayām cakre
"Indra called on them:" SBM 4.3.3.7
- (73) tadd^héndra īkṣām cakre
"Indra thought within himself:" SBM 4.3.4.23
- (74) índro ha vá īkṣām cakre
"Indra thought within himself:" SBM 4.5.3.2
- (75) índro ha vá īkṣām cakre
"Indra thought within himself:" SBM 5.5.4.8
- (76) īkṣām cakre
"he eyed him" SBM 7.3.2.14
- (77) sá hekṣām cakre
"He bethought himself" SBM 10.4.2.3
- (78) át^ha hāyāmīkṣām cakre
"He then thought within himself" SBM 11.5.1.4
- (79) sá ha prajāpatirīkṣām cakre
"Pragāpati then bethought him" SBM 11.8.1.2
- (80) sá ha sasattrīṇa āmantrayām cakre
"He (the king) said to his fellow-sacrificers" SBM 11.8.4.1
- (81) sa vā índrastát^haivá nuttaścāran, agnīṣómā upamantrayām cakré
"Now while Indra was thus moving on (in pursuit of Vritra), he addressed Agni and Soma" SBM 1.6.3.13

(82) támub^háya evòpamantrayáṃ cakrire

"Both parties then invited her secretly to come to them" SBM 1.4.1.34

(83) té haitámed^hatúmed^háṃ cakrire yámeṣāmetámanuśṛṇvánti

"Those (Asuras) then throve in such a manner that they (the gods) heard of it"

SBM 1.6.1.3

(84) té devá īkṣáṃ cakrire

"The gods reflected" SBM 3.2.1.22

APPENDIX D
HOMERIC GREEK PA# EXAMPLES

The data and translations here are from the *Perseus Digital Library* website. These examples constitute the remainder of my Homeric Greek auxiliary corpus.

HOMER'S *ILIAD*

- (1) hō:de gàr ekseréo:, tò dè kaì tetelesménon éstai
"For thus will I speak, and this thing shall truly be brought to pass." Il. 1.212
- (2) aĩpsa d' anastàs e:peĩle:sen mŭt^hon hò dè: tetelesménos estí
"and straightway he arose and spoke a threatening word, which now has come to pass." Il. 1.388
- (3) all' ék toi eréo:, tò dè kaì tetelesménon éstai
"But I will speak out to thee, and this word shall verily be brought to pass:" Il. 2.257
- (4) me:d' éti Te:lemák^hoio patè:r kekle:ménos eíe:n
"nor may I any more be called the father of Telemachus" Il. 2.260
- (5) Zeùs mén pou tó ge oĩde kaì at^hánatoi t^heoì álloi hoppotéro:i t^hanátoio télos pepro:ménon estín
"But this, I ween, Zeus knoweth, and the other immortal gods, for which of the twain the doom of death is ordained." Il. 3.309
- (6) ho:s dé: hoi mè: págk^hu géro:n akak^hé:menos eíe:
"that his aged priest might not be utterly fordome with grief." Il. 5.24
- (7) soì d' egò: ekseréo: ho:s kaì tetelesménon éstai
"Moreover, I will declare to thee as it verily shall be brought to pass." Il. 8.286
- (8) hō:de gàr ekseréo:, tò dè kaì tetelesménon éstai
"For thus will I speak and verily this thing shall be brought to pass." Il. 8.401

- (9) hō:de gàr ekseréo:, tò dé ken tetelesménon ē:en
 "For thus will I speak, and verily this thing had been brought to pass:" Il. 8.454
- (10) mŭt^hos d' hòs mèn nŭn hugiè:s eire:ménos ésto:
 "of counsel, good and sound for this present, be this enough" Il. 8.524
- (11) hē:i per dè: p^hronéo: te kai ho:s tetelesménon éstai
 "even as I am minded, and as it shall be brought to pass" Il. 9.310
- (12) ei dúnamai telésai ge kai ei tetelesménon estín
 "if fulfill it I can, and it is a thing that hath fulfillment" Il. 14.196
- (13) tòn d' heŭre propároi^he neō:n ort^hokrairáo:n tà p^hronéont' anà t^humòn hà dè:
 tetelesména ē:en
 "Him he found in front of his ships with upright horns, boding in his heart the
 thing that even now was brought to pass" Il. 18.4
- (14) ei dúnamai telésai ge kai ei tetelesménon estín
 "if fulfill it I can, and it is a thing that hath fulfillment" Il. 18.427
- (15) allà p^hílos p^hronéo:n pep^hulagménos eīnai
 "Nay, dear son, be thou wise and on thy guard" Il. 23.343
- (16) hō:de gàr ekseréo:, kai mè:n tetelesménon éstai
 "For thus will I speak out to you, and verily it shall be brought to pass" Il. 23.410
- (17) hō:de gàr ekseréo:, tò dè kai tetelesménon éstai
 "For thus will I speak, and verily this thing shall be brought to pass" Il. 23.672

HOMER'S ODYSSEY

- (18) all' ék toi eréo:, tò dè kai tetelesménon éstai
 "But I will speak out to thee, and this word shall verily be brought to pass" Od.
 2.187
- (19) pseŭdos d' ouk eréei: mála gàr pepnuménos estí
 "A lie will he not utter, for he is wise indeed" Od. 3.20

- (20) pseûdos d' ouk eréei: mála gàr pepnuménos estín
 "A lie will be not utter, for he is wise indeed" Od. 3.328
- (21) Atréide:, perì mén se brotō:n pepnuménon eĩnai Néstor:p^hásk^{h'} ho géro:n
 "Son of Atreus, old Nestor used ever to say that thou wast wise above all men"
 Od. 4.190
- (22) ei dúnamai telésai ge kaì ei tetelesménon estín
 "if fulfil it I can, and it is a thing that hath fulfillment" Od. 5.90
- (23) ài gàr emoì toió:sde pōsis kekle:ménos eíe:
 "Would that a man such as he might be called my husband" Od. 6.244
- (24) ho kseĩnos mála moi dokéei pepnuménos eĩnai
 "This stranger verily seems to me a man of understanding" Od. 8.388
- (25) allà tò mèn p^hást^hai, tò dè kaì kekrumménon eĩnai
 "but tell her somewhat, and let somewhat also be hidden" Od. 11.443
- (26) ài gàr toũto, kseĩne, épos tetelesménon eíe:
 "Ah, stranger, I would that this word of thine might be fulfilled" Od. 15.536
- (27) hō:de gàr ekseréo:, kaì mè:n tetelesménon éstai
 "For thus will I speak out to thee, and verily it shall be brought to pass" Od.
 16.440
- (28) ài gàr toũto, kseĩne, épos tetelesménon eíe:
 "Ah, stranger, I would that this word of thine might be fulfilled" Od. 17.163
- (29) all' ék toi eréo:, tò dè kaì tetelesménon éstai
 "But I will speak out to thee, and this word shall verily be brought to pass." Od.
 17.229
- (30) all' ék toi eréo:, tò dè kaì tetelesménon éstai
 "But I will speak out to thee, and this word shall verily be brought to pass." Od.
 18.82

- (31) Amp^hínom', ē: mála moi dokéeis pepnuménos eĩnai
 "Amphinomus, verily thou seemest to me to be a man of prudence" Od. 18.125
- (32) ài gàr toũto, kseĩne, épos tetelesménon eíe:
 "Ah, stranger, I would that this word of thine might be fulfilled." Od. 19.309
- (33) hō:de gàr ekseréo:, kaì mè:n tetelesménon éstai
 "For thus will I speak out to thee, and verily it shall be brought to pass" Od. 19.487
- (34) ouk ónar, all' húpar est^hlón, hó toi tetelesménon éstai
 "this is no dream, but a true vision of good which shall verily find fulfillment"
 Od. 19.547
- (35) hō:de gàr ekseréo:, tò dè kaì tetelesménon éstai
 "For thus will I speak out to thee, and this word shall verily be brought to pass"
 Od. 21.337

THE HOMERIC HYMNS

- (36) ó:mose dè mégan hórkon, hò dè: tetelesménos estín
 "she swear a great oath which has in truth been fulfilled" HH5 26
- (37) me:d' autè: brotée:s eunē:s apoergméne: eíe:
 "not even she should be innocent of a mortal's love" HH5 47
- (38) all' ei mèn toioũtos eò:n eĩdós te démas te zó:ois áijaméterós te pósis
 kekle:ménos eíe:s
 "Yet if you could live on such as now you are in look and in form, and be called
 my husband" HH5 242

APPENDIX E
OLD LATIN PA# EXAMPLES

The data for *Amphitryon* is from the *Perseus Digital Library* website. The *De Agricultura* data is from Hooper (1934). These examples constitute the remainder of my Old Latin auxiliary corpus.

PLAUTUS' *AMPHITRYON* (translations from Nixon 1916)

- (1) pro imperio vobis quod dictum foret
"whatever was told to you in way of command" 21
- (2) faciam ut commixta sit
"I shall mix things up" 60
- (3) quae illi ad legionem facta sunt memorat pater meus Alcumenae
"He is telling Alcmena what happened during the campaign" 133
- (4) hic qui verna natus est queritur
"It's this fellow, a born drudge, that is grumbling" 179
- (5) Quod numquam opinatus fui
"What I never dreamed would happen" 186
- (6) postquam id actum est
"This done (after this was done)" 227
- (7) cum pugnatum est
"while the fighting was going on" 249
- (8) certe advenientem hic me hospitio pugneo accepturus est
"He's going to give me a welcome on my arrival, he surely is - a fisty welcome!"
295
- (9) parum etiam, praeut futurum est, praedicas
"A mere nothing compared with what is coming" 375

- (10) quid Amphitruoni doni a Telobois datum est?
"What was Amphitryon presented with from the Teloboian spoils?" 418
- (11) elocutus est
"He's hit it!" 420
- (12) si forte oblitus fui
"If I did happen to forget it" 457
- (13) nunc tibi hanc pateram, quae dono mi illi ob virtutem data est
"Here is the bowl they presented me for bravery on the field" 533
- (14) Quia id quod neque est neque fuit neque futurum est mihi praedicas
"Because what you tell me is not so, never was so, never will be" 555
- (15) si id ita factum est
"if that was so" 572
- (16) satin hoc plane, satin diserte, ere, nunc videor tibi locutus esse?
"Don't I appear, master, to have told you quite distinctly, and quite circumstantially, that this is so." 578
- (17) uti quicque actum est
"just as it happened" 599
- (18) Quin intro ire in aedis numquam licitum est
"Why, sir, never a foot was I allowed to put in the house" 615
- (19) an te auspiciū commoratum est an tempestas continet
"Were you delayed by bad omens, or is it the weather detains you" 690
- (20) quam dudum istuc factum est?
"How little a while ago was that (done)?" 692
- (21) Equidem ecastor vigilo, et vigilans id quod factum est fabulor
"To be sure I am awake, and awake as I relate what happenend" 698

- (22) Numquam factum est
"Impossible" 699
- (23) Atra bili percita est
"bilious attack, sir, black bile" 730
- (24) qui hac noctu in portum advecti sumus
"when we reached port last night" 731
- (25) sed mulier postquam experrecta es
"but, ma'am, after you woke up, [...]" 739
- (26) Me quidem praesente numquam factum est, quod sciam
"You never did as far as I know, leastways with me at hand" 748
- (27) Obsecro, etiamne hoc negabis, te auream pateram mihi dāisse dono hodiā,
qua te illi donatum esse dixeras?
"Prithee, will you deny this too, that you to-day made me a present of a golden
goblet, with which you said that you had been presented?" 760
- (28) verum ita animatus fui
"But I did intend to" 762
- (29) Vnde haec igitur est nisi abs te quae mihi dono data est?
"Where did this come from, then, if not as a present from you" 790
- (30) Cena adposita est
"Dinner was served" 804
- (31) mensa ablata est
"the table was removed" 806
- (32) Quid ego tibi deliqui, si, cui nupta sum, tecum fui?
"In what have I offended you, if I have been with you to whom I am married?"
817
- (33) inimicos semper osa sum optuerier
"I always hate to look upon my enemies" 900

- (34) nisi etiam hoc falso dici insimulaturus es
"unless you intend to term this a lie, too" 901
- (35) patiunda sunt
"I can't complain" 944
- (36) quovis pacto fac commentus sis
"any device you please" 979
- (37) haec curata sint fac sis
"Kindly see that this is managed" 981
- (38) pariter hoc fit atque ut alia facta sunt
"quite in accord with the rest of it" 1018
- (39) Nisi hoc ita factum est, proinde ut factum esse autumo
"If this did not take place just as I state, you have every right to accuse me of
unchastity" 1034.9
- (40) Nisi hoc ita factum est, proinde ut factum esse autumo
"If this did not take place just as I state, you have every right to accuse me of
unchastity" 1034.9
- (41) nam iam ad regem recta me ducam resque ut facta est eloquar
"I'll go straight to the king this moment and tell him all as it happened" 1041
- (42) sed quid tu foras egressa es?
"but what made you come out?" 1078
- (43) utut erga me merita est
"no matter what her behaviour to me has been" 1100
- (44) simul hanc rem ut facta est eloquar
"and at the same time tell him all that's happened" 1128

CATO THE ELDER'S *DE AGRI CULTURA* (translations from Hooper 1934)
EXAMPLES WITH *ESSE* "BE"

- (45) qui in eo studio occupati sunt
"who are engaged in that pursuit" Pref 4
- (46) pabuli causa quae parata sunt
"purchases of fodder" 2 5
- (47) si oletum bonum beneque frequens cultumque erit
"if the trees are vigorous, thickly planted, and well cultivated" 3 5
- (48) Si passus erit
"if it is allowed" 5 2
- (49) Ager oleto conserundo, qui in ventum favonium spectabit et soli ostentus erit
"Land which is suitable for olive planting is that which faces the west and is exposed to the sun" 6 2
- (50) et materies, siquo opus sit, parata erit
"and the timber will be available if you need it" 6 3
- (51) Loco salubri bono domino haec quae supra pretia posita sunt
"The above prices are for a good owner, in a healthful situation" 14 5
- (52) ubi structum erit
"when completed" 18 7
- (53) Quom vinum coctum erit
"when the grapes have ripened" 25 1
- (54) si bene deacinata erunt
"if they have fermented well" 26 1
- (55) nam id maxime cavendum est
"for this is especially to be avoided" 28 1
- (56) ubi sementim factururus eris
"which you intend to plant" 30 1

- (57) Arbores facito uti bene maritae sint
"see that the trees are well wedded" 32 2
- (58) Hoc signi erit, ubi calx cocta erit, summos lapides coctos esse oportebit "The calcining of the stones at the top will show that the whole has calcined" 38 4
- (59) Hoc signi erit, ubi calx cocta erit, summos lapides coctos esse oportebit
"The calcining of the stones at the top will show that the whole has calcined" 38 4
- (60) Quem ramum insiturus eris
"the branch you are going to graft" 40 2
- (61) Sulcos, si locus aquosus erit, alveatos esse oportet
"Ditches, if the ground is swampy, should be dug trough-shaped" 43 1
- (62) quas in scrobe saturus eris tripedaneas
"for planting in trenches three feet long" 45 1
- (63) Quas in seminario saturus eris
"those which you intend to plant in the nursery" 45 1
- (64) ubi semina positurus eris
"into which you intend to transplant" 46 1
- (65) Ubi daps profanata comestaque erit
"As soon as the sacred feast has been offered and eaten" 50 2
- (66) Ubi vindemia facta erit
"when the vintage is done" 57 1
- (67) Si inquinata erit
"if they're dirty" 65 1
- (68) quam lecta erit
"after they've been gathered" 65 1

- (69) ubi nigra erit
"after they have turned black" 65 1
- (70) Ubi vindemia et oletas facta erit
"when the vintage and olive harvest are over" 68 1
- (71) Ubi tracta erunt
"when they are drawn off" 76 2
- (72) Ubi cocta erit
"when it is done" 76 4
- (73) donec omne caseum cum melle abusus eris
"until you have used up all the cheese and honey" 76 4
- (74) Ubi coctum erit
"when it is done" 81 1
- (75) Ubi res divina facta erit
"after the ceremony is over" 83 1
- (76) Ubi coctum erit
"when it is done" 84 1
- (77) Ubi res divina facta erit
"after the ceremony is over" 86 1
- (78) Ubi pressus erit
"after catching it" 90 1
- (79) cum bitumen et sulphur additum est
"when the mixture of bitumen and sulphur is added" 95 1
- (80) Oleum si in metretam novam inditurus eris
"if you intend to store oil in a new jar" 100 1
- (81) Biennium in sole sinito positum esse
"Let it stand for two years in the sun" 105 2

- (82) ut bene odorata sint
"so that they be well odorated" 107 1
- (83) et siqua acina corrupta erunt
"clear out any berries which have rotted" 112 2
- (84) Q. S. S. E.
"above-mentioned" 112 3
- (85) Siquid redemptoris opera domino damni datum erit
"Any damage done to the owner through the fault of the contractor" 115 3
- (86) Deinde, ubi satis maceratae erunt
"then, when they are macerated enough" 117 1
- (87) Cetera item condito ita, uti supra scriptum est
"for the rest, season them as stated above" 118 1
- (88) Canes interdiu clausos esse oportet
"Dogs should be chained up during the day" 124 1
- (89) Ubi iam passa erit
"when dried" 125 1
- (90) Ubi coaequata erit
"when it is levelled" 129 1
- (91) uti te strue ommovenda bonas preces bene precatus sum
"as I prayed humbly in offering thee cakes" 134 3
- (92) Ubi exta prosecta erunt
"when the entrails have been removed" 134 4
- (93) Cum tortus erit
"when twisted" 135 4
- (94) Ubi extentus erit
"when stretched" 135 4

- (95) ubi arvectum erit
"after it has been brought" 135 6
- (96) Si deus, si dea es, quouum illud sacrum est
"Whether thou be god or goddess to whom this grove is dedicated" 139 1
- (97) Mars pater, siquid tibi in illisce suovitautilibus lactentibus neque satisfactum est
"Father Mars, if aught hath not pleased thee in the offering of those sucklings"
141 4
- (98) Mars pater, quod tibi illoc porco neque satisfactum est
"Father Mars, inasmuch as thou wast not pleased by the offering of that pig" 141
4
- (99) Scalae ita uti datae erunt, ita reddito
"Ladders are to be returned in as good condition as when they were issued" 144
2
- (100) nisi quae vetustate fractae erunt
"except those which have been broken because of age" 144 2
- (101) Siquid redemptoris opera domino damni datum erit
"Whatever damage is done the owner through the fault of the contractor" 144 3
- (102) quanti conductum erit aut locatum erit
"the cost of hiring or contracting" 144 3
- (103) Si operarii conducti erunt aut facienda locata erit
"If labourers are hired, or the work has to be sublet" 145 1
- (104) Si operarii conducti erunt aut facienda locata erit
"If labourers are hired, or the work has to be sublet" 145 1
- (105) quae in fundo inlata erunt
"which things have been brought to the place" 146 2
- (106) nisi quae vetustate fracta erunt
"except articles broken because of age" 146 2

- (107) Dies argento ex K. Nov. mensum X oleae legendae faciendae quae locata est
"Date of payment: within ten months from the first of November he will pay the
contract price for gathering and working up the olives" 146 2
- (108) uti S. S. E.
"as described above" 146 2
- (109) Donicum solutum erit aut ita satis datum erit
"Until payment is made, or such security has been given" 146 2
- (110) siquid et aliut datum erit
"whatever else has been furnished" 146 2
- (111) vinum pro degustato erit
"it will be considered tasted" 148 1
- (112) Quod admensus erit
"what has been measured" 148 2
- (113) Ubi areae factae erunt
"after the beds are formed" 151 3
- (114) Per aestatem ita uti dictum est fieri oportet
"This procedure should be continued as stated throughout the summer." 151 4
- (115) Qui poturus erit
"when this is to be drunk" 156 3
- (116) Ubi macerata erit
"when it has become soft" 156 5
- (117) ad curationem validior quam quae supra scripta est
"and has stronger medicinal properties than the above-mentioned variety" 157 2
- (118) Et siquid contusum est, erumpet
"A contusion will burst" 157 4

- (119) Qui hac purgatione purgatus erit
"The following is the method of purging by this treatment" 157 13
- (120) Qui sic purgatus erit
"one so purged" 157 13
- (121) Ex iis tot rebus quod scriptum est unum
"Any one of the many ingredients mentioned above" 158 2
- (122) in quo loco posturus eris
"to which you are to transplant it" 161 3

EXAMPLES WITH *HABERE* "HAVE"

- (123) Id in suggestu inter dolia positum habeto
"Keep it on the elevation among the jars" 154 1

APPENDIX F
GOTHIC CORPUS

The data and translations here are from Katz (2019). These examples constitute the remainder of my Gothic auxiliary corpus. Many of these examples do not show PA# word order, but they match the word order of the original Greek, and are therefore not useful for determining the nature of Gothic syntax; the examples discussed in Chapter 2 are the ones where the Gothic word order diverges from the Greek *and* does not show the expected PA word order. The Greek has been provided here for ease of comparison.

- (1) hausideduþ þatei qiþan ist þaim airizam: ni maurþrjais;
e:koúsate hótí errét^he: toĩs ark^haíois, ou p^honeúseis:
"you heard that (it) is/has been said to those ancients, do not kill;" Matthew 5:21
- (2) hausideduþ þatei qiþan ist: ni horinos.
e:koúsate hótí errét^he:, ou moik^heúseis.
"you heard that (it) is/has been said: do not commit-adultery" Matthew 5:27
- (3) aftra hausideduþ þatei qiþan ist þaim airizam: ni ufarswarais,
pálin e:koúsate hótí errét^he: toĩs ark^haíois, ouk epiorké:seis,
"Again you heard that (it) is/has been said to those ancients: do not falsely-swear." Matthew 5:33
- (4) hausideduþ þatei qiþan ist: augo und augin, jah tunþu und tunþau.
e:koúsate hótí errét^he:, op^ht^halmòn antì op^ht^halmoĩ kai odónta antì odóntos.
"you heard that (it) is/has been said: an eye unto an eye, and a tooth unto a tooth." Matthew 5:38
- (5) hausideduþ þatei qiþan ist: frijos nehvundjan þeinana, jah fiais fiand þeinana.
e:koúsate hótí errét^he:, agapé:seis tòn plei:sión sou kai misé:seis tòn ek^ht^hrón sou.
"you heard that (it) is/has been said: love your neighbor, and hate your enemy."
Matthew 5:43

- (6) jah atiddja dalap rign jah qemun alvos jah waiwoun windos jah bistugqun bi pamma razna jainamma, jah ni gadraus, unte gasuliþ was ana staina.

kaì katébe: he: brok^hé: kaì ē:lt^hon hoi potamoì kaì épneusan hoi ánemoi kaì prosépesan tē:i oikíai ekeíne:i, kaì ouk épesen, tet^hemelío:to gàr epì té:n pétran.

"and came down the rain and came the floods and the blew the winds and they beat about that house, and (it) did not fall, for (it) was/had been built upon stone." Matthew 7:25

- (7) gasailvands þan þos manageins infeinoda in ize, unte wesun afdauidai jah frawurpanai swe lamba ni habandona hairdeis.

idō:n dē toūs ók^hlous esplag^hníst^he: perì autō:n hóti ē:san eskulménoi kaì errimménoi ho:seì próbata mé: ék^honta poiména.

"seeing then the multitudes, he became compassionate on them, because they were/had been harassed and scattered abroad as sheep not having shepherds." Matthew 9:36

- (8) sai, þaiei hnasqjaim wasidai sind, in gardim þiudane sind.

Idoú, hoi tà malakà p^horoúntes en toīs oíkois tō:n basileío:n eisín.

"Behold, those-who are/have been dressed in soft-clothes are in the houses of kings." Matthew 11:8

- (9) sa ist auk bi þanei gameliþ ist

hoūtos gár estin perì hoū gégraptai,

"For this is he about whom (it) is/has been written" Matthew 11:10

- (10) jah miþþanei wrohips was fram þaim gudjam jah sinistam, ni waiht andhof.

kaì en tō:i kate:goreĩst^hai autōn hupò tō:n ark^hieréo:n kaì tō:n presbutéro:n, oudèn apekrí-nato.

"And when he was/had been accused by the chief priests and elders, not a thing he answered." Matthew 27:12

- (11) iþ afar þatei atgibans warþ Iohannes, qam Iesus in Galeilaia merjands ai-waggeljon þiudangardjos gudis,

<kaì> Metà dè tò paradot^hē:nai tòn Io:ánne:n/Io:áne:n, ē:lt^hen ho Ie:soūs eis té:n alilaían, ke:rússō:n tò euaggélion tēs basileías toũ t^heoũ,

"But after that (time when) John became given-up, came Jesus into Galilee, preaching the gospel of the kingdom of God." Mark 1:14

- (12) jah qap þaim siponjam seinaim ei skip habaiþ wesi at imma in þizos manageins, ei ni þraiheina ina.

kaì eĩpen toĩs mat^hē:taĩs autoũ hína ploiáron proskarterē:i autō:i dià tòn ók^hlon hína mé: t^hlíbo:sin autón:

"And he spoke to his disciples such that a ship was/had been held-up for him on- account-of (in) the multitude, that they should not throng him." Mark 3:9

- (13) þatei usgaisiþs ist

élegon gàr hóti ekséste:

"that he is out of his mind" Mark 3:21

- (14) jah fairgraip bi handau þata barn qapuh du izai: taleiþa kumei, þatei ist gaskeiriþ: mawilo, du þus qiþa: urreis.

kaì kraté:sas tēs k^heiròs toũ paidíou légei autē:i, talit^ha koum, hó estin met^herme:neuómenon tò korásion, soì légo:, égeire.

"And he took by the hand that child and said to her, talitha cumi; which is/has been interpreted, maiden, to you I say: arise." Mark 5:41

- (15) goþ ist imma mais ei galagjaidau asiluqairnus ana halsaggan is jah frawaurpans wesi in marein.

kalón estin autō:i mállon ei períkeitai lí^hos mulikòs/<múlos onikòs> perì tòn trák^he:lon autoũ kaì béble:tai eis té:n t^hálassan

"good is (it) for him moreso that should be laid a millstone on his neck and he should have been thrown into the sea." Mark 9:42

- (16) iþ þata du sitan af taihswon meinai aiþþau af hleidumein nist mein du giban, alja þaimei manwiþ was.

tò dè kat^hísai ek deksiō:n mou è: <kaì> eks euo:númo:n ouk éstin emòn doũnai, all' hoĩs

he:toímastai.

"But that to sit upon my right-hand or upon my left-hand not-is mine to give, except for those (whom it) was/had been prepared." Mark 10:40

- (17) iþ Peilatus wiljands þizai managein fullafahjan, fralailot im þana Barabban, iþ Iesu atgaf usbliggwands, ei ushramiþs wesi.

Ho dè pilátos <peilátos> boulómenos tōi ók^hloi tò hikanòn poiēsai, apélusen autoís tòn Barabbān • kai parédo:ken tòn Ie:soŷn, p^hragellósas, hína stauro:t^hēi.

"And Pilate, wanting the multitude to satisfy, released to them that Barabbas, but Jesus he gave-over, upon scourging him, that he should be/have been crucified." Mark 15:15

- (18) jah usbugjands lein jah usnimands ita biwand þamma leina jah galagida ita in hlaiwa, þatei was gadraban us staina,

kai agorásas sindóna, kai kat^helò:n autón, eneile:sen tēi sindóni, kai katét^he:ken autòn en mne:meíoi, hò ē:n lelatome:ménon ek pétras

"And buying linen and taking down it the body, he wound it in that linen and laid it in a tomb, which was/had been hewn out of the stone," Mark 15:46

- (19) iþ Marja so Magdalene jah Marja Iosezis sehun hvar galagiþs wesi.

He: dè María he: Magdale:né: kai María Io:sē: <Io:sē:tos> et^heó:roun poŷ tít^hetai.

"And Mary the Magdalene and Mary of Joses saw where he would have been laid." Mark 15:47

- (20) jah attauhun ina ana Gaulgaupa staþ, þatei ist gaskeiriþ hvairneins staþs.

kai p^hérousin autòn epì tòν golgot^hān tópon, hó estin met^herme:neuómenon kraníou tópos.

"And they brought him to Golgoltha-place, that which is/has been interpreted: the place of the skull." Mark 15:22

- (21) jah niundon hveilai wopida Iesus stibnai mikilai qiþands: ailoe ailoe, lima sibakþanei, þatei ist gaskeiriþ: guþ meins, guþ meins, duve mis bilaist?

kai tēi enáte:i hó:rai <tēi hó:rai tēi enáte:i> ebóe:sen ho ie:soŷs p^ho:nē:i megálexi, eloxi

eloi: lema sabak^ht^hani; hó estin met^herme:neuómenon ho t^heós mou ho t^heós mou, eis tí egkatélipés me;

"And at the ninth hour cried Jesus with a great voice, saying, eloi, eloi, lima sibakthanei, that is/has been interpreted: My God, My God, why did you forsake me?" Mark 15:34

- (22) jah insailvandeins gaumidedun þammei afwalwiþs ist sa stains

kaì anablépsasai t^heo:roûsin hóti apokekúlistai ho lî^hos

"And upon looking, they saw that had been rolled away the stone" Mark 16:4

- (23) jah eis hausjandans þatei libaiþ jah gasailvans warþ fram izai, ni galaubidedun.

kakeĩnoi akoúsantes hóti zē:i kaì et^heát^he: hup' autē:s e:píste:san.

"and they, hearing that he lives and became/had been seen by her, did not believe." Mark 16:11

- (24) ei gakunnais þize bi þoei galaisiþs is waurde [a]stap.

hína epignō:is perì hō:n kate:k^hé:t^he:s lógo:n té:n asp^háleian.

"That you might learn of these (things) by that which you are/have been taught the certainty of things." Luke 1:4

- (25) qap þan du imma sa aggilus: ni ogs þus, Zakaria, duþe ei andhausida ist bida þeina,

eĩpen dē pròs autòn ho ággelos, mé: p^hoboũ, zak^haríá, dióti eise:koúst^he: he: dée:sís sou,

"Said then to him the angel: do not fear, Zachariah, because is/has been heard your prayer." Luke 1:13

- (26) jah iddjedun allai, ei melidai weseina, hvarjizuh in seinai baurg.

kaì eporeúonto pántes apográp^hest^hai, hékastos eis té:n idían </heautoũ> pólin.

"And they went all, that they should have been enrolled, each in his city." Luke 2:3

- (27) þatei gabaurans ist izwis himma daga nasjands, saei ist Xristus frauja, in baurg Daweidis.

hóti eték^ht^he: humĩn sé:meron so:tér hós estin k^hristòs kúrios en pólei dauíd:

"That is/has been born to you. P on this day a savior, who is Christ the lord, in the city of David." Luke 2:11

- (28) gasailvandans þan gakannidedun bi þata waurd þatei rodip was du im bi þata barn.

idóntes dè <die>egnó:risan perì toũ hré:matos toũ lale:t^héntos autoĩs perì toũ paidíou toútou.

"Upon seeing (it), they made-widely-known about that news which was/had been told to them about that child." Luke 2:17

- (29) jah biþe usfulnodedun dagos ahtau du bimaitan ina, jah haitan was namo is Iesus, þata qipano fram aggilau faurþizei ganumans wesi in wamba.

kaì hóte eplé:st^he:san he:mérai oktò: toũ peritemeĩn autón <tò paidíon>, kaì eklé:t^he: tò ónoma autoũ ie:soũs, tò kle:t^hèn hupò toũ aggélou prò toũ sulle:mp^ht^hē:nai autòn en tē:i koíliai.

"And when became fulfilled eight days for circumcising him, then was he called his name Jesus, that which was spoken by the angel before he was/had been conceived in the womb." Luke 2:21

- (30) jah was Iosef jah aiþei is sildaleikjandona ana þaim þoei rodida wesun bi ina.

kaì ē:n Io:sé:p^h <patér autoũ> kaì he: mé:te:r autoũ t^haumázontes epì toĩs lalouménouis perì autoũ

"And was Joseph and his mother marveling at those things that were/had been spoken about him." Luke 2:33

- (31) ni waiht ufar þatei garaid sijai izwis, lausjaip

me:dèn pléon parà tò diatetagménon humĩn prássete

"nothing over that which is/has been appointed to you, collect." Luke 3:13

- (32) unte mis atgiban ist

hóti emoĩ paradédotai

"for to me (it) has been given" Luke 4:6

- (33) jah andhafjands qap imma Iesus þatei qipan ist
kaì apokrit^h eis eĩpen autō:i ho ie:soũs hóti eĩre:tai
 "And answering said to him, Jesus, that it has been said" Luke 4:12
- (34) jah qam in Nazaraip, þarei was fodips,
kaì ē:lt^hen eis <té:n> nazará, hoũ ē:n tet^hramménos,
 "And he came to Nazareth, where he had been fostered," Luke 4:16
- (35) jah atgibanos wesun imma bokos Eisaeiins praufetus, jah uslukands þos bokos
 bigat stad, þarei was gamelid:
*kaì epedót^he: autō:i biblión E:saíou toũ prop^hétou <toũ prop^hétou E:saíou>. kaì anap-
 túksas tò biblión, heũren tòn tópon hoũ ē:n gegramménon,*
 "And were/had been given to him a scroll of Esaias the prophet, and opening
 the scroll he found the place where it was/had been written:" Luke 4:17
- (36) jah atgibanos wesun imma bokos Eisaeiins praufetus, jah uslukands þos bokos
 bigat stad, þarei was gamelid:
*kaì epedót^he: autō:i biblión E:saíou toũ prop^hétou <toũ prop^hétou E:saíou>. kaì anap-
 túksas tò biblión, heũren tòn tópon hoũ ē:n gegramménon,*
 "And were/had been given to him a scroll of Esaias the prophet, and opening
 the scroll he found the place where (it) was/had been written:" Luke 4:17
- (37) jah usstandans uskusun imma ut us baurg jah brahtedun ina und auhmisto þis
 fairgunjis ana þammei so baurgs ize gatimrida was, du afdrausjan ina þapro.
*kaì anastántes eksébalon autòn ékso: tē:s póleo:s, kaì é:gon autòn héo:s op^hríos toũ
 órous ep^h' hoũ he: pólis autō:n o:ikodóme:to <o:ikodóme:to autō:n >, eis tò <hó:ste>
 katakre:mnísai autón.*
 "And standing-up, they threw him out of the city and they brought him up-to
 the peak of that hill on which the city of theirs was/had been built, in order to
 cast him down therefrom." Luke 4:29
- (38) jah warþ in ainamma dage, jah is was laisjands. jah wesun sitandans Fareisaieis
 jah witodalaisarjos, þaiei wesun gaqumanai us allamma haimo Galeilaia jah Iu-

daias jah Iairusaulwmon;

*kaì egéneto en miãì tō:n he:merō:n kaì autōs ē:n didásko:n, kaì ē:san kat^hé:menoi
p^harisaíoi kaì nomodidáskaloì hoì ē:san ele:lut^hótes ek páse:s kó:me:s tē:s galilaías kaì
ioudaías kaì ierousalé:m:*

"And it came to pass on a certain day, as he was teaching, that they were sitting-
by Pharisees and law-doctors, those who were/had come of all of the towns of
Galilee and Judea and Jerusalem;" Luke 5:17

- (39) jah qinons þozei wesun galeikinodos ahmane ubilaize jah sauhte, jah Marja sei
haitana was Magdalene, us þizaiei usiddjedun unhulþons sibun,

*kaì gunaĩkēs tines haì ē:san tet^herapeuménai apō pneumáto:n pone:rō:n kaì ast^heneiō:n,
maría he: kalouméne: magdale:né:, ap^h' hē:s daimónia heptà eksele:lút^hei,*

"And women who were/had been healed of evil spirits and infirmities, and
Mary who was/had been called Magdalene, out of whom went-out seven dev-
ils." Luke 8:2

- (40) jah qinons þozei wesun galeikinodos ahmane ubilaize jah sauhte, jah Marja sei
haitana was Magdalene, us þizaiei usiddjedun unhulþons sibun,

*kaì gunaĩkēs tines haì ē:san tet^herapeuménai apō pneumáto:n pone:rō:n kaì ast^heneiō:n,
maría he: kalouméne: magdale:né:, ap^h' hē:s daimónia heptà eksele:lút^hei,*

"And women who were/had been healed of evil spirits and infirmities, and
Mary who was/had been called Magdalene, out of whom went-out seven dev-
ils." Luke 8:2

- (41) usgaggandin þan imma ana airþa, gamotida imma wair sums us baurg saei
habaida unhulþons mela lagga jah wastjom ni gawasip̃s was jah in garda ni
gawas, ak in hlaiwasnom.

^{NA27}*eksel^thónti dē autō:i epì té:n gē:n hupé:nte:sen anér tis ek tēs póleo:s ék^ho:n daimó-
nia: kaì k^hróno:i hikanō:i ouk enedúsato himátion, kaì en oikíai ouk émenen all' en toĩs
mné:masin.*

^{BYZ}*Eksel^thónti dē autō:i epì té:n gē:n, hupé:nte:sen autō:i anér tis ek tēs póleo:s, hòs*

eí^hen daimónia ek k^hróno:n hikanō:n, kai himátion ouk enedidúsketo, kai en oikíai ouk émenen, all' en toīs mné:masin.

"Going-out then he into the land, met him a certain man who had had demons for a long time and by clothes he not was/had been clothed and in a house did not dwell, but in tombs." Luke 8:27

- (42) jah bedun ina allai gaujans þize Gaddarene galeiþan fairra sis, unte agisa mikil-amma dishabaidai wesun.

kai e:ró:te:sen autòn hápan tò plē:t^hos tēs perik^hó:rou tō:n gerasē:nō:n apelt^heĩn ap' autō:n, hótí p^hóbo:i megálo:i suneí^honto:

"And they sought him all the regions of the Gadarenes to gather-round from far-away, for by great fear they were/had been taken." Luke 8:37

- (43) iþ faginod in þammei namna izwara gamelida sind in himinam.

NA27 k^haírete dè hótí tà onómata humō:n eggégraptai en toīs ouranoīs.

BYZ k^haírete dè hótí tà onómata humō:n egráp^he: en toīs ouranoīs.

"but rejoice in the-fact-that the names of you are/have been written in heaven."
Luke 10:20

- (44) unte sa sunus meins dauþs was jah gagiunoda, jah fralusans was jah bigitans warþ;

hótí hoũtos ho huiós mou nekròs ē:n, kai anéze:sen • kai apolo:lò:s ē:n <ē:n apolo:lò:s>, kai heurét^he:.

"For my son was dead and became alive, and was/had been lost and became found;" Luke 15:24

- (45) unte sa sunus meins dauþs was jah gagiunoda, jah fralusans was jah bigitans warþ;

hótí hoũtos ho huiós mou nekròs ē:n, kai anéze:sen • kai apolo:lò:s ē:n <ē:n apolo:lò:s>, kai heurét^he:.

"For my son was dead and became alive, and was/had been lost and became found;" Luke 15:24

- (46) waila wisan jah faginon skuld was, unte broþar þeins dauþs was jah gagiunoda, jah fralusans jah bigitans warþ.

eup^hrant^hē:nai dè kai k^harē:nai édei, hóti ho adelph^hós sou hoũtos nekròs ē:n kai <an>éze:sen, kai apolo:lò:s <ē:n> kai heurét^he:.

"To be well and to rejoice it was right (skuld was), for your brother was dead and became alive, and was/had been lost and became found." Luke 15:32

- (47) iba þank þu fairhaitis skalka jainamma, unte gatawida þatei anabudan was?

Mé: k^hárin ék^hei tō:i doúlo:i ekeíno:i hóti epoíe:sen tà diatak^ht^hénta;

"Do you thank that servant, because he did that which was/had been commanded?" Luke 17:9

- (48) jah gaumjands qap du im: gaggandans ataugeiþ izwis gudjam. jah warþ, miþþanei galipun, gahrainidai waurþun.

kai idò:n eĩpen autoĩs, poreut^héntes epideĩksate heautoũs toĩs hierēũsin. kai egéneto en tō:i hupágein autoũs ekat^haríst^he:san.

"And seeing (them), he said to them: (upon) going, show yourselves to the priests. And it-came-to-pass, while they went, they became cleansed." Luke 17:14

- (49) unte meinata mel ni nauh usfulliþ ist

hóti ho emòs kairòs oúpo: peplé:ro:tai

"but I will not yet go to the feast, for my time has not yet been fulfilled." John 7:8

- (50) þatuh þan qap bi ahman þanei skuldedun niman þai galaubjandans du imma; unte ni nauhþanuh was ahma sa weiha ana im, unte Iesus nauhþanuh ni hauhiþs was.

Toũto dè eĩpen perì toũ pneúmatos hoũ émellon lambánein hoi pisteúontes eis autón• oúpo: gàr ē:n pneũma hágion, hóti Ie:soũs oudépo: edoksást^he:.

"But indeed he spoke about the spirit which they should receive, those believing in him, for not yet was the holy spirit upon them, for Jesus not yet was/had been glorified." John 7:39

- (51) þaruh frehun ina siponjos is qīþandans: rabbei, hvaṣ frawaurhta, sau þau fadrein is, ei blinds gabaurans warþ?

kaì e:ró:te:san autòn hoi mat^he:taì autoũ légonτες, hrabbí, tís hé:marten, hoũtos è: hoi goneĩs autoũ, hína tup^hlòs genne:t^hē:i;

"And then they asked him his disciples, saying: teacher, who sinned? Even him or his parents, that he became born blind?" John 9:2

- (52) jah frehun ins qīþandans: sau ist sa sunus izwar þanei jus qīþiþ þatei blinds gabaurans waurþi? huiwa nu sailviþ?

kaì e:ró:te:san autoũs légonτες, hoũtós estin ho huiòs humō:n, hòn humeĩs légete hóti tup^hlòs egenné:t^he:; pō:s oũn árti blépei;

"And they asked them saying, and is this that son of yours.PL who you say that blind was born? How now does he see?" John 9:19

- (53) andhofun þan im þai fadrein is jah qeþun: witum þatei sa ist sunus unsar, jah þatei blinds gabaurans warþ;

Apekrit^he:san dè autoĩs <oũn> hoi goneĩs autoũ kaì eípon, oídamen hóti hoũtós estin ho huiòs he:mō:n, kaì hóti tup^hlòs egenné:t^he:

"They answered then to them, those parents of him, and said: we know that this is our son, and that blind he was born." John 9:20

- (54) þatup þan ni kunþedun siponjos is frumist; ak biþe gasweraipṣ was Iesus, þaruh gamundedun þatei þata was du þamma gameliþ,

Taũta dè ouk éгно:san hoi mat^he:taì autoũ tò prō:ton• all' hôte edoksást^he: Ie:soũs, tóte emné:st^he:san hóti taũta ē:n ep' autō:i gegramména,

"Those (things) then understood not his disciples at first: but when was/had been glorified Jesus, then they remembered that which was/had been written about him," John 12:16

- (55) þatup þan ni kunþedun siponjos is frumist; ak biþe gasweraipṣ was Iesus, þaruh gamundedun þatei þata was du þamma gameliþ,

Taũta dè ouk éгно:san hoi mat^he:taì autoũ tò prō:ton• all' hôte edoksást^he: Ie:soũs, tóte

emné:st^he:saⁿ hóti taūta ē:n ep' autō:i gegramména,

"Those (things) then understood not his disciples at first: but when was/had been glorified Jesus, then they remembered that which was/had been written about him," John 12:16

- (56) ni bi allans izwis qipa. ik wait hvarjans gawalida; ak ei usfullip waurpi pata gamelido: saei matida miþ mis hlaib, ushof ana mik fairzna seina.

ou perì pánto:n humō:n légo:• egò: o ída hoùs </tinas> ekseleksáme:n• all' hína he: grap^hé: ple:ro:t^hē:i, Ho tró:go:n met' emoũ </mou> tòn árton epē:ren ep' emè té:n ptér-nan autoũ.

"I do not about all of you. P speak, I know whom I chose; but that might have become fulfilled that scripture: he who ate with me bread, lifted-up against me his heel." John 13:18

- (57) iþ bi staua, þatei sa reiks þis fairhvaus afdomiþs warþ.

perì dè kríseo:s, hóti ho ár^kh^o:n toũ kósmou toútou kékritai.

"But according to judgment, that which the prince of this world was/became judged." John 16:11

- (58) unte gabaurans warþ manna in fairhvau.

hóti egenné:t^he: ánt^hro:pos eis tòn kósmon

"since became born a person into the world" John 16:21

- (59) iþ biþe gabauran ist barn, ni þanaseiþs ni gaman þizos aglons faura fahedai, unte gabaurans warþ manna in fairhvau.

hótan dè genné:sei: tò paidíon, oukéti mne:moneúei tē:s t^hlípseo:s dià té:n k^haràn hóti egenné:t^he: ánt^hro:pos eis tòn kósmon.

"but when the child is/has been born (she) no longer remembers those pains on-account-of the joy, since became born a person into the world." John 16:21

- (60) ei faheþs izwara sijai usfullida

hína he: k^harà humō:n ē:i peple:ro:méne:

"that your joy may be/come to have been fulfilled" John 16:24

- (61) þan was miþ im in þamma fairhvau, ik fastaida ins in namin þeinamma. þanzei atgaft mis gafastaida, jah ainshun us im ni fraqistnoda, niba sa sunus fralustais, ei þata gamelido usfulliþ waurþi.

Hôte é:me:n met' autō:n en tō:i kósμο:i, egò: eté:roun autoùs en tō:i onómatí sou • hoùs </hō:i> dédo:kás moi, <kaì> ep^húlaksa, kaì oudeìs eks autō:n apó:leto, ei mé: ho huiðs tē:s apo:leías, hína he: grap^hé: ple:ro:t^hē:i.

"While I was with them in the world, I kept them in your name, those whom you gave me, I kept, and not one out of them became destroyed, if-not the son of destruction, that that which was written might have become fulfilled." John 17:12

- (62) ei sijaina ustauhanai du ainamma

hína õ:sin teteleio:ménoi eis hén

"that they may be / come to have been perfected in one (people)" John 17:23

- (63) andhof Iesus: þiudangardi meina nist us þamma fairhvau; iþ us þamma fairhvau wesi meina þiudangardi, aiþþau andbahtos meinai usdaudidedeina, ei ni galewiþs wesjau Iudaium.

apekrít^he: ie:soûs, he: basileía he: emé: ouk éstin ek toû kósmou toútou: ei ek toû kósmou toútou ē:n he: basileía he: emé:, hoi hupe:rétai hoi emoì e:go:nízonto <án>, hína mé: paradot^hō: toîs ioudaíois:

"Answered Jesus: my kingdom is not of this world; if of this world might have been my kingdom, then my servants would fight, that I might not have been delivered to the Jews." John 18:36

- (64) iþ nu, sai, andbundanai waurþum af witoda, gadauþnandans in þammei ga-habaidai wesum, swaei skalkinoma in niuþpai ahmins jah ni fairniþai bokus.

nunì dè kate:rgé:t^he:men apò toû nóμου, apot^hanóntes en hō:i kateik^hómet^ha, hós:te douleúein he:mās en kainóte:ti pneúματος kaì ou palaióte:ti grámmatos.

"But now, behold, we are delivered from the law, having become dead in that which we were/had been held; so that we may serve in newness of spirit and not in the oldness of the letter" Romans 7:6

- (65) þata nu þiuþeigo warþ mis dauþus? nis sijai! ak frawaurhts ei uskunþa waurþi frawaurhts, þairh þata þiuþeigo mis gawaurkjandei dauþu,

Tò oũn agat^hòn emoì gégonen </egéneto> t^hánatos; Mé: génoito. Allà he: hamartía, hína p^hanē:i hamartía, dià toũ agat^hoũ moi katergazoméne: t^hánaton.

"Now did that which is good become to me death? Let it never be! But sin that might become shown to be sin, by that which is good to me working-out death,"
Romans 7:13

- (66) nih waiht auk mis silbin miþwait; akei ni in þamma garaihtips im, iþ saei ussokeiþ mik, frauja ist.

oudèn gàr emautō:i súnoida, all' ouk en toúto:i dedikaío:mai, ho dè anakríno:n me kúriós estin.

"For I am-aware-of nothing against myself, yet not in that have I been justified, but he who judges me is the lord." Corinthians I 4:4

- (67) ei in ugkis ganimaiþ ni ufar þatei gameliþ ist frapjan

hína en he:mĩn mát^he:te tò mé: hupèr hò gégraptai p^hroneĩn

"that in us-two you may learn not to think beyond that which has been written"
Corinthians I 4:6

- (68) iþ nu, sai, andbundanai waurþum af witoda, gadauþnandans in þammei ga-habaidai wesum, swaei skalkinoma in niuiþpai ahmins jah ni fairniþpai bokus.

nunì dè kate:rgé:t^he:men apò toũ nómu, apot^hanóntes en hō:i kateik^hómet^ha, hó:ste douleúein he:mās en kainóte:ti pneúmatos kai ou palaióte:ti grámmatos.

"But now, behold, we are delivered from the law, having become dead in that which we were/had been held; so that we may serve in newness of spirit and not in the oldness of the letter" Romans 7:6

- (69) hvarjizuh in laþonai þizaiei laþoþs was, in þizai sijai.

hékastos en tē:i klé:sei hē:i eklé:t^he: en taúte:i menéto:.

"Each in the the calling in which he was/had been called, in this let him abide."
Corinthians 1 7:20

- (70) saei auk in frauĵin haitans ist skalks, fralets frauĵins ist; samaleiko saei freis haitada, skalks ist Xristaus.

ho gār en kurío:i kle:t^heis doũlos apeleút^heros kuríou estín• homoío:s ho eleút^heros kle:t^heis doũlós estin K^hristoũ.

"For he who in the lord is/has been called being a slave, a freed-man of the lord is; likewise he who is called free, a slave is of Christ." Corinthians I 7:22

- (71) ĥvarĵizuh in þammei atlaþops was, broþrjus, in þamma gastandai at guda.

hékastos en hō:i eklé:t^he:, adelph^hoí, en tou̐to:i menéto: parà t^heō:i.

"Each in that which he was/had been called, brothers, in that let him abide with God." Corinthians I 7:24

- (72) unte ik andnam at frauĵin þatei jah anafalh izwis, þatei frauja Iesus in þizaiei naht galewiþs was, nam hlaif

egò: gār parélabon apò toũ kuríou, hò kai parédo:ka humĩn, hóti ho kúrios ie:soũs en tē:i nuktì hē:i paredídeto élaben árton

"For I received from the lord that which also I delivered to you, that which the lord Jesus in that night which he was/had been betrayed, took bread." Corinthians I 11:23

- (73) jaþ þatei ganawistroþs was, jaþ þatei urrais þridĵin daga afar bokom

kai hóti etáp^he:• kai hóti egé:gertai tē:i tríte:i he:mérai <tē:i he:mérai tē:i tríte:i> katà tàs grap^hás

"And that he was/had been buried, and that he rose on the third day according to the scriptures" Corinthians I 15:4

- (74) jaþ þatei ataugids ist Kefin, jah afar þata þaim ainlibim;

kai hóti á;d'p^ht^he: ke:p^hāi, eĩta toĩs dó:deka:

"And that he is/has been seen by Cephas, and after that by the twelve;" Corinthians I 15:5

- (75) ^Bunte ni wileima izwis unweisans, broþrjus, bi aglon unsara þo waurþanon uns in Asiai, unte ufarassau kauridai wesum ufar maht, swaswe skamaidedeina uns

jah liban.

^A...swaswe afswaggwidai weseima jal liban.

*ou gâr t^hélomen humās agnoeīn, adelph^hoi, hupèr tēs t^hlípseo:s he:mō:n tēs genoméne:s
he:mīn en tē:i Asíai, hóti kat^h' huperbolé:n ebaré:t^he:men hupèr dúnamin <hupèr dú-
namin ebaré:t^he:men>, hó:ste eksapore:t^hē:nai he:mās kai toũ zē:in.*

"^BFor we would not want you ignorant, brothers, about our trouble that befell us in Asia, for excessively we were/had been weighed-down beyond (our) power, so that we might have despaired even to live." Corinthians II 1:8

^A...so that we might have been resolve-shaken, even to live." Corinthians II 1:8

- (76) ^Bunte ni wileima izwis unweisans, broþrjus, bi aglon unsara þo waurþanon uns in Asíai, unte ufarassau kauridai wesum ufar maht, swaswe skamaidedeina uns jah liban.

^A...swaswe afswaggwidai weseima jal liban.

*ou gâr t^hélomen humās agnoeīn, adelph^hoi, hupèr tēs t^hlípseo:s he:mō:n tēs genoméne:s
he:mīn en tē:i Asíai, hóti kat^h' huperbolé:n ebaré:t^he:men hupèr dúnamin <hupèr dú-
namin ebaré:t^he:men>, hó:ste eksapore:t^hē:nai he:mās kai toũ zē:in.*

"^BFor we would not want you ignorant, brothers, about our trouble that befell us in Asia, for excessively we were/had been weighed-down beyond (our) power, so that we might have despaired even to live." Corinthians II 1:8

^A...so that we might have been resolve-shaken, even to live." Corinthians II 1:8

- (77) aþþan ni þatainei in quma is, ak jah in gaþlaihtai, þizaiei gaþrafstips was ana izwis,

*ou mónon dè en tē:i parousíai autoũ allà kai en tē:i paraklé:sei hē:i pareklé:t^he: ep^h'
humīn,*

"but not only in his coming, but also in (his) consolation, by which he was/had been comforted in you" Corinthians II 7:7

- (78) ^Anu fagino, ni unte gauridai wesuþ, ak unte gauridai wesuþ du idreigai; saurgaideduþ auk bi guþ, ei waihtai ni gasleipjaindau us unsis.

^Bnu fagino, ni unte gauridai wesuþ, ak unte gauridai wesuþ du idreigai; saurgaideduþ auk bi guþ, ei in waihtai ni gasleiþjaindau us unsis.

nūn k^háiro:, ouk^h hótí elupé:t^he:te, all' hótí elupé:t^he:te eis metánoian: elupé:t^he:te gār katà t^heón, hína en me:denì ze:mio:t^hē:te eks he:mō:n.

"Now I rejoice, not because you were/had been grieved, but because you were/had been grieved to repentance; for you grieved on account of God, that you in nothing might be injured by us." Corinthians II 7:9

- (79) unte analveilaiþs warþ ahma is fram allaim izwis

hótí anapépautai tò pneūma autoū apò pánto:n humō:n

"because became refreshed his spirit by you all." Corinthians II 7:13

- (80) ^Ainuþ þis gaþrafstidai sijum; aþþan ana gaþrafsteinai unsarai filaus mais fagin-odedum ana fahedai Teitaus, unte analveilaiþs warþ ahma is fram allaim izwis.

^Binuh þis gaþrafstidai sium; aþþan ana gaþrafsteinai unsarai filaus mais fagin-odedum ana fahedai Teitaus, unte analveilaiþs warþ ahma is fram allaim izwis.

dià toūto parakeklé:met^ha. epì dè tē:i paraklé:sei he:mō:n perissotéro:s mǎllon ek^háre:men epì tē:i k^harāi títou, hótí anapépautai tò pneūma autoū apò pánto:n humō:n:

"Through this we are/have been comforted; but still upon our comfort all-the-more we became joyful for sake of the joy of Titus, because became refreshed his spirit by you all." Corinthians II 7:13

- (81) unte jabai hva imma fram izwis hvailvop, ni gaaiwiskoþs warþ;

hótí eí ti autō:i hupèr humō:n kekaúk^he:mai ou kate:isk^húnt^he:n,

"For if anything to him about you I boasted, I was/became not ashamed;"
Corinthians II 7:14

- (82) unte Akaja gamanwida ist fram fairnin jera

hótí Ak^háia pareskeúastai apò pérusi

"for Achaia was/had been made ready from a year ago" Corinthians II 9:2

- (83) ei swaswe qaþ gamanwidai sijaiþ

hína kat^hò:s élegon pareskeuasménoi ē:te

"that as I said you may be / come to have been made-ready." Corinthians II 9:3

- (84) patei frawulwans warþ in wagg jah hausida unqepja waurda, poei ni skulda sind mann rodjan.

hóti he:rpáge: eis tòn parádeison kai é:kousen árre:ta hré:mata hà ouk eksòn ant^hró:po:i lalē:sai.

"That he became caught-up into paradise and heard unspeakable words, those which it is not lawful for a man to speak." Corinthians II 12:4

- (85) ^Ajah bi filusnai andhuleino, ei ni ufarhafnau, atgibana ist mis hnuþo leika meinamma,

^Bjah bi filusnai andhuleino, ei ni ufarhafnau, atgibana ist mis hnuto leika meinamma,

kai tē:i huperbolē:i tō:n apokalúpseo:n (diò) hína mé: huperaíro:mai, edót^he: moi skólops tē:i sarkí,

"And by-means-of a multitude of revelations, that not I should become over-exalted, is/has been given to me a thorn (in) my flesh" Corinthians II 12:7

- (86) akei nih Teitus, sa miþ mis, Kreks wisands, baidiþs was bimaitan.

all' oudè títos ho sùn emoí, hélle:n ó:n, e:nagkást^he: peritme:t^hē:nai:

"But neither Titus, he with me, being Greek, was/had been compelled to be circumcised." Galatians 2:3

- (87) ^Aak þata wiþra<wair>þo, gasailvandans þatei gatrauaida was mis aiwaggeljo faurafilljis, swaswe Paitru bimaitis,

^Bak þata wiþrawairþo, gasailvandans þatei gatrauaida was mis aiwaggeljo faurafilljis, swaswe Paitrau bimaitis,

allà tounantíon idóntes hóti pepísteumai tò euaggélion tē:s akrobustías kat^hò:s pétros tē:s peritomē:s,

"But to that contrariwise, seeing that which was/had been entrusted to me of the gospels of the foreskin <lit. of the uncircumcised>, just as to Peter (had been that) of circumcision." Galatians 2:7

- (88) aþþan þan qam Paitrus in Antiokjai, in andwairþi imma andstop, unte gatarhiþs was.

Hóte dè ē:lt^hen pétros <ke:p^hās> eis Antiók^heian, katà próso:pon autō:i antéste:n, hóti kategno:sménos ē:n

"But when came Peter into Antioich, to his face I stood-against, for he was/had been condemned." Galatians 2:11

- (89) jah miþlitidedun imma þai anþarai Iudaieis, swaei Barnabas miþgatauhans warþ þizai litai ize.

kaì sunupekrít^he:san autō:i kaì hoi loipoì ioudaíoi, hós:te kaì barnabās sunapé:k^ht^he: autō:n tē:i hupokrísei.

"And acted-hypocritically with him those other Jews, such that Barnabas became carried-away with that hypocrisy of them." Galatians 2:13

- (90) O unfrodans Galateis! hvas izwis afhugida sunjai ni ufhausjan? izwizei faura augam Iesus Xristus fauramelip̃s was, in izwis ushramip̃s?

Ō: anóe:toi alátai, tís humās ebáskanen tē:i ale:t^heíai mé: peít^hest^hai, hoīs kat' op^ht^halmoūs Ie:soūs k^hristòs proegráp^he: en humīn estauro:ménos;

"O foolish Galatians! Who bewitched you not to attend truth? Before whose eyes Jesus Christ was/had been set forth among you crucified?" Galatians 3:1

- (91) akei þan sa us þiujai bi leika gabaurans was, iþ sa us frijai bi gahaita;

all' ho mèn ek tē:s paidíske:s katà sárka gegénne:tai, ho dè ek tē:s eleut^héras dí' <tē:s> epaggelías.

"But indeed he of the bondwoman, according to the flesh, was/had been born; but he of the freewoman (was born) according to the promise." Galatians 4:23

- (92) þatei sind aljaleikodos; þos auk sind twos triggwos:

hátiná estin alle:goroúmena: haūtai gár eisin dúo diat^hē:kai

"Those which are/have been allegorized; for those are two covenants:" Galatians 4:24

- (93) þairh þanei mis fairhvaus ushramiþs ist jah ik fairhvaus.
di' hoũ emoĩ kósmos estaúro:tai kagò: <tõ:i> kósmo:i.
 "by whom to me the world is/has been crucified and I to the world" Galatians 6:14
- (94) in þammei hlauts gasatidai wesum, fauragaredanai bi wiljin gudis þis alla in allaim waurkjandins bi muna wiljins seinis,
en hõ:i kai ekle:ró:t^he:men proorist^héntes katà prót^hesin toũ tà pánta energoũntos katà té:n boulé:n toũ t^helé:matos autoũ,
 "In whom an inheritance were we/had we obtained, predestined according to the will of God of everything with everything working according to the intention of his will." Ephesians 1:11
- (95) in þammei jah jus gahausjandans waurd sunjus, aiwaggeli ganistais izwaraizos, þammei galaubjandans gasiglidai waurþuþ ahmin gahaitis þamma weihin,
en hõ:i kai humeĩs akoúsantes tòn lógon tẽ:s ale:t^heías, tò euaggélion tẽ:s so:te:rías humõ:n, en hõ:i kai pisteúsantes esp^hragíst^he:te tõi pneúmati tẽ:s epaggelías tõi hagío:i,
 "in whom also you, having heard the word of truth, the gospel of the salvation of you, in whom you, believing, were/became sealed with that spirit of promise by that holiness." Ephesians 1:13
- (96) in þammei jah jus miþgatimridai sijup du bauainai gudis in ahmin.
en hõ:i kai humeĩs sunoikodomeĩst^he eis katoike:térion toũ t^heoũ en pneúmati
 "In whom also you are/have been built-together for a habitation of God in the Spirit" Ephesians 2:22
- (97) unte bi andhuleinai gakannida was mis so runa, swe fauragamelida in leiti-amma,
NA27 hóti katà apokálupsin egno:ríst^he: moi tò mustérion, kat^hò:s proégrapsa en olígo:i,
BYZ hóti katà apokálupsin egnó:risén moi tò mustérion, kat^hò:s proégrapsa en olígo:i,
 "For by revelation was/had been made known to me the secret, as I previously-wrote in a few (words)" Ephesians 3:3

- (98) unte bi andhuleinai gakannida was mis so runa, swe fauragamelida in leiti-
amma,
NA27 *hóti katà apokálupsin egno:rist^he: moi tò mustérion, kat^hò:s proégrapsa en olígo:i,*
BYZ *hóti katà apokálupsin egnó:risén moi tò mustérion, kat^hò:s proégrapsa en olígo:i,*
"For by revelation was/had been made known to me the secret, as I previously-
wrote in a few (words)" Ephesians 3:3
- (99) ei kanniþ wesi nu reikjam jah waldufnjam in þaim himinakundam þairh
aikklesjon so managfalþo handugei gudis
hína gno:rist^hē:i nūn taīs ark^haīs kai taīs eksousíais en toīs epouraníois dià tēs ekkle:sías
he: polupoíkilos sop^hía toū t^heoū,
"That it might be/have been known now to the principalities and powers in
those heavenly places, on account of the congregation, that manifold wisdom of
God" Ephesians 3:10
- (100) jabai sweþpauh ina hausideduþ jah in imma uslaisidai sijuþ, swaswe ist sunja in
Iesu,
ei ge autòn e:koúsate kai en autō:i edidák^ht^he:te, kat^hó:s estin alé:t^heia en tō:i ie:soū,
"If it-be-so-that him you heard, and in him you are/have been taught, as is truth
in Jesus." Ephesians 4:21
- (101) ^Ajah ni gaurjaip þana weihaan ahman gudis, in þammei gasiglidai sijuþ in daga
uslauseinai.
^Bjah ni gaurjaip þana weihaan ahman gudis, þammei gasiglidai sijuþ in daga us-
lauseinai.
kai mé: luptēto tò pneūma tò hágion toū t^heoū, en hō:i esp^hragíst^he:te eis he:méran apo-
lutró:seo:s.
"And do not grieve that holy spirit of God, in whom you are/have been sealed
in the day of redemption." Ephesians 4:30
- (102) sumai þan us friapwai, witandans þatei du sunjonai aiwaggeljons gasatiþs im
hoi mèn eks agápe:s, eidótes hóti eis apologían toū euaggeliou keĩmai

"Certain (ones) indeed out of love, knowing that for the defense of the gospels I have been set." Philippians 1:16

- (103) in þizei allamma gasleiþiþs im

di' hòn tà pánta eze:mió:t^he:n

"on account of whom everything I am/have suffered loss" Philippians 3:8

- (104) ni þatei ju andnemjau aiþþau ju garaihts gadomiþs sijau, aþþan afargagga, ei gafahau in þammei gafahans warþ fram Xristau.

ouk^h hóti é:de: élabon, è: é:de: teteleío:mai• dió:ko: dé, ei kai katalábo: ep^h' hō:i kai katelé:p^ht^he:n hupò toũ k^hristoũ Ie:soũ.

"Not that already I might have obtained it, otherwise already righteous I may be/have been judged, but I follow-after, that I may attain that which became/was attained by Christ." Philippians 3:12

- (105) ni þatei ju andnemjau aiþþau ju garaihts gadomiþs sijau, aþþan ik afargagga, ei gafahau in þammei gafahans warþ fram Xristau.

ouk^h hóti é:de: élabon, è: é:de: teteleío:mai• dió:ko: dé, ei kai katalábo: ep^h' hō:i kai katelé:p^ht^he:n hupò toũ k^hristoũ Ie:soũ.

"Not that already I might have obtained it, otherwise already righteous I may be/have been judged, but I follow-after, that I may attain that which became/was attained by Christ." Philippians 3:12

- (106) unte in imma gaskapana waurþun alla in himinam jah ana airþai, þo gasailvanona jah þo ungasailvanona, jaþþe sitlos jaþþe frauinassjus, jaþþe reikja jaþþe waldufnja, alla þairh ina jah in imma gaskapana sind.

hóti en autō:i ektíst^he: tà pánta <tà> en toĩs ouranoĩs kai <tà> epì tē:s gē:s, tà horatà kai tà aórata, éite t^hrónoi éite kurióte:tes éite ark^hai éite eksousíai: tà pánta di' autoũ kai eis autòn éktistai,

"For in him were/became created all things in heaven and on earth, those visible and also those invisible, whether thrones, or dominions, or principalities, or powers: all things through him and in him are/have been created." Colossians 1:16

- (107) jabai swepauh pairhwisip in galaubeinai gapwastidai jah gatulgidai jah ni afwagidai af wenai aiwaggeljons, poei hausidedup, sei merida ist in alla gaskaft po uf himina,

ef ge epiménete tē:i pístei tet^hemelio:ménoi kai hedraioi kai mé: metakinoúmenoi apò tēs elpídos toũ euaggelíou hoũ e:koúsate, toũ ke:ruk^ht^héntos en páse:i <tē:i> ktísei tē:i hupò tòn ouranón,

"If indeed you continue in faith, grounded and settled, and not drawn off from the hope of the Gospel, that which you heard, which is/has been preached to all creatures those under heaven," Colossians 1:23

- (108) pizoei warp ik andbahts bi ragina gudis, patei giban ist mis in izwis du usfull-jan waurd gudis,

hēs egenóme:n egò: diákonos katà té:n oikonomían toũ t^heoũ té:n dot^heĩsán moi eis humās ple:rō:sai tòn lógon toũ t^heoũ,

"Whereof became I a minister according to the dispensation of God, that which is/has been given to me for you.P to fulfill the word of God." Colossians 1:25

- (109) jah gawairpi gudis swignjai[p] in hairtam izwaraim, in pammei jah lapodai wesup in ainamma leika, jah awiliudondans wairpaip.

kai he: eiré:ne: toũ t^heoũ <K^hristoũ> brabeuétō: en taĩs kardíais humō:n, eis hē:n kai eklé:t^he:te en henì só:mati• kai euk^háristoi gínest^he

"And may the peace of God rejoice in your hearts, in that which also you were/had been called in one body, and may you become thanks-giving." Colossians 3:15

- (110) In pizei ju ni uspulandans panamais, galeikaida uns ei bilipanai weseima in Apeinim ainai.

Diò me:kéti stégontes, eudoké:samen kataleip^ht^hē:nai en At^hé:nais mónoi,

"In this which you are no longer putting-up-with, (it is) pleasing to us that we should have been left in Athens alone." Thessalonians I 3:1

- (111) pan qimip ushauhnan in paim weiham seinaim, jah sildaleiknan in allaim paim galaubjandam, unte galaubida ist weitwodei unsara du izwis in daga jainamma.

hótan élt^he:i endoksast^hē:nai en toīs hagíois autoũ kai t^haumast^hē:nai en pāsin toīs pisteúsasín, hótí episteút^he: tò martúríon he:mō:n ep^h' humās, en tē:i he:mérai ekeíne:i.

"then he will become glorified by his saints, and to become marveled-at among all those believing, for is/has been believed our testimony to you in that day."

Thessalonians II 1:10

- (112) silbans auk kunnup hvaiwa skuld ist galeikon unsis, unte ni ungatewidai wesum in izwis,

autoi gàr oídate pō:s deĩ mimeĩst^hai he:mās, hótí ouk e:takté:samen en humĩn

"For you yourselves know how it is right to follow us, because not were we/had we been disordered among you." Thessalonians II 3:7

- (113) sei ist bi aiwaggeli wulþaus þis audagins gudis þatei gatrauaiþ ist mis.

katà tò euaggélion tē:s dókse:s toũ makaríou t^heoũ, hò episteút^he:n egó:.

"Which is according-to the glorious gospel of that blessed God which is/has been entrusted to me." Timothy I 1:11

- (114) ikei faura was wajamerjands jah wraks jah ufbrikands, akei gaarmaiþs was, unte unwitands gatawida in ungalaubeinai.

tò próteron ónta blásp^he:mon kai díók^te:n kai hubristé:n: allà e:leé:t^he:n, hótí agnoō:n epoíe:sa en apístíai,

"I-who formerly was a blasphemmer, and persecutor, and injurer; nevertheless I was/had obtained mercy, because unwittingly I did these things in unbelief." Timothy I 1:13

- (115) akei duppe gaarmaiþs warþ, ei in mis frumistamma ataugidedi Xristaus Iesus alla usbeisnein

allà dià toũto e:leé:t^he:n, hína en emoì pró:toi endeíksetai k^hristòs ie:soũs té:n <há>pasan makrot^humían,

"Nevertheless because of this, I became spared <lit. shown mercy>, that in me foremost might show Christ Jesus all patience" Timothy I 1:16

- (116) du þammei gasatiþs im ik merjands jah apaustaulus

eis hò etét^he:n egò: kē:ruks kai apóstolos

"To that which I am/have been ordained a preacher and apostle" Timothy I 2:7

- (117) jah unsahtaba mikils ist gagudeins runa saei gabairhtiþs warþ (1) in leika, garaihts gadomiþs warþ (2) in ahmin, ataugids warþ (3) þaim aggilum, merids warþ (4) in þiudom, galaubiþs warþ (5) in fairhvau, andnumans warþ (6) in wulþau.

kai homologouménos méga estí<n> tò tēs eusebeías mustérion: hòs ep^hanerót^he: (1) en sarkí, edikaiót^he: (2) en pneúmati, ó:p^ht^he: (3) aggélōis, eke:rúk^ht^he: (4) en ét^hnesin, episteút^he: (5) en kósmo:i, anelé:mp^ht^he: (6) en dókse:i.

"And confessedly great is the mystery of godliness, he who became manifest (1) in the flesh, became justified (2) in the spirit, became seen (3) by the angles, became preached (4) among the gentiles, became believed (5) in the world, became received (6) in glory." Timothy I 3:16

- (118) ni sijais unkarja þizos in þus anstais, sei gibana warþ þus þairh praufetjans afar analageinai handiwe praizbwtairei<n>s.

mé: amélei toũ en soi k^harísmatos, hò edót^he: soi dià prop^he:teías metà epit^héseos tō:n k^heirō:n toũ presbuteríou.

"May you not be negligent of those gifts within you, which became given to you.S through the prophets after the laying of hands of the elders." Timothy I 4:14

- (119) ^Aundgreip libain aiweinon du þizaiei lapops is jah andhaihaist þamma godin andahaita in andwairþja weitwode.

^Bundgreip libain aiweinon du þizaiei lapops is jah andhaihaist þamma godin andahaita in andwairþja managaize weitwode.

ago:nízou tòn kalòn agō:na tēs písteos, epilaboũ tēs aio:níou zo:ēs, eis hē:n eklé:t^he:s kai ho:mológe:sas té:n kalé:n homologían enó:pion pollō:n martúro:n.

"seize life eternal to which you are/have been called and you professed that good profession in the presence of (a multitude of) witnesses." Timothy I 6:12

- (120) ak bi seinai leikainai jah anstai sei gibana ist unsis in Xristau Iesu faur mela aiweina,

allà katà idían prót^hesin kai k^hárin, té:n dot^heĩsan he:mĩn en k^hristō:i ie:soũ prò k^hróno:n aio:nío:n,

"but according to his pleasure and grace which is/has been given to us in Christ Jesus before the time of the earth." Timothy II 1:9

- (121) in þoei gasatĩps im ik merjands jah apaustaulus jah laisareis þiudo,

eis hò etét^he:n egò: kē:ruks kai apóstolos kai didáskalos et^hnō:n.

"To which (purpose) I am/have been ordained a preacher and apostle and teacher of the Gentiles." Timothy II 1:11

- (122) akei waurd gudis nist gabundan

allà ho lógos toũ t^heoũ ou dédetai

"but the word of God is/has not been bound." Timothy II 2:9