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Aljoša Šorgo

A Historical Grammar of Phrygian

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Aljoša Šorgo
PhD Dissertation
Universiteit Leiden, The Netherlands

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A Historical Grammar of Phrygian

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Dedicated to my mother

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Conventions

Abbreviations

acc., A – accusative
act. – active
aor. – aorist
athem. – athematic
cf. – *confer*
dat., D – dative
DN – divine name
e.g. – *exempli gratia*
fem. – feminine
gen., G – genitive
Gr. – Greek
ibid. – *ibidem*
id. – *idem*
i.e. – *id est*
impf. – imperfect
impv. – imperative
inst., I – instrumental
loc., L – locative
masc. – masculine
mid. – middle
MPh. – Middle Phrygian
neut. – neuter
nom., N – nominative
NPh. – New Phrygian
obl. – oblique
OPh. – Old Phrygian
opt. – optative
p.c. – personal communication
perf. – perfect
PG – Proto-Greek
PGPh. – Proto-Graeco-Phrygian
PIE – Proto-Indo-European
pl., Pl – plural
PN – personal name
PPh. – Proto-Phrygian
pres. – present
prim. – primary
pron. – pronominal
sec. – secondary
sg., Sg – singular
subj. – subjunctive
them. – thematic
vel sim. – *vel similia*

Symbols

>	develops into by regular phonological development
<	derives from by regular phonological development
>>	develops into not by regular phonological development
<<	derives from not by regular phonological development
*	reconstructed form
**	incorrect form
$^{+}$	unattested synchronic form
/X/	the phoneme X
[X]	the phonetic segment X; in syntactic analysis, the clause X
<X>	the grapheme X; spelt as X
°X	inscription designated X
#	word-initial or word-final position
##	pausa
X-Y	morpheme boundary between X and Y
X=Y	clitic or adposition binding between X and Y
[…]	omitted element(s)
$^{?}$	uncertain
~~XXX~~	word does not belong to discussed category

Epigraphical conventions

X̣	poorly legible letter
[X]	letters missing due to lacuna, restored by editor
[.]	letters missing due to lacuna, not restored
(X)	letters corrected by editor
{X}	letters deleted by editor

Diacritics

X̄	long vowel
X̆	short vowel
X́	accented vowel
X̃	nasalized vowel
X̝	raised vowel
X̞	lowered vowel
X̟	fronted consonant
X̠	retracted consonant
X̩	syllabic consonant
X̯	non-syllabic segment
X^{h}	aspirated consonant
X^{w}	labialized consonant
X^{j}	palatalized consonant
X̚	consonant with no audible release
X̤	breathy-voiced consonant

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I Introduction

I.1 A brief overview of the history of Phrygia and the Phrygian language

The Phrygians, a term used to designate the speakers of all the historical stages of the Phrygian language, were a people who are known to have lived in central Anatolia during the first millennium BCE and the first few centuries of the common era.

The precise chronology of Phrygian movements before their migration into Anatolia is unknown. As an Indo-European people, they migrated from the steppes after the break-up of the Proto-Indo-European community. Initially, the Phrygians and the Greeks would have formed a singular group that migrated into the southern Balkans, to the north of modern-day Greece. This Proto-Graeco-Phrygian community eventually separated into two groups: the Proto-Greeks and the Proto-Phrygians. The former migrated southwards, forming the Proto-Greek speaking community that eventually spread to the entirety of Greece. The Phrygians, on the other hand, established themselves in Illyria, western Macedonia, and northern Epirus by the eleventh century BCE (Hammond 2006: 652). The Phrygians apparently continuously migrated from their Balkan homeland into Anatolia (Brixhe 2002b: 246), crossing the Hellespont along the way.

The date of this series of migrations is uncertain. It was approximately concurrent with the Bronze Age collapse of the Anatolian kingdoms and city states in the late second millenium BCE (Brixhe 2008: 69). Earlier

scholarship suggested Phrygians may have played a part in the Bronze Age collapse in Anatolia, but that is not necessarily borne out by the archaeological data (*ibid.*).

In the literary and historical sources, the Phrygians are first mentioned in the Iliad (3.184-185) as allies of Troy (Anfosso 2020: 17-18ff.). Much later, Herodotus (7.73) talks of Phrygians as ultimately having migrated from the Balkans, at which point they were still supposedly called Βρυγες (*ibid.*).

The archaeological record establishes the Phrygians as having become established in central Anatolia by the tenth century BCE (Thonemann 2013: 9). The earliest Phrygian inscriptions date from the 8th century BCE (Brixhe 2008: 70), when a Phrygian speaking community was already firmly established in Anatolia. This community would have traded with the coastal areas of southern Anatolia, as is suggested by the Phrygian adoption of the alphabet. While it is unclear whether the Phrygians adopted and adapted a modified version of an early variant of the Greek alphabet or whether the invention of the alphabet was fundamentally a blending of Greek and Phrygian modifications (see §II.1.1), the extremely early use of the Phrygian alphabet shows that the Phrygian speaking community was very much a part of the broader Mediterranean trading community and had contact with Cilicia, where the alphabet presumably originated (Young 1969: 255, PhL 27, Adiego 2018: 150; §II.1.1).

During the 8th and 7th centuries, there was an independent Phrygian kingdom in Anatolia, its most important city being Gordion (LL 1816). At least one Phrygian king is widely known: Midas, who was later mythologised in the Greek-speaking world as being able to turn objects into gold by touching them.

The area of the earlier Phrygian kingdom was ultimately taken over by the Achaemenid empire in the 6th century BCE (Brixhe 2008: 71). For the

following two centuries, a Persian elite would have proliferated in the area, though its linguistic influence on the Phrygian-speaking community was apparently minimal: no loanwords from any Iranian language have been securely identified in the Phrygian corpus and the language continued being written.

Alexander the Great passed through Phrygia in the late 4th century BCE and famously made a stop at Gordion, where he cut the eponymous knot. The entirety of the Phrygian-speaking area was incorporated into his empire (LL 1816). This marks a fundamental breaking point in the history of Phrygia.

The only Phrygian inscription written from the period of Alexander's conquests up to the first centuries of the common era, °W-11, dates to the late 4th or early 3rd century BCE, shortly after the death of Alexander (CIPP II 7). It is the first Phrygian inscription written in the Greek alphabet and it includes two Greek names as well as at least one loanword from Greek, suggesting that the Hellenization of the more prominent parts of Phrygia was extremely rapid and pervasive (cf. Brixhe 2002b: 247).

After the disintegration of Alexander's empire and the subsequent politically chaotic period, the original Phrygian speaking area eventually became a part of the Kingdom of Pergamon in the 2nd century BCE (LL 1816).

One major upheaval that took place during the period following the disintegration of Alexander's empire was the migration of the Galatians into Phrygia during the 3rd century BCE (Brixhe 2008: 71). This migration of Celtic speakers may have well contributed to the linguistic recession of the Phrygian language, though the Phrygian language itself shows no trace of any kind of a Celtic linguistic influence. There is one inscription from the 2nd century CE, °130^{NW}, where the person named in the inscription has

a clearly Celtic name, Brogimaros, who is described as an ἀρήτηρ (high priest) of Zeus in the Greek portion of the inscription, and which includes a curse formula in the Phrygian language (Avram 2015: 205-206 *et passim*). If nothing else, this inscription clearly shows that the cultural milieu of Phrygia was and remained complex for centuries.

The Phrygian-speaking areas were eventually incorporated into the Roman Republic in 129 BCE (LL 1816). New Phrygian inscriptions began to emerge again during the 2nd century CE, when Phrygia was a province of the Roman Empire (LL 1818).

The Phrygian speaking area at the beginning of the common era was severely reduced when compared to its pre-Alexandrian state, far smaller in size and generally limited to more remote locations (Brixhe 2008: 71-72). The centuries of Hellenization had left an indelible mark on the language by this point: the new inscriptions were all written in the Greek alphabet and the majority of Phrygian inscriptions from this era are preceded by a Greek-language text (PhL 22). The number of Greek loanwords or terms referring to Hellenic cultural items in the Phrygian texts increased as well. Nevertheless, the language did not die out and remained actively used, though we may speculate that many of its speakers, in particular those who commissioned Phrygian inscriptions, would have been fluent speakers of Koiné Greek as well.

By the end of the 3rd century CE, Phrygian inscriptions stopped being written (LL 1818). This would have been the result of a gradual adoption of (late) Koiné Greek as the primary language by the remaining Phrygian-speaking local population, a trend that had begun several centuries earlier. There would have been a period when Phrygian was no longer used as a written language, but remained spoken by progressively smaller remote communities.

When the Phrygian language died out entirely is ultimately unknown, as scattered communities may have persisted in certain social environments in isolated areas for some time, but its trajectory toward demise was nigh inevitable by the 4th century CE.

The last historical record of the Phrygians is in the 5th century CE. The text of church historian Socrates states that Selinas, a successor of Wulfila, was the child of a Phrygian mother and preached to the local population in their language (Brixhe 2002b: 252). Since Selinas is mentioned in the context of a Gothic Arian church, it is possible, and indeed likely, that the local language being referred to is Greek rather than Phrygian. Nevertheless, he is the last descendant of the Phrygian people we can name.

I.2 Attestation of Phrygian

The Phrygian language is directly attested in a total of about 500 inscriptions (PhL 7-9).

The corpus of Phrygian inscriptions is traditionally divided into two periods: Old Phrygian and New Phrygian. For the past two decades, a third period, Middle Phrygian, is commonly used to describe the period between the two larger phases of Phrygian attestation. Currently, the Middle Phrygian corpus only consists of inscription °W-11.

The Old Phrygian inscriptions are the older of the two and encompass all inscriptions written since the language began being written (in the 8th century BCE) up to the 5th or 4th century BCE (depending on the dating of some inscriptions). Ultimately, the dividing line between the Old and Middle Phrygian periods is the incorporation of Phrygia into Alexander's

empire, after which point the language would be subject to heavy influence by a Greek superstrate.

The Old Phrygian corpus consists of about 400 inscriptions (PhL 7). These are all written in a native Phrygian alphabet and on a variety of materials: stone, pottery, wood, and even a singular clay tablet. Presumably, more perishable materials would have been used as well, though none are known to survive.

The vast majority of Old Phrygian inscriptions are mostly only a word long. These are graffiti or etchings into pottery and many, particularly those found on pottery sherds, are fragmentary. Unfortunately, it is practically impossible to perform any sort of linguistic analysis on such single word texts; for the most part, they can generally be used to corroborate readings and analyses of words found in other inscriptions.

The longer Old Phrygian inscriptions, i.e. those that lend themselves to proper linguistic analysis, are seemingly of a monumental nature and written in stone. Among these, some, such as the inscriptions from Midas-town, the M-series, give credit to those who commissioned or consecrated a monument and seem to have a broader public, either religious or political, purpose. Others may have had a variety of different functions, with funerary inscriptions being the most common variant.

The Old Phrygian inscriptions found up to 2004 are compiled in Brixhe-Lejeune (1984 = CIPP), Brixhe (2002 = CIPP1), and Brixhe (2004 = CIPP2). These works are still the best collection of Old Phrygians texts in terms of providing an image, a reading, an interpretation, and all preceding literature discussing the individual inscriptions up to the point of publication. The three works in question, beginning with Brixhe-Lejeune (CIPP) also provide what are currently the canonical designations of the

Old Phrygian inscriptions. The inscriptions are given a letter, designating the area in which they were found, and a number, generally derived from when an inscription was discovered or first analysed as Phrygian. The naming scheme for inscriptions based on these criteria is currently more than sufficient for the purposes of Phrygian scholarship and there seems to be no pressing need to emend it in any way.

Obrador-Cursach's *The Phrygian Language* follows Brixhe and Lejeune's naming scheme and provides readings of all Old Phrygian inscriptions, along with commentary and literature appearing after the publication of the three parts of CIPP. This is sufficient for the majority of scholarly purposes. The CIPP series of publications currently remains the source one should consult in an effort to come as close to the original material as possible, since it provides photos and drawings of Old Phrygian inscriptions, allowing one to engage with the form of the inscriptions themselves and thereby obviating the need for consulting older literature where technical limitations required either verbal descriptions or taking provided readings at face value when not having access to the original materials themselves.

Very few Old Phrygian inscriptions have been identified since the publication of CIPP2 in 2004, so there is currently no pressing need to replace CIPP as a compilation of Old Phrygian inscriptions, which continues to serve its purpose. Nevertheless, an update of CIPP would be welcome; not necessarily as linguistic work, which may become superseded, but by providing more photographic material to allow future scholarship to engage better with the primary material.

The New Phrygian inscriptions were initially thought to have been written in some local variety of Greek; this assumption was bolstered by the fact that many of the New Phrygian inscriptions actually began with actual

Greek and only ended with a short phrase in New Phrygian. In the late 19th century, the inscriptions of the area where we now know New Phrygian was spoken were simply numerically numbered in sequence of discovery: inscription °1 was seen first, then inscription °2, and so on. All inscriptions found in the Phrygian speaking area, regardless of the language in which they were written, were assigned a number. This traditional numbering based entirely on the broad area of discovery become entrenched, and no effort was made to separate the Greek language inscriptions from the Phrygian language inscriptions. Eventually, only the newly discovered New Phrygian language inscriptions began being assigned a number as part of this specific corpus, with Greek language inscriptions no longer being added to it, but the already established designations of the inscriptions persisted. For this reason, there is no Phrygian inscription °1; the local inscription designated as °1 is written entirely in Greek.

The numbering scheme established in the 19th century continues to be used to this day: a recently discovered inscription, found near Nakoleia, is automatically assumed to be inscription °130, for instance.

The designation scheme of New Phrygian is obviously problematic: the number ascribed to any individual inscription is fundamentally arbitrary, only based on time of discovery, and provides no additional information. We may contrast this with the naming scheme of the Old Phrygian inscriptions, where the designation itself already provides the general area where the inscription was discovered. Information of this type is crucial for easily detecting areal characteristics of inscriptions.[1]

[1] For instance, the curse formula with γεγρειμεναν is only attested in inscriptions found in the eastern area of Phrygia. If one were to only look at the numerical designations of inscriptions where this formula is attested, namely °32^{E}, °34^{E}, °59^{E}, °76^{E}, etc., no such geographic affinity between them would be suggested.

Orel (1997) attempted to create a new naming convention for Phrygian inscriptions, eschewing the more common distinction of taking Old and New Phrygian as belonging to two separate corpora numbered separately, by using designations which provide the geographical area where an inscription was discovered and an asterisk to mark that the inscription belongs to the New Phrygian period (e.g. inscription °2^{W} is designated as W*-12 in Orel). Orel's attempt at re-designating the corpus was ultimately unsuccessful and was never adopted by Phrygian scholarship.

In his *The Phrygian Language,* Obrador-Cursach (2020) abandons the old numbering system in favour of a novel system based primarily on the location where an inscription was discovered. Thus, for instance, traditional inscription °2 is 4.1 in Obrador-Cursach's system, with the number designating the specific town or village in or around where an inscription was discovered (in this case 4 = Üçüyük). Nevertheless, the author thankfully consistently includes the traditional designation in parentheses to allow for easier reference to older works.

Obrador-Cursach's monograph is likely to be broadly used by the following generation of Phrygian scholars, but it remains to be seen whether his naming convention will ultimately be adopted.

It is my opinion that Obrador-Cursach's approach is overly ambitious in its implementation, a trait it shares with Orel's ultimately unsuccessful attempt from a quarter of a century ago. Certainly, the naming scheme of New Phrygian inscriptions has been ripe for a make-over for decades by this point, and a naming scheme based on geographic locations is the optimal choice. Obrador-Cursach's attempt leaves something to be desired for one fundamental reason: it attempts to entirely supersede the previous system, thereby requiring anyone engaging with previous Phrygian scholarship, all of which uses the traditional numbering system, to continuously make use

of the concordance tables. In essence, it is not "backwards compatible". At present, even Obrador-Cursach himself gives both his and the traditional designation for an inscription, but if his system were generally adopted, all pre-2020 Phrygian scholarship would inevitably become far more tedious to consult. I do not believe, however, that the field of Phrygian studies has reached a point where previous scholarship ought to be so strongly relegated to the margins. On the other hand, if both his and the traditional designations continue to be used side by side, the inscription designations will for all intents and purposes become more bloated and redundant.

The solution I adopt in this work attempts to be a compromise between the traditional numbering system and the more informative area-based systems in an effort to preserve a link to previous scholarship while adding the relevant geographic information in as transparent and simple manner as possible.

I.2.1 The designation of New Phrygian inscriptions in this work

New Phrygian inscriptions in this work are designated by the number they were assigned in the traditional New Phrygian designation system. After the number of the inscription, however, superscript capital letters are added; they designate the general area in which the inscription was discovered. Thus, the traditional numbering system is preserved entirely,

with the superscript capital letters simply providing an additional piece of information on the place of origin. [2],[3]

The entirety of the area in which New Phrygian inscriptions have been found has been divided into nine rectangular area for the purposes of designating the inscriptions. The geographical limits of these areas are:

designation	*geographical limits*	*number of inscriptions*
NW	latitude between 39,2° and 40° N; longitude between 30° and 31° E	7
N	latitude between 39,2° and 40° N; longitude between 31° and 32° E	2
NE	latitude between 39,2° and 40° N; longitude between 32° and 33° E	0
W	latitude between 38,4° and 39,2° N; longitude between 30° and 31° E	34
C	latitude between 38,4° and 39,2° N; longitude between 31° and 32° E	12

[2] In contrast, Obrador-Cursach (in PhL) designates inscriptions by giving specific towns and villages in and around which inscriptions were found a specific number, but this results in a total of 66 locations being differentiated in his naming scheme, which seems to me overly specific, and potentially overly confusing, for purely naming purposes.

[3] Furthermore, as an additional hurdle, Obrador-Cursach opted to use numbers as a means of designating geographical areas. Using superscript numbers to give information on the place of origin would have resulted in an unnecessarily confusing format: for example, °35^{62} does not suggest as obviously that the superscript is an addition giving further information rather than fundamentally modifying the basic number. The use of a letter is also more convenient for purely practical purposes: when writing by hand or when using a text format that does not allow subscripted letters, something like °2W (for °2^{W}) remains unambiguous, whereas Obrador-Cursach's 4.1 has the potential to be confused for old °41, to say nothing of a hybrid system using his numerical designations, with °2^{4} designating old inscription °2 and adding the area number in PhL as a superscript.

E	latitude between 38,4° and 39,2° N; longitude between 32° and 33° E	31
SW	latitude between 38,4° and 39,2° N; longitude between 30° and 31° E	11
S	latitude between 38,4° and 39,2° N; longitude between 31° and 32° E	11
SE	latitude between 38,4° and 39,2° N; longitude between 32° and 33° E	8

Table #1: The areas in which New Phrygian inscriptions have been found.[4]

Should the need arise, the system employed here can be easily emended to provide as broad or as narrow a geographical designation as is required for any specific purpose. For the purposes
of this work, the nine areas designated above have proven sufficient. If one wished to examine the inscriptions even more closely in areal terms, however, there is no reason why, for instance, °103^{C} and °104^{C} could not be further sub-designated as °103$^{C\text{-}Turgut}$ and °104$^{C\text{-}Asagipiribeyli}$.

I.3 Aim of this work

Phrygian is a poorly attested language. Since it was first identified as an Indo-European language, practically every major insight or interpretation of the Phrygian inscriptions for the better part of a century owes its discovery to this fundamental linguistic fact. Only after certain inherent

[4] There is a single inscription that was found slightly outside the nine designated areas, namely inscription °97^{W+}. It was was discovered in Çardavhisar, which is located at approximately 39,19° N 29,6° E, i.e. to the west of area designated W. For this reason, it is designated with a superscript W+.

characteristics of the language were established could the post-philological era of Phrygian studies begin, arguably with Gusmani's *Le iscrizioni dell'antico frigio* (Gusmani 1958). Haas's (1966) introduction was the first attempt at creating a monograph that would condense all the knowledge on Phrygian that was available at the time. Nevertheless, in those early years of Phrygian studies, many insights we may take for granted now were still under heavy dispute. The actual moment when the modern phase of Phrygian studies began was with the publication of Brixhe-Lejeune's monumental CIPP (1984). This work and its addenda are still of great importance when dealing with Old Phrygian inscriptions. Unfortunately, no New Phrygian corpus was published in as comprehensive a volume at the time, though Brixhe did make the effort to collect and publish the New Phrygian inscriptions in article form.

Since the beginning of the 1980s, a handful of attempts have been made to provide a new monograph on Phrygian that would supersede Haas's outdated introduction. Unfortunately, none have been successful. Diakonov and Neroznak published their own introduction to Phrygian in 1985, *Phrygian*, but their work was not overly informative on the topic of alternative, more common, analyses, and rather focused on their idiosyncratic treatment of Phrygian that largely ignored the insights of the scholars of the late 60s and 70s.

In 1997, more than 30 years after Haas's monograph, Orel published a monograph on Phrygian that could have easily superseded Haas's work as the go-to resource for Phrygian, *The Language of Phrygians*. Unfortunately, Orel decided to mostly ignore scholarship on Phrygian and opted to publish a Phrygian "primer" that was entirely at odds with the dominant scholarship on Phrygian at the time. Certainly, some ideas could be viable, but the rejection of Phrygian scholarship in general was palpable.

It took more than another twenty years, until 2020, before a representative monograph on Phrygian would be published, a total of 54 years since Haas's long since superseded work. The work in question is, of course, *The Phrygian Language* by Bartomeu Obrador-Cursach. It functions splendidly as an introduction to Phrygian studies: for any prospective scholar of Phrygian, the entire corpus is provided in functional terms, and all the major insights of previous scholarship are faithfully included. For anyone wishing to be introduced to Phrygian, there is no better introduction.

The aims of *The Phrygian Language* are clear: to be the definitive linguistic introduction into Phrygian. The aim of this work is to go a step further: whereas *The Phrygian Language* serves in an introductory and largely descriptive capacity, the goal of this work is to provide the first systematic grammar of Phrygian in both synchronic and diachronic terms to the best of our ability, beyond simply listing attested forms. This will enable future scholars to more fully utilize Phrygian as a means of reconstructing Proto-Indo-European.

The author of this work is certainly fortunate by not needing to have written an introduction to Phrygian. While every effort has been made to make this work readable on its own, and scholars of Indo-European ought to be able to follow the arguments by following the footnotes and comments, engaging with this work is truly most rewarding if one is familiar with Obrador-Cursach's *The Phrygian Language.* Once again, the target audience of this work are not people wishing to catch a glimpse of Phrygian, but rather those who wish to deepen their knowledge of this fragmentary language.

I.4 Methodology

Attempting to properly analyse a language as scarcely attested as Phrygian is inherently fraught with a number of difficulties.
Phrygian possesses a corpus that is composed of a series of inscriptions. Many of these are formulaic to some degree. Formulaicity is a double-edged sword in interpretative terms. On the one hand, comparing different types of formulaic expressions allows one to identify syntactic and morphological identities of what would otherwise be unparseable forms, thereby allowing the construction of a rudimentary grammar. On the other hand, as wide-spread a formulaicity as is found in the Phrygian, particularly the New Phrygian, corpus greatly restricts the number of forms we may securely identify outside a very specific context.

Much work has already been done in identifying various syntactic and grammatical constructions of Phrygian, and a large number of vocabulary items have already been clearly defined. These analyses, most of which are generally endorsed in this work, principally followed two methods: 1) the combinatorial method, and 2) the etymological method.

For the former, we may give this simple example:
ιος νι σεμουν κνουμανει κακουν αδδακετ 'whoever would do something bad to this grave'
ιος νι σεμουν κνουμανει κακουν αββερετ 'whoever would bring something bad to this grave'
A simple comparison of the two variants clearly suggests that αδδακετ and αββερετ are similar in meaning and that they are likely morphologically

identical forms, since both end with -ετ. Once the meaning of one is known, the meaning and morphological make-up of the latter can likely be compared.

The latter method hinges greatly on the fact that Phrygian was identified as an Indo-European language at an early stage.
Sound laws were established for how Phrygian developed from PIE on the basis of some rudimentary apparent correspondences; e.g. *matar* 'mother' ~ PIE **meh₂tḗr* 'id.'*, materan* 'mother (ASg)' ~ PIE **meh₂-ter-m* 'id.'.

In general, modern Phrygian studies emerged from these two methodological approaches combined. New etymological and combinatorial analyses would be generally considered and examined on a primarily individual basis.

While this work explicitly considers the two methodological approaches to identifying Phrygian forms as its primary basis, it differs from and expands on the traditional analysis of Phrygian in a fundamental sense.
The attested grammatical forms are not analysed in an individual manner. Rather, every form is assumed to belong to what would have been a coherent system of phonology, morphology, and syntax, and the implications of the various forms belonging to such a system are pursued.
The culmination of this pursuit is the present work, where the Phrygian phonological/phonetic and grammatical system is presented in terms of various categories belonging to different domains of the language, as opposed to the more common approach where categorising the forms is secondary, with interpretations of specific inscriptions or lemmata taking precedence.

For such an analysis to be possible, invididual lemmata and inscriptions do naturally need to be interpreted on a case-by-case basis. This is always done in service of providing a broader systemic picture, however. For this reason, certain individual forms need to examined extremely closely, and such analyses of individual forms make up much of the chapter on the nominals and the verbs. On the other hand, if the morphological make-up of a specific form is evident (for instance by being directly comparable to some other form), it need not be examined in as much detail, even if some element of it remains obscure, but irrelevant for the category at hand.[5]

In a great number of instances, a certain form can be equally validly interpreted in more than one way. When such a situation occurs, every effort has been made to list all reasonably viable possibilities.
Such possible analyses are mutually exclusive, so the question naturally arises under which grammatical category a specific form should be listed. For the most part, the placement of a form is given under the category which the author feels is best suited to include the discussion of the form. Commonly, this will also be the grammatical category that has been assumed by earlier scholarship; specifically, the work that seemed to provide the best argumentation up to this point.

As a demonstration of this principle, consider the form κενα. It agrees syntactically with the thematic adjective whose case form is παντα 'all', apparently a NAPl neut., and the verb ιννου, the 3pl imperative verbal form

[5] For instance, in §V.3.9.2, the synchronic present stem δακε- of the verbal root δακ- is analysed from the perspective of a thematic present, where the stem behaves entirely regularly. The diachronic perspective is examined separately in §V.3.9.2 and §V.3.9.3.

of the verbal root ει- 'to go, come, become'. Quite clearly then, κενα, whatever its meaning, likewise shows the nom./acc. pl. neut. desinence -α. Formally, this desinence could belong to: a) a neuter *s*-stem nominal κεν-ες-; b) a neuter *o*-stem nominal κεν-o-; c) a neuter root noun κεν-. All three options are listed as possibilities when the word is discussed. Nevertheless, the form has been listed under the category of *s*-stems for the following reasons: 1) previous scholarship tended to assume an *s*-stem declension;[6] 2) κενα only requires an extended analysis if we assume it to be an *s*-stem noun: if the form belongs to the *o*-stems or the root nouns, its behaviour is entirely predictable and requires no commentary whatsoever; 3) κενα serves as a possible parallel to the pair NASg ακκαλος / NAPl ακαλα, which most likely belong to the category of *s*-stems, so treating the three together in a single section makes the related arguments easier to follow in a linear fashion.

Do note that this is one example of the approach in practice. Throughout the work, the reasoning for why a specific form has been cited under a certain grammatical category will not be as explicitly laid out as here, but follows the same general principles. Where relevant, footnotes are provided to guide the reader to the appropriate section.

Another characteristic of this work is that certain allowances have been made to allow the work to be used by Indo-Europeanist scholars of different persuasions. The reality of the field is that in a good number of cases there exist different approaches to the reconstruction of some facets of the proto-language. Explicitly following a specific model, while that would

[6] This ascription was based on the mistaken assumption that an s-stem κενος would have been cognate with Greek γένος (§III.3.9). Nevertheless, even if the root elements are not formally compatible, an *s*-stem declensional type remains a distinct possibility.

significantly simplify some analyses, runs into the issue of making entire sections of this work effectively useless to those following an alternative model. The aim of this work is to provide a systematic historical grammar to all Indo-European scholars. As such, a conscious effort has been made to make this work at least somewhat model-proof, allowing every mainstream Indo-European scholar to follow the argumentation given without needing to take excessive effort to "undo" idiosyncrasies of a specific model.

This is not to say that the author does not have preferences of his own, and these will undoubtedly shine through or be explicitly stated. Thus, while an effort has been made to have the work be useful and accessible to most mainstream Indo-European scholars regardless of specific views, no claim can be made that the work is entirely "model-neutral".

Finally, while this "ambiguous" approach to reconstruction tends to be followed, there do exist certain limits. Broadly contested hypotheses and fringe models will be entirely disregarded, unless there is some good reason to include them.[7]

In some cases, what some scholars may consider to be unproven hypotheses have been adopted; most notably Bozzone's work on "schwa secundum" or Martinet and Olsen's hypothesis of laryngeal hardening (along with Kortlandt's work on the matter). Where following argumentation hinges on the adoption of such a hypothesis, this is explicitly marked. For the most part, even if one rejected these specific hypotheses, this would only affect a handful of forms without any broader systemic implications, and an alternative model is provided.

[7] For instance, on the Phrygian-specific level, Čašule (in, e. g., Čašule 2014) presents a model of Phygian that disregards the vast majority of all other Phrygian scholarship and will, as such, not be discussed.

As a general heuristic principle, the lemmata being discussed, unless explicitly stated otherwise, are assumed to ultimately be of Indo-European origin, unless some reason exists to suspect otherwise.

In some instances, an Indo-European origin of some constituent element of an analysed lemma is absolutely secure and evident. The majority of such secure cases have been successfully identified by decades of previous scholarship. For instance, there can hardly be any doubt that the form βερετ is composed of the reflex of the PIE root **b^{h}er-* 'to bear, bring', the thematic vowel, and a 3rd person singular ending.

Other instances are more contentious: some components of a form can clearly be identified as having an Indo-European origin, but some element, almost exclusively the lexical root with a possible suffix of some kind, remains unexplained. Still, many forms with unknown semantics and an enigmatic sequence can be formally analysed within Phrygian. For instance, one does not need to know what the origin of the synchronic lexical element *mem-* was to identify the attested form *memevais* as being composed of the elements *mem-* and the nom. sg. form of the suffix *-evais*, which is attested elsewhere. Nor is it necessary to know the meaning of ακκαλος to identify that it is a neuter *s*-stem in the NASg on the basis of its syntactic function.

There are some instances where the reverse approach is adopted and a possible etymology of the lexical root provides insight into a form that could otherwise not be parsed. It should go without saying that any analysis predicated on an assumed etymological origin of a lexical root is in

principle less secure than analyses proceeding from the opposite direction and is generally avoided. Perhaps the best example of this approach in action is the analysis of the attested form γουμεις.[8] Formally, we may identify the form as a dative plural form of either an *e*-stem γουμε- or an *m*-stem γουμ-. Since *e*-stems are generally limited to non-native names in the Phrygian corpus, the interpretation of the form as an *m*-stem is preferable to begin with. Semantically, we may guess as to the broad function of the form: it appears as part of a curse formula meaning 'if anyone should do something bad to this grave-plot or these *goumeis* [dat. pl.]'. If we assume an IE origin for an *m*-stem γουμ-, with *m*-stems generally being extremely uncommon in the Indo-European languages, the list of possible candidates quickly boils down to the PIE noun for 'earth', **dʰeǵ-om*-, with the derived form **dʰǵʰom*- providing the basis for Greek χθών and Sanskrit *kṣā́m*. This derived form would likely regularly develop into Phrygian γουμ-. We then have two reasons to uphold this etymological connection: 1) the only Phrygian *m*-stem formally fits a known derivation of the only known PIE *m*-stem, assuming **dʰǵʰ*- > Phr. γ-; 2) the meaning fits with only a minor shift from 'ground' to 'a specific piece of land' required: *burial-plots* or *[burial] grounds*. The given analysis is quite strong and, in turn, now allows us to more firmly postulate that **dʰǵʰ*- > PPh. **g*-. While other, more indirect evidence, suggests this development, this analysis of the form now provides a crucial piece of evidence for what the development of PIE "thorn" clusters was in Phrygian and, by extension, Graeco-Phrygian.

Thus, whenever such a "root etymology" is sought out, the cumulative evidence suggesting Indo-European origin must clearly outweigh the

[8] For a full account, see §II.3.1.2.2.

possibility of some element of the form being loaned. In the case of γουμ-, the analysis of this element as non-native has no positive indication whatsoever and only makes sense if one assumes that any form with a possible non-native element *must* be interpreted as inherently non-native until proven otherwise. As a principle, this would be misguided. As Beekes (1996: 215) laid out in his paper on identifying substrate vocabulary: "One might argue that the starting point must be that a word in an Indo-European language must be IE, unless this proves not to be the case. And heuristically this is the best way we can work."

In some instances, however, there do exist clues that we are dealing with non-native material. While every loan must have obviously been adapted to fit Phrygian phonology and morphology through the process of nativization (Hock 1991: 390ff.), some clear indications can usually be found. These fall into two broad categories: 1) phonological/phonetic; and 2) morphological.

The phonological/phonetic indications are usually quite transparent: either some alternation that cannot be explained in Phrygian-internal terms can be found, or some phonotactic reason suggests a non-native origin. For the former, the best example is the co-existence of both σκελεδρια- and σκερεδρια-. No native process can reasonably explain the alternation of λ and ρ; most likely it is borrowing from a language where some resonant could be interpreted by the Phrygians as either their λ or ρ. For the latter, the best example is μδυ-. No other word in Phrygian is known to violate the sonority hierarchy by having the stop appear after a resonant at the onset of a syllable.

The morphological indications are usually not as clear cut. One known indication that we are dealing with a loan is the declension of a nominal as

an *e*-stem. The category is almost exclusively limited to personal names that also appear elsewhere in Anatolia. As Phrygian adopted such names, it innovated a quasi-thematic *e*-stem declension on the basis of the thematic stems. In general, whenever an *e*-stem nominal is identified, it is likely a non-native personal name. Nevertheless, it appears that the *e*-stems expanded in productivity and could form derivations from native material as well, one such examples being the personal name *Bateles*, whose constituent morphemes are all of native Phrygian provenance.
Other likely non-native material is identified on the basis of similar considerations.

I.4.1 Graeco-Phrygian as an interpretative tool

In addition to the approach laid out above, one other element greatly informs the analysis of individual forms: the acceptance of the Graeco-Phrygian hypothesis.

The Graeco-Phrygian hypothesis suggests that, after splitting from PIE proper, the predecessor of both all the Greek dialects and Phrygian was initially a unitary Proto-Graeco-Phrygian language that underwent a series of innovations before splitting into Proto-Greek and Proto-Phrygian, which then developed separately, the first into the various Greek dialects, and the latter into attested Old, and later New, Phrygian.

I.4.1.1 Preliminary evidence for the existence of a Graeco-Phrygian branch

The strongest and most widely accepted hypothesis on the phylogeny of the Phrygian language is that its closest relative was Greek. There is, however, a marked wariness in the literature against using the terms Graeco-Phrygian for the branch of Indo-European including Greek and Phrygian or Proto-Graeco-Phrygian for the proto-language of that branch. In some instances, this terminological avoidance may be ascribed to the authors perhaps not considering the Graeco-Phrygian affinity as genetic, but rather the result of two late-PIE dialects emerging in close proximity to the other. Others may have wished to reserve judgement on the matter until some later time. Nevertheless, even when an author explicitly agrees with the existence of a post-PIE proto-language that later gave rise to both Greek and Phrygian and which should, by every metric, be called Proto-Graeco-Phrygian, the term continues to be strongly avoided. Perhaps this is due to an attempt to not ascribe undue importance to Phrygian in the context of Indo-European and Hellenic studies, due to scholars themselves not being convinced that the data is sufficient to warrant broad acceptance of the clade, or even due to a tacit understanding that any scholar of Phrygian would be familiar with the hypothesis and that no explicit acknowledgement of a Graeco-Phrygian hypothesis is necessary.

This is unfortunate, since it perpetuates the idea that Phrygian should be considered comparable to the other "Paleo-Balkan" languages, which are extremely sparsely attested, if even that, and whose genetic affiliation is for all practical purposes currently impossible to determine with any degree of certainty. In essence, the "Paleo-Balkan" group is the designation for the group of minor IE languages appearing in the general area of the Balkans

that do not allow better categorisation.[9] Indeed, Phrygian is included in this group in some major introductions to Indo-European languages and linguistics.

I hope that the recent, though currently still minor, scholarly trend of explicitly acknowledging the existence of a Graeco-Phrygian genetic clade, to which this work aims to contribute, will finally lay rest to the old question of Phrygian genetic affiliation, permitting the field to make broader use of the vast interpretative potential provided by the adoption of the Graeco-Phrygian hypothesis.

The evidence in favour of a Graeco-Phrygian branch is robust. Note that none of the arguments provided in this section originate in the present work; all of them have actually been published before the present work began being composed. For this reason, they are given as "preliminary" evidence; though, as it will turn out, this "preliminary" evidence is already entirely conclusive on the matter.[10] Throughout this work, a number of other instances of common innovations will surface.

[9] The other outlier is Messapic, whose corpus is only second to Phrygian in terms of size among the so-called "Paleo-Balkan" languages. Even so, the inclusion of Messapic in that group is at least warranted on the basis of it not clearly belonging to any of the other established clades of Indo-European.

[10] Obrador-Cursach (2019) has recently compiled this already existing evidence into a definitive article discussing the placement of Phrygian among the Indo-European languages.

- **Phonological**
  - **Treatment of laryngeals** (LL 1823; §II.3.1.1.2)
    - **#$h_{1/2/3}$C > *e/a/oC*;
    - **-C$h_{1/2/3}$# > *-Ce/a/o*;
    - **C$h_{1/2/3}$C > *Ce/a/oC*;
    - **C$h_{1/2/3}$RV > *CaRV*
    - **CR$h_{1/2/3}$C > *CRē/ā/ōC*;
- **Morphological**
  - **Proclitic pronominal **e*** (Obrador-Cursach 2019: 235; §IV.13)
    - The pronominal proclitic particle **e*- can attach itself to the beginning of a pronominal form;
      - Gr. ἐ-κεῖνος ‘this one (masc. nom. sg.)’, Phr. *e-sai* ‘this one (fem. dat. sg.)’.
  - **Pronoun *auto-** (Obrador-Cursach 2019: 235; §IV.5)
    - This pronoun is composed of the reflex of the adverbial **h₂eu*- ‘again’ and the pronominal stem **to*- ;
      - Gr. αὐτο- ‘he/she/it(self)’, Phr. *avto*- ‘id.’, both < PGPh. **h₂eu-to*-.
  - **Masculine *a*-stem paradigm** (Obrador-Cursach 2019: 236; §III.3.10)
    - The nominative singular case of this paradigm receives the innovative ending *-*s* (Obrador-Cursach 2019: 236);
      - Gr. μέγας ‘great, big (nom. sg.)’, Phr. *mekas* ‘id.’.

- **Agentive suffix **-ē/eu-*** (Obrador-Cursach 2019: 236; §III.3.4.1)
  - Secondarily thematised in Phrygian;
    - Gr. ἱππ-εύ-ς ‘horse-rider (nom. sg.)’, Phr. *akenanog-av-os* ‘? (nom. sg.)’.
- **Locatival adverbial desinence **-dʰ(e)n*** (Obrador-Cursach 2019: 235; §VI.4)
  - In zero-grade in Greek dialects and in Phrygian, full grade in Attic;
    - Aeolic Gr. πρόσ-θα ‘before’, Phr. *upso-dan* ‘above’, both desinences < **-dʰn*.
- **3sg middle imperative ending **-sdʰō(d)*** (LL 1828; §V.2.4)
  - Created analogically on the basis of: **-te* (2pl active imperative) : **-tō(d)* (3sg active imperative) = **-sdʰe* (2pl middle imperative) : X (3sg middle imperative), X = **-sdʰō(d);*
    - Gr. ἐχέ-σθω ‘to hold (3sg mid. pres. impv.)’, Phr. εγε-δου ‘id.’.
- **The class of **-o-je/o-* denominal verbs** (cf. Obrador-Cursach 2019: 237; §V.3.5)
  - Late denominal present from thematic nouns, contrasted with early denominal presents from thematic nouns with **-e-je/o-*;
    - Gr. κακ-ο-ε/ο- ‘to do bad’, Phr. *kak-oj-oi* ‘to do bad (3sg pres. opt.)’.

- **Lexical**
  - **The addition of a suffix **-ik-* to the noun **gʷenh₂* 'woman'** (Obrador-Cursach 2019: 235; §III.3.10.2)
    - Gr. γυναικ- 'woman', Phr. *knayk-* 'id.'.
  - **The lexical item **kako-*** (Obrador-Cursach 2019: 237-238; §III.3.1.3)
    - Gr. κακο- 'bad', Phr. κακο- 'id.'.
  - **The lexical item **korŭ-o/ā-*** (Obrador-Cursach 2019: 238; §III.3.1.5)
    - Gr. κορή 'girl', Phr. κοροαν 'id.'.
  - **The lexical item **mōro-*** (Obrador-Cursach 2019: 238; §III.3.1.7)
    - Gr. μῶρος 'stupidity (nom. sg.)', Phr. μουρον 'id. (acc. sg.)'.
  - **The verbal root **sleh₂gʷ-*** (Obrador-Cursach 2019: 238; §V.3.2.3)
    - Gr. λαβ-ε/o- 'to grasp, seize (aorist stem)', Phr. *lak-e-* 'id. (aorist stem)[?]'.[11]

The features listed as exclusive to Greek and Phrygian are not trivial at all: alongside the entirely unique treatment of the laryngeals, the apparent morphological innovations, which are by their very nature unlikely to be of a non-genetic origin, encompass the pronominal, nominal, and verbal systems.

[11] Though this root may perhaps also be seen in Old English *læccean* 'to grab' (LIV_2 566).

The only reasonable conclusion one may draw from this data is that Greek and Phrygian must have undergone a period of common development that cannot be ascribed to areal proximity alone. This conclusion leads by definition to the fact that there must have existed a Proto-Graeco-Phrygian language.

It is clear that this Proto-Graeco-Phrygian language would have preserved much of the Late-PIE morphology and would not have been phonologically substantially different from it, with the exception of the laryngeal developments. Nevertheless, some period of explicitly common and exclusive genetic development is necessary. While this work makes no pretence at being an attempt at a complete formal reconstruction of Proto-Graeco-Phrygian, some morphological analyses throughout this work will provide various insights into its make-up and structure.

I.4.2 A note on terminology

Throughout this work, different chronological stages in the history and prehistory of Phrygian will be referred to. These stages will be referred to by the following names:

Proto-Indo-European

The common ancestor of all Indo-European languages, including Anatolian.

Proto-Graeco-Phrygian

The language stage encompassing the period from the separation of the predecessor of Greek and Phrygian from all other Indo-European languages to the separation of the predecessors of Greek and Phrygian.

Proto-Phrygian

The language stage encompassing the period from the separation of the predecessor of Phrygian from the predecessor of Greek up to the period of the first Phrygian inscriptions.

Old Phrygian

The language stage of the Old Phrygian inscriptions (approximately from the 8th to the 5th centuries BCE).

Middle Phrygian

The language stage beginning at approximately the time of Alexander's conquest of Phrygia lasting approximately until the beginning of the common era. Only attested in inscription °W-11.

New Phrygian

The language of the New Phrygian inscriptions and the unattested language stage immediately preceding it that already underwent the majority of characteristic New Phrygian developments.

Since language change is a continuous process, perfectly clear boundaries cannot be established between the various stages, especially during periods of slower change. Nevertheless, the terminology utilized here will mostly prove to be sufficient for our purposes. When a relative chronology within a single stage needs to be established, the terms "Early" and Late" will be used, but these are to be understood as relative terms in the immediate context, not as appellations of concrete, absolute language stages.

II Phonetics and Phonology

II.1 Old Phrygian

II.1.1 Old Phrygian alphabet

Old Phrygian was written in a native alphabet from the 8th century onward (Lejeune 1969a: 19, Young 1969: 255, Adiego 2004: 300ff., PhL 27).

The writing system cannot have been an adopted version of the Greek alphabet from the western coast of Asia Minor (cf. PhL 27): the Greek population was not only separated from Phrygia by Lydia, the earliest Ionic and Aeolic inscriptions postdate the earliest Old Phrygian inscriptions by more than a century (Young 1969: 253). The Lydian alphabet shows some affinity to the Phrygian alphabet (most notably the presence of the grapheme <↑>) suggesting common innovations between the two (Gusmani 1978: 836ff.). Since the affinities with the Greek alphabet are less pronounced (*ibid.*), the Lydians apparently adopted the alphabet from an eastern or a southeastern source. The Lydian alphabet may itself be an adaptation of the Phrygian alphabet (Young 1969: 254, Adiego 2018: 150-152) or an independent adaptation from the same source as the Phrygian alphabet that developed in parallel to it.

The Phrygian alphabet was unlikely to have been an adaptation of a local alphabet of the southwest: all of these alphabets are attested from a considerably later date than Phrygian. While true that they must have undergone their own developments before being attested, the time gap between their attestation and the attestation of Phrygian strongly suggests

that the Phrygian alphabet is earlier. The Carian alphabet is notable for the aberrant values of its Greek-derived graphemes (Adiego 2007: 230, Adiego 2018: 155) and Carian inscriptions in any case only date from the 7th century BCE onward (Melchert 2008: 64). Lycian, on the other hand, is only attested from the 5th century onward (Rieken 2017: 244-245).

The likeliest area where the Phrygian alphabet could have its origin is to the southeast, in the vicinity of Cilicia (Young 1969: 255, PhL 27; Adiego 2018: 150), which is one of the possible locations for where the Greek alphabet was originally developed by adopting the native Semitic writing system in the 9th and 8th century (Brixhe 2004b: 284-285). The two alphabets show numerous similarities and both must have sprung from a common source, a proto-alphabet that had already adapted certain Semitic graphemes to represent vowel sounds (Young 1969: 255-256; PhL 28; cf. Sass 2005: 133ff., 146).[12] The two alphabets show the identical addition of <Y> to the end of the Semitic alphabet to represent the vowel [u], with the consonantal [w] represented by a separate grapheme, this addition of <Y> presumably being the last common innovation of the two writing systems (Young 1969: 255-6).

[12] See Brixhe 2004b: 284-85 *et pasim*, who argues at least certain aspects of the script must be a collaboration between Greek and Phrygian adopters.

Phoenician grapheme	Phoenician phone	Phrygian grapheme	Phrygian transliteration	Phrygian phone	Greek grapheme	Greek phone[13]
𐤀	[ʔ]	Α	a	[a], [a:]	Α	[a], [a:]
𐤁	[b]	Β	b	[b]	Β	[b]
𐤂	[g]	Γ	g	[g]	Γ	[g]
𐤃	[d]	Λ	d	[d]	Δ	[d]
𐤄	[h]	Ε	e	[e], [e:]	Ε	[e], [e:], [ɛ:]
𐤅	[w]	Ϝ	v	[w]	Ϝ	[w]
		Υ	u	[u], [u:]	Υ	[y] < [u] [y:] < [u:]
𐤆	[dz]				Ζ	[zd] < [dz]
𐤇	[ħ]				Η	[h], [ɛ:]
𐤈	[tˤ]				Θ	[tʰ]
𐤉	[j]	Ι	i	[i], [e:]	Ι	[i], [i:]
		Ϳ	y[14]	[j]		
𐤊	[k]	Κ	k	[k]	Κ	[k]
𐤋	[l]	Λ	l	[l]	Λ	[l]

[13] Where the cell is split, the left cell gives the sound the letter represents in the "blue" alphabets and the right cell gives the sound in the "red" alphabets, following Kirchhoff's appellations from *Studien zur Geschichte des griechischen Alphabets* (1867).

[14] Used for the consonant [j] after the 6th century; previously, the <i> grapheme was used (Lejeune 1969a: 60). See also Brixhe (2004: 281-84) who argues that the *yod* grapheme was part of the original Phrygian alphabetic inventory and stood for [j]; the <i> : <y> pair mirroring the <u> : <w> pair.

𐤌	[m]	𐌌	m	[m]	M	[m]
𐤍	[n]	𐌍	n	[n]	N	[n]
𐤎	[ts]				Ξ	[ks]
𐤏	[ʕ]	𐌏	o	[o], [oː]	O	[o], [oː], [ɔː]
𐤐	[p]	𐌐	p	[p]	Π	[p]
𐤑	[sˤ]				(Ϻ)	[ts]?
𐤒	[q]				(Ϙ)	[k̲]
𐤓	[r]	𐌓	r	[r]	P	[r]
𐤔	[ʃ]	𐌔 [15] 𐌑 [16]	s	[s]	Σ	[s]
𐤕	[t]	𐌕	t	[t]	T	[t]
		/	/	/	X	[kʰ] [ks]
		𐌖	Φ [17]	[dz]	Φ	[pʰ]
		𐌗	Ψ	[ʃ]	Ψ	[ps] [kʰ]
		/	/	/	Ω	[ɔː]
		𐌉, 𐌙 [18]	𐌉	[dz]		

Table #2: The alphabetic signs of Phoenician, Greek, and Phrygian (cf. Woodard 2010: 28-39 and PhL 29). The Phrygian signs are given in dextroverse orientation.

[15] For an argument that this grapheme has a different source than Greek *sigma*, see Young 1969: 264, 294 *et passim*.
[16] Local variant, see further in §II.1.1.5.
[17] Hapax for <𐌉>.
[18] Local variant, see further in §II.1.1.2.

II.1.1.1 Preliminary notes on Old Phrygian phonology

The differences between the Archaic Greek alphabet, which is comparatively well understood, and the Old Phrygian alphabet can shed some light on the phonology of Old Phrygian. As Young (1969: 294) already notes, the language is psilotic. There is no evidence of aspiration in Old Phrygian: had there been a phonemic series of voiceless aspirates in the language, some variant of *ṭēth* could been borrowed for /tʰ/, as was the case with theta in Greek, or some other strategy adopted, which was not the case. A grapheme for a /h/ was evidently also not required.[19]

There were evidently two very early adaptations the Phrygians made to the alphabet: the grapheme <↑> was added (Young 1969: 295) and the direction of the writing was less consistent. While the Phoenician alphabet in the time period when it would have been adapted was written sinistroverse, the oldest Phrygian inscriptions tend to be written dextroverse (or boustrophedon) (Young 1969: 266-267). Nevertheless, many inscriptions are still written sinistroverse (PhL 32).

The addition of a new grapheme to represent a native Phrygian phoneme seems to speak against any argument that the script is defective in some major fashion: if there were any additional phonemes in Phrygian that would have needed to be expressed, it seems very unlikely that a gap would remain unfilled throughout the Old Phrygian period.

One way in which the script was somewhat ambiguous, however, was in its representation of vowel sounds: vowel length was not graphically distinguished (PhL 30). The presence of at least two long vowels in Old

[19] This only further confirms that there were no voiceless aspirates in Phrygian. A language with voiceless aspirated plosives is typologically almost assured to have [h] as a phoneme (Jakobson *apud* Szemerényi 1996: 140).

Phrygian is assured based on their reflexes in New Phrygian: OPh. /ā/ > NPh. /a/, which can be inferred from the differing reflexes of OPh. /āi/ > NPh. /a/ and OPh. /ai/ > NPh. /ai/, and OPh. /ō/ > NPh. /u/, but OPh. /o/ > NPh. /o/. [20] The existence of /ū/ cannot be assured, but is likely: it would have been a marginal phoneme at best and there is no evidence that its reflex in New Phrygian would have differed from its corresponding short counterpart /i/ and /u/.

A long vowel /ē̞/ did exist, evidently being a mid-high front long vowel, as suggested by its spelling with vacillating <e> and <i>. For more details, see §II.3.2.2, where we propose that it arose from earlier *$\bar{\imath}$, compensatory lengthening, and possibly contraction. It is unlikely that the diphthong /ei/ merged with /ē̞/ in Old Phrygian (Lubotsky 1998: 415).

This synchronic Old Phrygian and New Phrygian /ē̞/ is in no way to be understood as a reflex of pre-Proto-Phrygian *$\bar{e}$ (< PIE *$\bar{e}$ and *eh_1): that phoneme merged with /ā/, as first noted by Jokl in 1927 (*apud* Woodhouse 2009: 174). To avoid any possible ambiguity on the matter, the Proto- and Old Phrygian phoneme /ē̞/ not originating from earlier *$\bar{e}$ will be consistently written with the diacritic indicating a raised vowel. Whenever a reference to $\bar{e}$ without a diacritic is made, it refers either to the sound that eventually merged with *$\bar{a}$ in Proto-Phrygian, or the language being discussed is not Phrygian.

[20] While the reflexes of OPh. /ā/ and /a/ in merge in New Phrygian, /āi/ and /ai/ show different reflexes. Since there was a distinction between a long and short diphthong in Old Phrygian, a distinction between /ā/ and /a/ for this period is structurally necessary.

II.1.1.2 The grapheme <↑>

The grapheme <↑> is a Phrygian addition to the alphabet (Young 1969: 295).

We will follow Brixhe's (CIPP2: 26-29) suggestion that the sign previously transliterated as <ś> in inscription °B-05 by Neumann (1997: 15ff) in the words *śiray* and *śemeney* is to be understood as a local variant of the sign <↑>.[21]

The sign <↑> represents a phoneme native to Phrygian whose phonetic interpretation remains difficult. It is surely no coincidence that it appears almost exclusively before [e] and [i], so we must be dealing with the result of a palatalization (Brixhe 1982: 229ff., Brixhe 1983: 114, CIPP2 26-7, *contra* Orel 1997: 13). Brixhe (2004: 28) reasons that <↑> is a modification of <T>, inspired by the plosive element of an affricate, suggesting a sound value of [ts] or [tʃ] to this grapheme. Orel (1997: 381) has proposed a value /gʲdʲ/, Ligorio and Lubotsky (LL 1820) proposed a voiced affricate or /z/, and Obrador-Cursach (PhL 37) suggested an allophonic [z] or [gʲ], [zd], [dz], [dʒ].

As will be shown in §II.3.2.3.4, <↑> must have represented the Phrygian reflex of a phoneme that developed from a palatalized voiced stop and which developed into the sound represented by <ζ> in the New Phrygian era (cf. PhL 36, LL 1820).[22]

[21] As also assumed by Obrador-Cursach (PhL 33-37) and Ligorio and Lubotsky (LL 1817), but argued against by Oreshko 2022: 155.

[22] The sound represented by <↑>, then, must have been voiced throughout its known history. There are no grounds to assume an intermediate devoiced stage whatsoever (*contra* Brixhe 1982: 210ff.).

Other nearby writing systems may provide some clues as to the value of this grapheme.

The neighbouring Lydians used a <↑> grapheme in their alphabet (and presumably borrowed it from Phrygian). The exact phonetic value of this sign is disputed. The sound is a reflex of **d(ʰ)* before a front vowel (Kearns 1994: 44) and *y (Melchert 1994: 333-4), but as Kloekhorst (2023: 130-131 *et passim*) points out, voice was not a phonemic feature of consonants in Lydian, which means we cannot use Lydian to gauge the presence or absence of voice in Phrygian <↑>. Since it is now clear that the sound [ts] in Lydian was written with a grapheme conventionally transliterated as <τ> (Melchert 1994: 333), <↑> must have represented some other sound. Some proposed phonetic values for the Lydian grapheme include [ts] or [tʃ] (Brandenstein 1929: 263), [ts]$^{?}$ (Adiego 2018: 151), [θ] (Bossert 1931: 314), [z] or [dz] (Melchert 1991: 134) (see also Kearns 1994: 44). Kloekhorst (2023: 127) has tentatively proposed a plosive value [c]. In any case, we are dealing with a sound that was the result of palatalization, suggesting a similar value for the Phrygian <↑> grapheme.

The neighbouring Carian alphabet also shows a <↑> grapheme, conventionally transliterated as <τ>. Its phonetic value is probably [tʃ], though this is based solely on the Carian adaptation of the Egyptian name *T̲3j-jm=w* [tʃamōu] (Greek Ταμως, Θαμως, Σαμαυς, Σαμωϋς) (Adiego 2007: 251; Adiego 2018: 155). The value [ts] is less likely, as there is a separate grapheme, transliterated as <z>, that might have this value (Adiego 2007: 251), but Carian <z> may have in fact have represented /sd/ (Adiego 2018: 155), leaving open the possibility that Carian <↑> represented [ts].

Hieroglyphic Luwian sign *376 can also be compared to Phrygian <↑>, since it has the shape of an arrow. It is transliterated as <zi> and encoded the phonetic value [tsi] (Hawkins 2003: 164).

Of the four other arrow-shaped signs in the area, all are used to render some sound that could plausibly result from palatalization; the most likely value is that of an affricate. Furthermore, three of the four signs would have been used in languages that did not distinguish phonemic voice, and the relationship between Greek *sampi* and the arrow sign is not well established.

Oreshko (2013: 81-82) and Melchert have argued that the Lydian <↑> and Carian <τ> were borrowed from Hieroglyphic Luwian sign *376, but it is just as likely that Lydian and Carian <↑> and <τ> were actually borrowed from the Phrygian or a Phrygian-inspired alphabet, since they are both attested later than Phrygian.

While both a voiced affricate and a fricative value are equally possible results of a palatalizing process, we may be reasonably sure on the basis of the other neighbouring alphabets that the Phrygian value of <↑> was that of an affricate. Since the sound developed from a Proto-Phrygian voiced velar and was later on represented by <ζ>, which was used to represent a voiced sound as well, we may conclude that the value represented by Phrygian <↑> was that of a voiced affricate, mostly likely dental, i.e. [dz].

It is tempting to assume that, since Luwian hieroglyphs predate the Phrygian alphabet and Luwian was spoken until the 6th century BCE, the Phrygians adopted a Luwian glyph to transcribe a native phoneme that could not be better represented with any Phoenician-inspired sign (*contra* PhL 37). The territory of spoken Phrygian would have bordered a large

Luwian-speaking area to the south, and to reach Cilicia, where their alphabet most likely originated, the Phrygians would have had to pass through Luwian-speaking areas. Assuming that the Phrygian grapheme <↑> did ultimately originate in the Luwian hieroglyphs, it would not be unexpected for the Phrygians to consider Phoenician <z>, representing [z], as insufficient for representing their dental affricate if they were also familiar with Luwian sign *376, which did explicitly represent such a sound as part of a sequence transcribed as <*zi*>. Note that Luwian did not possess a phonemic voicing contrast in its consonants. If the Phrygians did borrow this sign from the Luwian hieroglyphs, it would have been unmarked for voice, only conveying the value of a dental affricate, which, since Luwian did not distinguish phonemic voice, may have been allophonically voiced in some environments.

The Greeks adopted the Phoenician <z> early on as a means of writing their own /dz/ or /zd/ (ultimately from PG *d^j and *g^j). The Greek and the Phrygian alphabets developed alongside each other and heavily influenced each other's creation, but it is not necessary to presume that the two would adopt an identical strategy at creating a grapheme for their respective voiced affricates. The speakers of Greek may have been content at adopting Phoenician <z> as a means of representing /dz/; the Greeks would have been present in the area along the coast only and would presumably not have been in as vigorous contact with Hieroglyphic Luwian. The different strategies of spelling /dz/ in Greek and Phrygian would have then been the result of their locations.

II.1.1.3 Grapheme <y>

The Phrygians adopted the Phoenician *yodh*, with the value [j], to represent their [j] after the 6th century BCE (PhL 32-33).

II.1.1.4 Grapheme <Ψ>

The Phrygian grapheme Ψ has generally been taken as representing [ks] until recently (Lejeune 1978). In the past few years, Hämmig (fthc.), Obrador-Cursach (PhL 38ff.), and Oreshko (2022: 146-159) have called this interpretation into question.[23] Obrador-Cursach proposes to read <Ψ> as a variant of <k>, with both having the value /k/. Oreshko proposes to read <Ψ> as /ss/, though he notes that would not be its only function and it would be used to render other types of sibilant sounds as well. The conclusion we will ultimately draw below is that <Ψ> was used to render a post-alveolar sibilant /ʃ/.

Lejeune makes the following observations regarding the phonetic value of <Ψ>:

1) In inscription °G-145, which reads *voineo*[*s*/Ψ]*uriienois ku[---]*,the letter [*s*/Ψ] looks like <Ψ> that is extended downward into <*s*>. Lejeune assumes that this is the result of scribal error: the scribe began to mistakenly write <Ψ> and then made a correction into <s>.

[23] Hämmig's argument will not be discussed further in this section, as it is based on an erroneous analysis of the sigmatic optatives as thematic. In her view, <Ψ> represents the reflex of the thematic verbal suffix **-ske-* when following a back vowel, which would have developed into <σσ> in New Phrygian. For a more thorough analysis of her account, see §V.3.4 and §V.3.4.1.

This would, in his view, suggest that <Ψ> represented a sound with some sort of a sibilant component.

2) In graffito °G-115, which reads Ψ*uva*Ψ*aros*, Haas (1976: 80) identified the word as an adaptation of a personal name attested in Old Persian as ^{h}*Uvaxšatara*-, New Assyrian ^{m}*Ú-ak-sa-tar* and ^{m}*Uk-sa-tar*, in New and Late Babylonian as ^{m}*Ú-ma-ku-iš-tar* or ^{m}*Ú-ma-kiš-tar*, in Elamite as *Ma-ki-iš-tur-ri* and *Ma-ak-iš-tar-ra*, and in Greek as Κυαξάρης (for the references, see PhL 39). Lejeune argues that the second <Ψ> of the Phrygian rendition of the name corresponds to Old Persian -*xš*- and to Greek -ξ- and that the sounds must therefore have the value /ks/. He assumes the first <Ψ> to be the result of a regressive assimilation of Old Persian /h-/, which was not a native phoneme of Phrygian, reading the entire name as [ksuwaksaros]. Obrador-Cursach (PhL 40) points out that graffito °G-224c likely shows an abbreviation of this name: Ψ*uv.*
3) Based on the previous two analyses, Lejeune considered *da*Ψ*et* °W-01b as representing a sigmatic verbal form of the verbal root underlying αδδακετ ‘would do’, i.e. [*dakset*], similar to the Latin pair *faciō* ‘to do (1sg present)’ ~ *faxō* ‘to do (1sg future)’. He explains the spelling with <*ks*> found in the same inscription in *eveteksetęy* as being due to a morpheme boundary: *ev-e-tek-s-e-tey.*

Obrador-Cursach (PhL 38-39) suggests that Lejeune’s first observation is of questionable value, since the reading of the text is not as clear as previously suggested. Adiego suggested to him (through p.c.) that the scribe initially wrote <o u> and, after realising their error, tried to insert <s> between the two vowels. With not enough space for <s> present in the gap, the scribe then attempted to scratch out this mistake and added <s>

below. The copy in CIPP (132) does not suggest there was not enough space between <o> and <u> for an addition of <s>, however, which was a comparatively slim grapheme. As Obrador-Cursach himself (PhL 39) notes, an examination of the actual object is obviously the only valid way to settle this debate, but in light of the evidence available to us, his conclusion is premature.

Since this <s> was initially mistakenly written as <Ψ>, the latter grapheme was likely to have been in at least some way phonetically similar to a sibilant, as argued by Lejeune and Oreshko.[24]

The second observation, i.e. identifying Ψ*uva*Ψ*aros* as an adaptation of *ʰUvaxšatara-*, is convincing, in spite of Oreshko's objections (for which see Oreshko 2022: 150-151).[25] Lejeune's suggestion that a medial /ks/ would have spread to initial position by regressive assimilation is questionable. The correspondence between <Ψ> and the sounds in the original name are clear: it appears to represent an original /h/ and an original /xʃ/. Most likely the original initial /h/ had been adopted as [x], as is also suggested by the initial velar value of Greek Κυαξάρης. We may note as a possibility that this initial transformation may have taken place in some intermediary language.

[24] See also Oreshko (2022: 152) for a possible analysis on how the graphemes were corrected.

[25] It is not a given that the name would be exclusive to Median nobility. Also, the linguistic argument that the sound /h/ could not have been rendered as a velar when borrowed is entirely incorrect: in languages lacking /h/, one commonly known possibility is that it is adopted as /x/ (cf. Polish *huta* /x-/ < German *Hütte* /h-/ 'hut' or Modern Greek χάκερ /x-/ < English *hacker* /h-/). Oreshko himself has to immediately resort to an *ad hoc* suggestion of a folk etymology to explain the Greek rendering of *ʰUvaxšatara-* as Κυαξάρης, instead of assuming an entirely natural /h/ as [x] > <κ> borrowing.

The third observation is valid if we analyse *da*Ψ*et* as a sigmatic optative belonging to the root *dak*-.[26],[27] Both Obrador-Cursach (PhL 40-41) and Oreshko (2022: 152-154) disagree with this analysis, albeit on different grounds: Obrador-Cursach argues against the form being a sigmatic optative, since he considers the grapheme <Ψ> as being simply a variant of <k>, whereas Oreshko objects to the identification of the root as being *dak*- for semantic reasons.

Oreshko (2022: 149-150) rightly notes that the sequence /ks/ being spelt in two different ways in the same inscription (*da*Ψ*et* and *eveteksetey*) makes little sense and rejects Lejeune's attempt at providing an explanation for it.[28],[29] It is particularly this argument that makes the reading of <Ψ> as /ks/ impossible.

Obrador-Cursach (PhL 38-49) argues that the grapheme <Ψ> is simply a variant of the grapheme <k> and that it represents the sound /k/.
His first argument is of a syntactic nature, made by comparing *da*Ψ*et* °W-01b to *daket* °B-05 and αδδακετ of New Phrygian. The argument is flawed, since reading *da*Ψ*et* as a sigmatic optative form is in no way syntactically excluded (as confirmed by the existence of *egeseti* in the protasis of an imprecative formula, which he himself notes) (cf. also Oreshko 2022:

[26] Note that Lejeune would only be surreptitiously correct in seeing in <Ψ> the sequence /ks/, since his comparison of a hypothetical **dakset* to Latin *faxō* cannot be upheld.
[27] The verbal formation showing the presence of the *si/e*-suffix has a number of different appellations. This work uses the term "sigmatic optative" for etymological reasons. See §V.3.4.
[28] Lejeune's argument that the different spellings are the result of whether or not there was a morpheme boundary is flawed in and of itself: *da*Ψ*et* [dakset] would, in fact, have a morpheme boundary between [k] and [s], same as in *eveteksetey*.
[29] Consider also the spelling of the name *Muksos* °G-346, which once again shows that /ks/ was spelt as simply <*ks*> (Oreshko 2022: 150).

149ff.) and his assumption that a consonant-final stem would have inserted a vowel before the addition of the suffix *-se/i-* is incorrect.[30] His analysis (PhL 42-45) of the form *aniva*Ψ*eti* as necessarily not being a sigmatic optative form already presupposes that <Ψ> did not have any sibilant value (see also Oreshko 2022: 152ff.).

His second argument is based on an interpretation of inscription °G-249, which reads *se*Ψ*elt*|*ias*. His suggestion (PhL 41-42) that *se*Ψ*el* represents the West Semitic unit of weight, the shekel, is convincing.[31] The name of this unit of weight originated from a Proto-Semitic root **tql*, which developed into Old Aramaic *šql* /θqel/, Akkadian *šiqlum*, and Biblical Hebrew *šeqel*. Obrador-Cursach gives Greek σίκλος/σίγλος and Lycian *siχla-* as other examples of this unit of measurement being borrowed, but we may add that these latter two, being quite consistent in their vocalism and forming a vowel-final nominal stem, seem to be borrowed from some Semitic variant similar to Akkadian *šiqlum*. The vocalism of Phrygian *se*Ψ*el* and its ending is quite incompatible with an assumption that it was borrowed from the same source as σίκλος/σίγλος or *siχla-*. Obrador-Cursach is likely correct when he assumes that the contemporaneous Old Aramaic *šqel* /θqel/ or a close local variant of it ultimately underlies Phrygian *se*Ψ*el,* presumably with an epenthetic vowel used to break up the initial cluster. His implicit argument that the rendering of Semitic /q/ was <Ψ> in Phrygian does seem to be reasonable, and if <Ψ> was simply a

[30] The second *-e-* in *egeseti* 'may he hold' is not an obligatory element of the sigmatic optatives but actually the thematic vowel of the present stem, which formed the basis of the sigmatic optative stem in this instance. For the details, see §V.3.4.

[31] Though Oreshko (2022: 151) argues emphatically against this possibility. He rather proposes that the inscription is not actually proper writing, but only imitates it, and that the object on which it is found is some sort of magic amulet. If anything, that clearly seems the more far-fetched possibility.

variant of <k>, it or <k> would have been the most reasonable graphemes with which to render non-native /q/.[32]

As his final argument, Obrador-Cursach (PhL 47) considers the rendering of ^{h}*Uvaxšatara-* as Ψ*uva*Ψ*aros*. If <Ψ> is to be read as a variant of <k>, he proposes that Ψ*uva*Ψ*aros* [kuwakaros] is rendered in a way similar to Greek Κυαξάρης [kyaksárēs], with the first sound being adopted identically in the two languages, and with Phrygian simplifying the **ks* kluster into /k/. For this later development, he cites a parallel, where a word-final **ks* developed into *k*: **u̯anaks* > *vanak.* This parallel is word-final, however, and it is known that consonantal clusters were, as a rule, not permitted in word-final position (see also §II.3.2.3.10).

Of the arguments provided by Obrador-Cursach for the reading of <Ψ> as /k/, only the second one stands up to any scrutiny. Even there, however, the equation need not necessarily be as neat as simply Old Aramaic *šqel* /θqel/ > Phrygian *se*Ψ*el*. The Eastern Anatolian languages, as a rule, do not possess uvular stops (Melchert 1994: 92, 190, 229 *et passim*): in those, adopting /q/ as /χ/, which they would have possessed (*ibid.*: 97, 195, 234), would be quite natural. Phrygian may well have borrowed the original Aramaic /θqel/ through an Anatolian intermediary that would have adopted the initial consonant as [s] and broken up the initial cluster /sk/ (which was not phonologically permissible in many of the Anatolian languages) into /sVk/, as well as rendered /q/ as /χ/: Phrygian could have actually adopted the term **sVχel*.

[32] Though do note that Obrador-Cursach's assumption (PhL 46) that Greek σίκλος and Lycian *siχla-* actually come from the same source as Phr. *se*Ψ*el* and that <Ψ> must therefore correspond to Greek <κ> and Lycian <χ> is unfounded.

Regardless of the weight of his arguments, the primary unaddressed problem present in Obrador-Cursach's account is that the segment /k/ already has an established corresponding grapheme in Old Phrygian. He assumes that the signs <Ψ> and <k> encode an entirely identical phonetic value and that <Ψ> is simply a variant of <k>. This is a questionable proposition.

He suggests that <Ψ>, as written in °B-07, is similar to how <k> is written in *knays* of that inscription, but I do not agree that the two signs can be compared. There is the issue that immediately before the letter <k>, there is a large gash in the stone, so the vertical bar may have been damaged, but in any case, the letter <Ψ> clearly shows three lines on top, whereas <k>, if interpreted as not having a vertical bar to the right, even though I believe it to actually be visible, only shows two. The stroke in the lower left portion of the grapheme in <k> is carved at an angle, whereas the bottom half of the grapheme <Ψ> is written with a straight stroke. If anything, the <k> of *knays* is clearly more similar to the <k> of *ke* in that inscription.

Image #1: <k> in *knays* °B-07

Image #2: <Ψ> in *aniva*Ψ*eti* °B-07

Image #3: <*k*> in *ke* °B-07

It is true that some minor examples exist for alternative graphemes (such as <Φ> for <↑>, and <8> for <b>), but these alternate graphemes are extremely rare, each only appearing in a single inscription, and never co-occur with their more common counterparts within that same inscription. In the case of <Ψ> and <k>, not only is <Ψ> found in a number of different inscriptions, it is also used in inscriptions that also use <k>. Obrador-

Cursach (PhL 47) is correct in noting that not all graphemes are written identically even within the same inscription, so variants do exist, but there is clearly a notable "familial" resemblance between variants of the same grapheme in the same inscription. I fail to see any such resemblance between <k> and <Ψ>.

Oreshko (2022: 149-146-159) argues in favour of a sibilant reading of <Ψ>. He makes a compelling argument that the root underlying the form *da*Ψ*et* °W-01b is *da-* 'to put', and not *dak-* 'to make' (*ibid.* 152-153).[33] On the basis of Lejeune's first argument for a sibilant reading, he then interprets *da*Ψ*et* as *daSet*, by assuming we are dealing with a sigmatic optative (*ibid.* 153-154), which is indeed the most reasonable assumption. By comparing *da*Ψ*et* to the sigmatic optative form δεδασσιννι, he concludes that <Ψ> represents /ss/ in this instance, which is a valid conclusion to make.[34] It is not necessary to go into Oreshko's analysis of the form *aniva*Ψ*eti,* since, similarly to how Obrador-Cursach approaches it, it follows from the conclusion, rather than informing it.

Less convincing are his arguments based on the rejection of Brixhe's reading of the supposed grapheme <*ś*> in °B-05 (as transliterated by Neumann 1997) as simply <*s*> (for which see CIPP2: 26-29). He also rejects that the <*ś*> of *śemeney* and *śiray* (transliterated as ↑*emeney* and ↑*iray* here and in PhL) is a local variant of <↑>, dismissing the best

[33] The syntagm *onoman da*Ψ*et* makes the most sense if it refers to 'putting a name' to something, i.e. replacing the name on the monument; the meaning 'making a name' would be unexpected.

[34] It is true that the comparison between *da*Ψ*et* and δεδασσιννι is not entirely straightforward: the former is a de-aoristic sigmatic optative, and the latter a de-presentive one. Nevertheless, the morpheme *-s(s)e/i-* would have been used identically in both. See further in section §V.3.4.

argument in favour of this identification, that of equating *śira-* to New Phrygian ζειρα-, with specious reasoning.[35]

Both Obrador-Cursach's and Oreshko's re-interpretation of the reading of the grapheme <Ψ> provide important new arguments to consider, yet neither can be entirely endorsed, since both disregard one crucial piece of evidence.

Obrador-Cursach, in arguing against a sibilant value, entirely dismisses the one piece of evidence most suggestive of a sibilant component in the grapheme (i.e. the correction in °G-145), and Oreshko, in arguing against a velar value, entirely dismisses the best piece of evidence for a velar component in the grapheme (i.e. the comparison of Ψ*uva*Ψ*aros* with *ʰUvaxšatara-*). Neither of these dismissals is warranted.

Let us then recapitulate the evidence we have available for the value of the grapheme <Ψ>:

1) on the basis of °G-145, the grapheme represents a sound with some sibilant-like component;
2) in Ψ*uva*Ψ*aros*, <Ψ> in initial position likely represents a non-native /x/ or its substitution, and in internal position represents a non-native cluster /xʃ/ or its substitution;
3) in *da*Ψ*et*, <Ψ> represents the sibilant of the sigmatic optatives, which was otherwise written as <s> in Old Phrygian inscriptions (cf. *egeseti*, *dedasitiy*);

[35] He argues (Oreshko 2022: 155) that the two cannot be equated by saying that a diphthongisation of OPh. *i* into NPh. ει is unlikely. There is no reason whatsoever to assume that the <ει> or ζειρα represents a diphthong, and it is well known that New Phrygian could use the digraph ει to spell /i/. In fact, it is now clear that the digraph ει is in fact the expected spelling of the reflex of an inherited long /ī/ (see section §II.2.3.1.2).

4) in *se*Ψ*el*, <Ψ> represents the substitution of what was ultimately a non-native /q/;
5) <Ψ> cannot represent a synchronic [k], [s], or [ks], since all of these values were represented with other graphemes or combinations of graphemes.

Since the grapheme seems to have both a sibilant and a velar-like value, could we assume it represents a sound with an intermediate value, namely /ʃ/ *vel sim.*? That seems like a viable possibility that does not unduly dismiss any of the direct clues we have for its value. The ramifications of this interpretation are the following:

- In °G-145, the confusion between the two graphemes would be due to both encoding a sibilant sound.
- What would become the geminate sibilant of the sigmatic optatives in New Phrygian was written with <Ψ>, suggesting that geminated /ss/ was articulatorily retracted and was /ʃʃ/.[36] This explains the spellings of *da*Ψ*et* /daʃʃē̯t/ < */dassē̯t/ < */dāsē̯t/[37] and *egeseti* /egesē̯ti/.[38] As elsewhere in Old Phrygian, the geminate value of the consonant /ʃʃ/ would not be graphically represented as *ΨΨ.
- Non-native dorsal fricatives were borrowed as the native /ʃ/ sound due to articulatory and acoustic proximity.[39] This would explain the rendering of /xuwaxʃatara/ as /ʃuwaʃaros/. We have likewise already proposed that Old Aramaic *šqel* passed through an

[36] For the origin of the double sibilant in sigmatic optatives, see §V.3.4.1.
[37] With gemination of the *s* arising from the rule *V̄s* > *Vss*, for which see §V.3.4.1.
[38] Oreshko (2022: 154) proposed that we are dealing with a simplified spelling in *dedasitiy* °B-05. We may note the possibility that perhaps the dialect of that inscription did not distinguish between /s/ and /ʃ/ either phonemically or graphically.
[39] Compare the pronunciation [ɪʃ] of some English speakers of the German *ich* /ɪç/ 'I'.

> intermediate language, where it was adapted to **sVχel vel sim.*, which was subsequently borrowed as Phrygian *se*Ψ*el* /seʃel/.[40]

This solution is very much in line with that proposed by Oreshko (2022: 158-159), who argues that <Ψ> had the function of rendering an 'unusual *s*'. His proposal has simply been slightly expanded to give the grapheme a more concrete value and to argue that it is not the gemination of the sibilant of the sigmatic optatives that the grapheme renders, but rather its articulatory position.

We may make one additional note here. It is true that <Ψ> cannot represent a synchronic value [ks], since that sequence is written as <ks>. It is entirely possible, however, that an original **ks* cluster could have developed into /ʃ/ or /ʃʃ/; that development is well attested typologically (Kümmel 2007: 235). This opens up the possibility that *aniva*Ψ*eti* and *de*Ψ*eti*, both sigmatic optatives, as we can claim on the basis of their using the grapheme <Ψ>, can be etymologized as arising from roots that ended in a velar. Particularly *de*Ψ*eti* is telling in this case. <Ψ>, when used in a sigmatic optative, only seems to spell the reflex of a geminated /ss/. This geminated sequence only appears after originally long vowels, but the first vowel of *de*Ψ*eti* cannot have been long at any stage; otherwise, it would have surfaced as *a*.[41] The <Ψ> of *de*Ψ*eti*, then, must have some source other than simply the sibilant of the sigmatic optative. Thus, <Ψ> is evidently also used to spell the reflex

[40] Once again, if Aramaic *šqel* were actually borrowed directly into Phrygian, we would expect its uvular stop to be rendered with a velar stop, which would have been written as <k>.

[41] This is the case in *da*Ψ*et*, where an original long **ē* developed into **ā*, which was subsequently shortened: **dēsḛ̄*- > **dāsḛ̄*- > **dassḛ̄*- > *da*Ψ*e*-. See §V.3.4.1.

of a cluster of some consonant and **s*; most likely, one such cluster would have been **ks*.[42]

II.1.1.5 Non-canonical representation of sibilants

In the North-Western area of Phrygia (most notably in inscriptions °B-04 and °B-05), the representation of the sibilant /s/ is different to that attested elsewhere: 𐤌 (CIPP2: 26-29). This is a notable peculiarity of the northwestern Phrygian alphabet (*ibid.*, Oreshko & Alagöz 2023: 801).

We also find this sign used for /s/ in the newly discovered inscription °G-12 (Oreshko 2023: 54ff.). This inscription in particular is fascinating in that it apparently uses one additional sign for some sibilant: 𐤋 (Oreshko 2023: 54; Oreshko & Alagöz 2023: 801). This grapheme is transliterated as <ś> and as Oreshko and Alagöz (*ibid.*: 801-803) rightly note, it is likely to represent a palatalized or retracted sibilant close to [ʃ]: it appears before <i> and when in a cluster with another consonant. This retracted value of the sibilant must be the result of a possibly local allophonic variation.

[42] Do note that the argument being made is not that <Ψ> was used to render a synchronic value /ks/, which is counterindicated by that sequence being spelt with <ks>, as noted above. Rather, an older sequence **ks* would have developed into /ʃ/ or /ʃʃ/, which would be spelt with <Ψ>. Spellings with <ks> that we do find would reflect synchronic sequences of /ks/ that arose after this sound law had ceased being operational.

II.1.2 Synchronic phonological system of Old Phrygian

	labial	dental	alveolar	palatal	velar
voiceless plosive	/p/ <p>	/t/ <t>			/k/ <k>
voiced plosive	/b/ <b>	/d/ <d>			/g/ <g>
affricate		/dz/ <↑>			
fricative		/s/ <s>	/ʃ/ <Ψ>		
nasal	/m/ <m>	/n/ <n>			
resonant			/r/ <r> /l/ <l>		
semi-vowel	/w/ <v>			/j/ <y>, <i>	

Table #3: The consonantal segments of Old Phrygian

	front	central	back		front	central	back
close	/i/ <i>		/u/ <u>		/ę̄/ <i>, <e>		/ū/ <u>
mid	/e/ <e>		/o/ <o>				/ō/ <o>
open		/a/ <a>				/ā/ <a>	

Table #4: The vocalic segments of Old Phrygian

Diphthongs:

/ai/ *ayni* 'if' °B-05.11

/ei/ *materey* 'mother (DSg)' °W-01b

/oi/ *adoikavoi* 'PN (DSg)' °G-02

/au/ *avtay* 'him(self) (DSg)' °W-01b

/eu/ *bevdos* 'statue' °B-01.1

/ou/ *otekonov* '?' °B-01.7

/āi/ *avtay* 'him(self) (DSg)' °W-01b

/ōi/ κλευμαχοι 'PN (DSg)' °W-11

/āu/ *no secure example*

/ōu/[?] *vasous* 'PN' °P-03 [43]

II.1.2.1 Restrictions in coda

In word-final position, only certain sounds and combinations of sounds were permissible as a result of regular sound change (cf. §II.3.2.3.10).
The allowed codas were:

- all vowels: *-a* (*spereta* '?' °B-01), *-e* (*ke* 'and' °B-07), *-i* (*aniva*Ψ*eti* 'may he mourn[?]' °B-07), *-o* (*tovo* 'of him' °G-02), *-ā* (*kubeleya* 'DN' °B-01), *-ō* (*lakedo* 'may he be seized' °W-01b), *-ū* (*ituv* 'may he become/go' °B-05); *no good examples attested for -u, -ę̄*;
- all diphthongs: *-ei (vanaktei* 'king (DSg)' °M-01a), *-oi (tedatoy* 'he caused to be placed' °W-01a), *-āi* (*avtay* 'him(self) (DSg)' °W-01b), *-ōi* (*adoikavoi* 'PN (DSg)' °G-02), *-ou* (*otekonov* '?' °B-01); *no good examples attested for -ai, -au, -eu,*[44] *-āu, -ōu*;
- a vowel followed by *-s* (*ates* 'PN' °M-01a), *-n* (*keneman* 'niche' °M-01b), *-r* (*matar* 'mother' °B-01), *-l* (*apel* 'fruit[?]'°G-342), *-t* (*da*Ψ*et* 'would put' °W-01b), *-k* (*bonok* 'PN' °W-01a), and presumably *-p* (no example is attested, but this is likely, since *-t* and *-k* are both allowed).

[43] See Brixhe 1990: 70ff.
[44] Possibly attested in *apelev* °B-07.

II.1.2.2 Gemination

Geminate spellings in Old Phrygian are exceedingly rare (cf. PhL 31, 56); there are only 8 examples of identical graphemes appearing adjacent to each other in the entire Old Phrygian corpus.
Listed are all examples of geminate spellings in Old Phrygian:

- *bba* (°M-02) is a variant of *baba* 'PN' (°M-01b) (PhL 192);
- word divisions exist between: *alussi↑eto* (°W-08, °W-10) (cf. *si↑eto ae alus* °W-09) (PhL 174), *mamutassok-* °G-229 (cf. *mamutas* 'PN' °G-229) (PhL 290-291);
-]*kakrayunni*[°G-03,]*esservasbo*[°G-130,[45]]*ạvaṣṣ*[°G-142 are fragmentary inscriptions, so no judgement on the geminates is possible;
- *natimeyonnạ* °W-05a is unexplained.[46]

In the last four examples, the inscriptions are fragmentary or, in the case of °W-05a, too short for us to be able to tell whether a word boundary may have been present between the two identical consonants.
In the end, then, we are left with four dubious cases of written "gemination". The most reasonable conclusion to draw from such a dearth of examples is that Old Phrygian did not graphically distinguish gemination (cf. also PhL 31).

At least one, and possible more, geminates were phonemically distinct in Old Phrygian, however: see §II.3.2.3.9 and §II.3.2.3.11 below, where the

[45] Though Obrador-Cursach (PhL 345) reads *]es servas bo[*.
[46] Obrador-Cursach (PhL 308) assumes a word boundary between *natimeyon* and *na* due to the geminate spelling.

existence of a phonemic geminate /n:/ in Old Phrygian is firmly established and the existence of a phonemic geminate /s:/, though backed to [ʃ:], in at least late Old Phrygian is strongly suggested on the basis of New Phrygian data.

In the Old Phrygian script, the phonemic geminates would not have been graphically marked as distinct from their non-geminated counterparts.

II.1.2.3 Vacillation in spelling

Several lexemes appear to be spelt differently in different inscriptions. Variant spellings with *y* will not be discussed specifically: after an apparent spelling reform in the 6th century, <y> began to be used in i-diphthongs, as a facultative insertion in /i(j)V/ sequences, and in its general consonantal value (Lejeune 1969a: 37).

si= 'this, the' (°M-01a, °B-01) ~ *s*= (°M-01d, °B-07)

The proclitic *si* is written both as *si* and as *s* (cf. PhL 343): *si=keneman* 'this niche', *si=bevdos* 'this statue', *s=manes* 'this Manes', *s=materan* 'this mother (ASg)'. Based on these examples, we may surmise that final -*i* was beginning to become syncopated in some environments in Old Phrygian. By New Phrygian, all proclitics would have lost a final -*i*.[47] The examples we do have are not particularly informative beyond this observation.[48]

[47] E.g. αδ < **adi* < **h₂ed-dʰi*. See further in §VI.1 and §II.3.3.1.

[48] At most, we can speculate that the final vowel of *si* was first syncopated before resonants; this would have produced no ambiguity, since Phrygian did not possess native *sR*-onsets at the time.

imen- (°B-05 2x, °G-183) and *inmeney* (°B-05)

The examples of the noun *iman* 'memorial' in the oblique case consistently show a spelling *im-*, save *inmeney* (PhL 252-253); the nominative singular *iman* is always spelt as such (M-06, G-136, ...). Brixhe (2004: 62) assumes the *-nm-* spelling is a result of hypercorrection that resulted as a consequence of degemination of *-mm-* to *-m-*. The regular spelling with *-m-* would in this case also result from degemination. Vine (2010: 346-7) proposes that *imen-* is a reflex of a nominal stem **en=men-* ('*in + remaining' > 'memorial'), where *-*nm-* > *-*mm-* > *-*m-*. *inmeney* would then be an example of an etymological spelling.[49] The sequence *-nm-* is otherwise entirely absent from the Old Phrygian corpus,[50] suggesting that an assimilation of nasals of this or a similar type did take place.[51] There is also another possibility. In New Phrygian, there is evidence that vowels were allophonically nasalized between two nasal consonants, which sometimes results in unexpected spellings.[52] If the same process of nasalization was already a characteristic of the language variety of inscription °B-05, then the unexpected *-n-* may perhaps be an attempt at more explicitly marking the nasalization of the vowel, since the initial *i-* of *inmeney* does in fact appear between two nasals, being part of the syntagm *ivimu<u>n</u> in<u>m</u>eney*, perhaps [iu̯imun ĩmenei̯]. Such a spelling could be directly compared to New Phrygian κνουνμανει [knũmanei] °101^{SE} (for usual κνουμανει), where a -ν- likewise marks nasalization of the vowel.

[49] Presumably, the term would still need to be synchronically parseable to the speakers for this to be possible.
[50] Except for G-215, which reads *nm* in its entirety, and P-03, where *n* and *m* are separated by an unwritten word boundary.
[51] Note, however, that a /mn/ sequence does not undergo assimilation (e.g. *umniset* B-05,7).
[52] See §II.2.3.1.3 and §II.3.3.1.

eśtat 'he erected[?]' (°B-05) alongside *esṭ[* (°B-07), *estatoi*° 'he caused to be erected' (°G-144)

ṣaraǫiṣ '?' °M-101 alongside *saragiś* (°B-108)

Brixhe (CIPP2: 26-9, 47, 93 *et passim)* convincingly argues that what has been previously transliterated as <ś> is simply a local variant of <s>.

-eivais (°P-03) ~ *-evais* (°M-01a, °M-01b, °M-02) ~ *-ieva-* (°P-02) ~ and *-euis* (°T-02b)

This suffix appears in patronyms; its oblique stem was *-evan-* (CIPP 8). The *-eivais* ~ *-evais* difference remains unexplained; Brixhe (CIPP 231, 233) has suggested it may be an error. Both *-eiva-* and *-ieva-* appear as the second element in the same patronymic form in two inscriptions found in the same area: nom. sg. *kanutieivais* 'PN' °P-03, gen. sg. *kanutiĭevanos* °P-02. Since the first element of the names appears to be *kanuti-*, it is appealing to assume that the unconventional spellings are the result of attempting to properly render what would have been a fairly uncommon phonological /-i.e-/ sequence.

memeuis °T-02b can be directly compared to *memevais* 'PN' °M-01b (Brixhe 1983: 118; PhL 298). The reason for this difference in spelling remains obscure (CIPP 264-266), though Obrador-Cursach (PhL 84, 298) cites the proposed Luwic contraction **wa* > *u* as an influence.

vasus 'PN' °P-05 ~ *vasous* °P-03 ~ *vasos* °P-02

This personal name found mentioned in three inscriptions in the same area presumably refers to the same person, who is also dubbed *kanutievais* immediately after: [...] *vasos kanutievanos* °P-02,]*vasus*:*kanutie[* °P-05, *vasous iman mekan kanutievais* [...] °P-03. In °P-02, the form *vasos* is immediately followed by a form in the genitive singular; on this basis,

Brixhe (1990 *apud* PhL 238) concluded that the name is in the genitive case as well, which is hard to dispute. Since *vasous* appears with *kanutievais,* which is in the nominative singular, it is likely to be in the same case. The actual case form of *vasus* is not known, since the inscription is broken before the ending of the following nominal form, but Brixhe (1990 *apud* PhL 238), Ligorio & Lubotsky (LL 1825), and Obrador-Cursach (PhL 238) all assume that it is a graphic doublet of *vasous;* Brixhe (1983: 117) proposes that the form underlying both spellings originally ended in **-ous*, Ligorio and Lubotsky assume *vasous* to be the expected spelling of *vasōus*, with *vasus* being a variant spelling of the rare diphthong /*ōu*/, whereas Obrador-Cursach finds *vasus* to be the most likely original nominative singular form of a *u*-stem, with *vasous* showing hesitation in spelling and a possible correction during engraving.[53]
In any case, treating *vasous* and *vasus* as representing the same underlying form is the best approach for the time being.

II.1.2.4 Vowel raising

There are numerous instances of mid-vowel raising in Old Phrygian. It appears to be most common in coda position and takes place primarily before nasals (Brixhe 1983: 119-120, LL 1820).[54]

There is little to be said about sequences /on/ and /un/ in final position; /un/ is certainly far more common, being used for every identifiable etymological sequence of PPh. **-on*. This would, at first glance, seem to suggest that at some point in the pre-history of Old Phrygian, a

[53] The actual declension of *vas(o)us* will be examined in §III.3.4.
[54] Inscription °W-11 from Dokimeion will be dealt with separately in §II.2.4.

development *-*on* > -*un* took place. This is inconsistent with New Phrygian data, however: etymological sequences of PPh. *-*on* are written with both <-ον> and <-ουν> (Brixhe 1983: 120). This distribution in New Phrygian rather suggests that the phonetic value of the reflex of *-*on* was [-o̯n] at that time. This is incompatible with the assumption that PPh. *-*on* developed into -*un* in Old Phrygian.[55]

The preferable solution, then, is to assume that the reflex of PPh. *-*on*# was /-on/, phonetically realised as [-o̯n], and written by Old Phrygian scribes as <-un> as a matter of convention.

In at least one example, we can be certain that a word-final spelling -*on* reflects a phonological sequence /-ōn/: *kuryaneyon* is a loanword from some early Greek dialectal form **korjanejōn* (which is better known from its epic counterpart κοιρανέων 'commander, master') (cf. PhL 283, LL 1820).[56] Another example has recently been adduced: *tekiseton* '?', a 3pl *si* impv. act. verbal form, likewise seems to show -*on* being used to spell /-ōn/; in this case, the 3pl impv. desinence is -*tōn* < *-*tō* + -*n*.

These two examples suggest that a word-final /-ōn/ was consistently spelt as -*on* (Tamsü Polat et al. 2020: 51).[57]

[55] That is, unless we also assumed that a lowering of OPh. -*un* > NPh. [-o̯n] took place afterwards. This is quite a problematic assumption: mid-vowels would have first been raised before nasals, only to then be lowered again in the same environment. Do note that this raising into a fully high vowel would have seemingly only affected PPh. **o,* but not PPh. **e* (as suggested by OPh. words ending in -*en*).

[56] Alternatively, one might suppose that Proto-Greek **kurjanejōn* and OPh. *kuryaneyon* are cognates. In this case, we would likewise expect the final vowel of the Phrygian form to be long.

[57] It is certainly possible, and indeed likely, that at least some unexplained spellings with -*on* may have also been used as a means of writing the reflex of *-*on*, i.e. /-on/. Examples of word-final -*on* spellings in Old Phrygian need to be evaluated on a case-by-case basis.

Instances of *-en* and *-in* in final position do not show any kind of a clear distribution and the analyses are hampered by the fact that they do not map onto known inflectional endings as neatly as *-un* and *-on*. We may reasonably assume that both *-en* and *-in* would have been used to spell the reflex of word-final **-en* (cf. Brixhe 1983: 119), which would have presumably remained /-en/ in phonological terms.

Brixhe (1983: 115-6) argues that the opposition between mid- and high-vowels was neutralized before a final nasal. This is difficult to verify, however, as sequences reflecting earlier **-un*# and **-in*# would have been comparatively rare to begin with and no secure examples are known.[58] If true, we would expect them to be spelt as *-on* and *-en* on occasion. The few examples we do have, however, suggest this did not happen. Thus, for the moment, this suggestion is not sufficiently supported by the evidence.[59]

In a non-final position, no specific development related to the nasals seems to have affected either /o/ or /e/, at least in open syllables.[60]

The two synchronic rules we may postulate for Old Phrygian are:
OPh. /e/ > [ę] / _*n*#
OPh. /o/ > OPh. [ǫ] / _*n*#

[58] The functional load of such a phonemic opposition would be minute in any case.
[59] Consider also that the New Phrygian examples that show the reflex of an earlier PPh. **-in* are apparently consistently written with <-ιν>. See also §II.2.3.1.3.
[60] See §II.3.2.2.1 for closed syllables.

Another known spelling variation in the vowels is the use of <i> for expected <e>, where the underlying phoneme is almost certainly known to be /e/. The two examples are:

- *ạkinanogavaṇ* (°M-04) alongside the more common *akenanogavos* '(religious title)' (°M-01a, °W-01a 2x, possibly also *]ạke-ǎnŏ[* °M-09) (PhL 170);
- *kubileya* (°W-04) alongside the more expected *kubeleya* 'DN' (°B-01.3) (PhL 280-281).

This type is discussed alongside two New Phrygian forms, ζιμελως 'men (DPl)' and αββιρετο-'would/will cause to be brought', in §II.3.4. It appears that the conditioning factor was the placement of the accent: the phoneme /e/, when accented and in an open syllable before a resonant, was allophonically raised to [ẹ] and spelt with either <e> or <i>. In formal terms: PPh. **é* > OPh. [ẹ], NPh. [ẹ] / _$RV

We may possibly extend this rule to the other mid-vowel, /o/, if the following example is included:

- *kakuioi* (°P-04b) alongside the more expected *kakoioi* 'would harm' (°G-02).

Alternatively, however, this may simply be an example of sporadic height dissimilation (cf. PhL 265).

II.2 New Phrygian

II.2.1 New Phrygian writing system

The New Phrygian inscriptions date to the second and third century CE and are written in the Greek alphabet.

The following table shows the values of alphabetic signs in contemporary Koiné Greek (Allen 1968). These are the values we expect the graphemes to have in New Phrygian inscriptions.

α	[a], [ā]	ι	[i], [ī][61]	ρ	[r]
β	[b] or [β]	κ	[k]	σ	[s]
γ	[g] or [ɣ]; [ŋ]	λ	[l]	τ	[t]
δ	[d] or [ð]	μ	[m]	υ	[y], [ȳ]
ε	[ɛ]	ν	[n]	φ	[p^h] or [f]
ζ	[z]	ξ	[ks]	χ	[k^h] or [x]
η	[ē]	ο	[ɔ]	ψ	[ps]
θ	[t^h] or [θ]	π	[p]	ω	[ɔ̄]

Table #5: The values of alphabetic signs in Koiné Greek at the beginning of the Common Era

Other notes:

<ει> - [ī], [ē] prevocalically

Has a value [ē] in Classical Attic, but merges with [ī] by the Roman era, where this digraph is consistently represented with <ῑ> (Allen

[61] But <ρι> /rī/ was most likely pronounced as [rē].

1968: 66). In pre-vocalic position, however, it remains [ē] until the 2nd century CE at the latest, after which it merges with [ī] in this position as well (Allen 1968: 69). In Phrygian, in addition to a monophthongal value in some instances, this digraph represents the diphthong /ei/, as that would have been the only way for the writing system to represent such a diphthong.

<η> - [ē]

Has a value of [ɛ̄] in Classical Attic. Begins getting confused with <ι> around 150 CE, but is still confused with <ε> for over a century, indicating it had not yet merged with [ī] (Allen 1968: 71). In Phrygian, this grapheme is used to represent the result of the ongoing monophthongization /ei/ > /e̯/.

<αι> – [ɛ̄]

Having an early Koiné value [ai], this digraph began to represent a monophthongal pronunciation that began to develop some time before 100 CE and was seemingly completed by 200 CE (Allen 1968: 75-6). In Phrygian, this digraph stands for the diphthong /ai/, either because it was adopted from a language variety of Koiné where [ai] > [ɛ̄] had not taken place yet, or because it would have been the only way for the writing system to represent a diphthong /ai/.

<οι> – [ȳ], [ø̄]

This digraph begins being confused with <υ> in the 1st or 2nd century CE, indicating a high rounded front vowel. The development to [ȳ] probably had an intermediate stage [ø̄]; this raising was parallel to earlier [ē] > [ī] (Allen 1968: 77). In Phrygian, this digraph stands for the diphthong /oi/, as that would have been the only way for the writing system to represent this diphthong.

<φ>, <θ>, <χ> - aspirated plosives or fricatives

While it is uncertain whether these graphemes represented aspirated plosives or fricatives at the beginning of the common era, they are exceedingly rare in New Phrygian inscriptions (cf. Brixhe 1999: 298-299) and their interpretation is not relevant for Phrygian. The term ευκι- 'a vow', a loan of Greek εὐχή 'id', for instance, is written without aspiration.

<β>, <δ>, <γ> - voiced plosives or voiced fricatives

It is uncertain when voiced plosives of the classical era became fricatives in Greek (Allen 1968: 27-30). These graphemes do seem to represent voiced plosives in New Phrygian (Brixhe 1999: 297-298), as the spellings of consonants in lexemes agree with their Old Phrygian counterparts.

Vowel length

Distinctive vowel length appears to have been lost in Koiné by the 3rd century CE. Earlier confusion of long and short vowels need not necessarily reflect loss of vowel quantity, but rather a convergence of quality (Allen 1968: 88-9).

II.2.1.1 Phonemic system of Koiné Greek at the beginning of the Common Era

The question of the sound system of Koiné Greek is relevant since scribes at the time were presumably Koiné Greek speakers and were accustomed to the peculiarities of that language.

	labial	dental	alveolar	velar
voiceless	<π> [p]	<τ> [t]		<κ> [k]
voiced	<β> [b] ~ [β]	<δ> [d] ~ [ð]		<γ> [g] ~ [ɣ]
voiceless aspirate / fricative	<φ> [p^h] ~ [f]	<θ> [t^h] ~ [θ]		<χ> [k^h] ~ [x]
sibilant		<σ> [s] <ζ> [z]		
nasal	<μ> [m]	<ν> [n]		(<γ> [ŋ])
liquid			<λ> [l] <ρ> [r]	

Table #6: The consonantal segments of Koiné Greek at the beginning of the Common Era (Allen 1968: 10ff.)

	front		central	back
close	<ι> [i]	<υ> [y]		
close-mid				
mid	<ε> [ɛ]			<ο> [ɔ]
low			<α> [a]	

Table #7: The short vowels of Koiné Greek at the beginning of the Common Era (Allen 1968: 59ff.)

	front		central	back
close	<ι>, <ει> [ī]	<υ> [ȳ]		<ου> [ū]
close-mid	<η>, <ι> [ē]	<οι> [ø̄]		
mid	<αι> [ɛ̄]			<ω> [ɔ̄]
low			<α> [ā]	

Table #8: The long vowels of Koiné Greek at the beginning of the common era (Allen 1968: 59ff.)

Diphthongs: <αυ> [au], <ευ> [eu]

II.2.2 Preliminary notes on the New Phrygian sound system

II.2.2.1 New Phrygian metre

New Phrygian malediction formulae had a metrical structure (Lubotsky 1998: 413). The most common protasis (ιος νι σεμουν κνουμανει κακουν αδδακετ 'whoever would do something bad to this grave') has a dactylic rhythm and Lubotsky argues (*ibid.*: 418) that his reconstruction of the apodosis (με ζεμελως κε δεως κε Τιη τιτ(τ)ετικμενος ειτου 'may he be condemned by Ti- among men and gods') also has a dactylic rhythm. Heavy syllables only appear *per positionem* or as diphthongs: there is no evidence for vowel length. The variants of the standard formula all seem to be approximations of a dactylic rhythm, most commonly a hexameter (*ibid.*: 416-7). Lubotsky provides attested "extensions" of the protasis, all of them producing an imperfect hexameter (*ibid.*: 417).

The numerous variants of the malediction formula in practice only rarely emerge with a consistent dactylic rhythm, with a number of variants substituting them in favour of trochees. The metrical inconsistency of a majority of the inscriptions has two explanations, which are the result of two phases: 1) the Phrygians were having difficulty understanding and/or adapting the hexameter to their own language (presumably as a result of lacking vowel length); 2) the incompletely imitated hexameter was further distorted by sound changes and/or synchronic variants of the language. The result is a system whose origin is clearly discernible from a diachronic point of view, but which would be understood only vaguely by those who used it.[62] The initial composition of the curse formulae would most likely be closely reminiscent of a dactylic hexameter, while later variants would show significant erosion in comprehension of the form.

Inscription °W-11, dated to the late 4th or early 3rd century BCE, is considerably less haphazard in its imitation of the hexameter: while syllable weight does not necessarily fit a dactylic rhythm, each line is composed of 17 syllables, better resembling the form (Lubotsky 2017: 437ff.). While this may be due to the special nature of this obviously Helleno-inspired isolated text, it is representative, it would seem, of a stage anterior to the second and likely the first phase: the form of the dactylic hexameter is evidently understood to some degree (and remains understood until the beginning of the New Phrygian era, possibly indicating a period of relative linguistic stability).

[62] As already Lubotsky (1998: 417ff.).

II.2.3 Synchronic phonological system of New Phrygian

	labial	dental	alveolar	palatal	velar
voiceless plosive	/p/ <π>	/t/ <τ>			/k/ <κ>
voiced plosive	/b/ <β>	/d/ <δ>			/g/ <γ>
fricative		/s/ <σ> /z(:)/ <ζ>			
nasal	/m/ <μ>	/n/ <ν>			
resonant			/r/ <ρ> /l/ <λ>		
semi-vowel				/j/ <ι>	/w/ <ου>, <ο>

Table #9: The consonantal segments of New Phrygian

	front	central	back
close	/i/ <ι>, <ει>		/u/ <ου>, <υ>
mid-close	/e̝/ <η>, <ει>, <ι>		/o̝/ <ω>, <ο>
mid	/e/ <ε>	([ə̃] ~ [ə̃] <Vν>, <V>)	/o/ <ο>
open			/ɑ/ <α>

Table #10: The vocalic segments of New Phrygian

II.2.3.1 Vocalism

II.2.3.1.1 Vowels of New Phrygian

The vowel phonemes of New Phrygian are /a/, /e/, /i/, /o/, /o̰/, /u/ (cf. Lubotsky 1998: 414), and /ḛ̄/ (cf. Brixhe 1983: 117).
There were most likely five, possibly six, diphthongs: /ai̯/, /ei̯/, /oi̯/, /au̯/, /eu̯/, (/ou̯/) (Lubotsky 1998: 415-416).
The vowels and the diphthongs are for the most part written consistently in non-final position (cf. Lubotsky 1998: 414-416):

- /a/ as <α> (αδδακετ 'would do'), /e/ as <ε> (σεμουν 'this (DSg)'), /i/ as <ι> (τιττετικμενος 'condemned'), /o/ as <ο> (ιος 'whoever'), /u/ as <ου> (κνουμανει 'grave (DSg)'), /o̰/ as <ω> (δεως 'gods (DPl)'),[63] and /ę̰/ as <ει> (τοτοσσειτι 'would give');
- /ai/ as <αι> (αινι 'if'), /oi/ as <οι> (αββερετοι 'will cause to be brought'), /au/ as <αυ> (αυτος 'he himself), /eu/ as <ευ> (τευτους 'may he be driven[?]'), /ei/ as <ει> (κνουμανει 'grave (DSg)'), while /ou/ would most likely be written <ου> and thus be indistinguishable from /u/.

The reflexes of Old Phrygian *ę̄* and *ey* and their spellings will be treated in the following section.

On occasion some of the vowels are written with different graphemes, which may shed some light on their phonetic realization:
/a/ is written with <ο> a handful of times (e.g., in δο̲κετ 'would do', γεγρειμενο̲ν 'written', ουτο̲ν 'punishment', all °106[E]); this might point to

[63] For an explanation of this spelling choice, see §II.3.3.1.

it being a back-vowel, perhaps [ɑ] (*contra* Brixhe 1983: 119, who assumes velarization). This is likely a dialectal realization (§II.3.3.3).

Before a vowel, both <ε> and <ι> appear interchangeably (cf. τεαμας '?' °14NW ~ τιαμας °87^{W}), indicating a neutralization of a contrast between them in this position (*ibid.*).

/u/ is sometimes written simply with <υ> instead of <ου> (cf. κνυμανει °62^{C}). It seems unlikely this reflects a phonetic reality and is presumably just a case of simplified spelling (*ibid.*: 121; Brixhe 1999: 307-308).

/i/ is at times written as <ει> (cf. Brixhe 1999: 303; PhL 58-59). This digraph stood for /ī/ in contemporary Greek, where it is also used for /i/ on occasion, an example of hypercorrection (Allen 1968: 87; Brixhe 2010: 232). The same holds for Phrygian, which would not have properly distinguished vowel length at this stage.

/o̜/ is consistently written with <ω>, but does appear three times as simply <ο> (cf. δεο(ς) °6^{W}, °7^{W}, °116^{W}) (Lubotsky 1998: 2).

/oi̯/ is written as <υ> in at least two instances (υκε °2^{W} < $^{+}$οικε 'and him' (Brixhe 1979: 92), καρπυς < $^{+}$καρποις 'fruit (APl)' °130^{NW}). Greek /ȳ/, which was spelt with <υ>, would presumably be the closest sound to a diphthong with both a front and a rounded element.

<η> stood for /ē̜/ in contemporary Greek and has a very limited distribution in New Phrygian (Lubotsky 1989a: 82-83, Brixhe 1999: 301-303). It seems to appear as a substitute for <ι> or <ει> in some cases (cf. *ibid.*; PhL 58-59).

II.2.3.1.2 The reflexes of Old Phrygian *ey* and *ḛ̄*

In New Phrygian, Old Phrygian *ḛ̄* (< PGPh. **ī, *eje, *e* / _s{r,l[?]}) developed into a segment that is spelt with <ει> and <ι>:

- OPh. /-sḛ̄-/ '(sigmatic optative suffix)' > NPh. -σι- (1x), -σσι- (1x), -σσει- (2x);
- OPh. ↑*ira*- /dzḛ̄rā-/ 'hand' > NPh. ζειρα °12[S], °106[E] (cf. Brixhe 1983: 117);
- PGPh. **g*[h]*rī*- 'to smear, annoint' > γρει- °32[E], °33[E], °34[E], °36[E], °59[E], °60[E], 76[C], °105[E], °106[E], °108[E]; γρι- °58[E].

As can be plainly seen, the spelling of the reflex of OPh. *ḛ̄* with <ει> (14x) is far more common than the spelling with <ι> (3x). Indeed, the distribution is so skewed in favour of the former spelling (~3:1) that the segment being represented cannot have been simply [i].[64] It thus seems quite beyond reproach that the reflex of OPh. *ḛ̄* cannot have been simply merged with one of the other short vowels.[65]

We would certainly expect a synchronic New Phrygian diphthong [ei] to be written primarily as <ει> (cf. PhL 58-59, however). While true that the digraph ει stood for [ī] in Koiné Greek at the time of New Phrygian inscriptions, no other digraph could have reasonably represented [ei].[66]

[64] Recall that in Koiné Greek of the time, <ι> could spell /i/ and /ī/, whereas <ει> spelt /ī/.
[65] Compare also the spelling distribution of the DPl *o*-stem ending as -ως (at least 37x with ζεμελο- and δεο-) and -ος (3x) (~12:1).
[66] ει at least has the benefit of being graphically decomposable into ε [e] + ι [i], i.e. [e.i], which would certainly be the best option possible at representing a monosyllabic [ei].

In word-internal position, by far the most common (and possibly the only known) New Phrygian reflex of PGPh. **ej* was in the present verbal stem ει- 'to go' < PIE **hₑei-* (cf. PhL 261-262).[67] This stem appears spelt with ει over 50 times and the spelling is mostly consistent, with the only variant spellings being ητου °5[W] and ιννου °35[E], °71[W] (*ibid.*), though in the latter two cases we might be dealing with the reflex of a zero-grade **i* in the plural or, alternatively, the result of pre-nasal raising. It is likely that ει was used to spell a monophthongized reflex of earlier *ey*.

There is some evidence that the diphthong *ey* was already becoming monophthongized word-internally in two late Old Phrygian inscriptions: specifically in the forms *eketoy* 'caused to be made' < **e-kʷei-toi* °B-07 and *ituv* 'may he become' < **eitō* °B-05. The fact that it was spelt as <*e*> in one instance and as <*i*> in another suggests that its monophthongal value was similar to that of Old Phrygian /ę̄/. The reflex of that phoneme was commonly written as <ει> in New Phrygian. This suggests that, at least word internally, then, the reflexes of OPh. *ę̄* and *ey* would have merged by New Phrygian.

The treatment of the reflex of OPh. *ey* in word-final position can be gleaned from how the reflex of the OPh. dative singular consonant stem ending *-ey* is spelt.

This case ending is often found appended to κνουμαν- 'grave' when in a malediction formula. As an ending of this lexeme, it is most commonly written as <ει> (39x), but also as <ε> (20x), <ι> (8x), and once as <η>.[68]

[67] Most likely, the historical full grade variant of the stem was levelled through the forms of the present paradigm. See also §V.3.1.1.

[68] Listed in §II.3.3.3. Cf. the slightly different count by Elti di Rodeano (2015: 119): <ει> (48x), <ε> (21x), <ι> (8x), <η> (1x).

Regardless of the spelling, κνουμαν<ει/ε/ι/η> metrically scans as ∪∪–, indicating that this ending must have been either a long vowel or a diphthong when the malediction formula was composed. Since no other historically long vowels scan as long (cf. **ad dāket* > αδδακετ 'would do', metrically -∪∪) (LL 1819), its preservation as a diphthong until at least the loss of inherited long vowels is likely.[69]

The dative singular ending of Τι- 'Ti-' paints a more difficult picture. As already noted by Lubotsky (1998: 415), Τιη (6x) appears before consonants and Τι (13-14x) before vowels; Τιε (16x) appears before both consonants and vowels. The grapheme <η> had several phonetic realizations: in prevocalic position it stood for /ei̯/ or its reflex (cf. Lubotsky 1998: footnote 11 and Lubotsky 1989a: 82ff.; *contra* Brixhe 1999: 301, who assumes [j] – there is no reason to assume a purely consonantal reflex), in preconsonantal position it stood for the second part of a diphthong, i.e. [i]/[j] (Lubotsky 1998: footnote 11; cf. δεκμουταης '?' ~ δεκμουταις), while its general value between consonants is unclear, but was presumably [ĕ̯] (Haas 1966: 202; cf. PhL 59-60).

Lubotsky's suggestion (1998: 415) that the development **ei* > <ε, ι, η> (in final position) took place late in the New Phrygian era accounts for all the data, but should be understood as happening earlier than proposed. The evidence from κνουμανει does suggest that while final ει had a diphthongal value at the beginning of the New Phrygian period in some contexts, it had a monophthongal realisation in others, where it was spelt as <ε, ι>.

[69] Do note that the reflex of OPh. *ē̯* does not appear in the reconstructed metrically correct malediction formula. While theoretically possible that it may have scanned as long at some point, this is not demonstrable.

As already noted, **Τιει never appears (*ibid.*), indicating an early development of the diphthong /ei/ after <ι>. If we assume that the pre-New Phrygian form was $^{+}$Τιη [tiḭ̯ḛ̯] < $^{+}$*tiyey*, the absence of Τιη in pre-vocalic position can be easily explained. If prevocalic <η> represented [ei], a <Τιη V> spelling would then encode [tijej V], which would not have been the synchronic form anymore. Spellings with <η> in preconsonantal position and spellings <ε> in general must represent a synchronic form [tijẹ].[70] The spelling Τι has two possible explanations: 1) elision of this final [ẹ] before another vowel; or 2) contraction.

The second explanation merits additional explanation: since <ε> and <ι> are non-contrastive in prevocalic position (cf. Brixhe 1983: 120, Lubotsky 1998: 414),[71] we can assume they merged into a single phoneme. The speakers would have interpreted this phoneme as /i/, meaning that the dative form would be [tiji] < [tijẹ V-] < $^{+}$[tijei V-], with [iji] being a sequence very prone to contraction into [ī], giving Τι [tī]. To explain the lightness of this syllable in scansion, we may assume an allophonic, but non-phonemic, preservation of a long vowel, which would be scanned as short for metrical purposes due to vowel length playing no part in New Phrygian metrics.[72]

Inscription °56^{E} shows the unexpected sequence ατ τιε ειτου. Since we have assumed that -ε was only lost in pre-vocalic position, the fact that it appears here suggests that we should rather be thinking in terms of phrases within the context of a malediction formula: it would have been the entire phrase (ατ) τι (αδ)ειτου that would have been repeated and written down;

[70] We may safely assume that the final vowel of this form would not have been long for the purposes of metrics, since it does not form a long syllable.
[71] Cf. τεαμας °14^{NW} ~ τιαμας °87^{W}.
[72] This also suggests that the diphthongs have not yet undergone monophthongization by the time the curse formula was originally composed.

the fact that τιε ειτου can even exist suggests that the contraction/ellision rule [ijẹ V] > [ī V], which is still needed to explain the copiously attested form Tι, stopped being synchronically productive at some point and that the sequence was re-composed.[73]

The conclusions we may draw from this analysis are:

1) the New Phrygian reflex of OPh. /ē̩/ was a phonemic segment /ẹ/ most commonly written as <ει>, most likely [ē̩];[74]
2) the New Phrygian reflex of an earlier *ei* in non-final position was consistently written as <ει> and probably had a value [ē̩];
3) the reflex of the Old Phrygian diphthong *ey* following /i/ was phonetically realised as [ĕ̩] (which explains the pre-consonantal spellings with <ε> and, through contraction, the pre-vocalic spellings with <ι>);
4) the regular reflex of the Old Phrygian diphthong *ey* in final position was a sound rendered as <ει, ε, ι, η>, the latter three spellings presumably indicating a phonetic monophthongisation during the New Phrygian era.

While making a firm judgement on the synchronic phonemic system of a language requires the stringent criterion of being able to name minimal pairs, which is obviously impossible in a language as sparsely attested as

[73] If we assume that the phrase τι (αδ)ειτου was interpreted as a single element, we cannot really say when the contraction/elision rule stopped being productive. If the sequence was so common as to be interpreted as a stock phrase within the context of funerary inscriptions, that could have theoretically happened at any point. The τιε αδειτου example would then be a hypercorrection of a synchronically opaque stock phrase.

[74] Since vowel length was most likely not contrastive in New Phrygian, the phonemic segment is only defined in terms of quality, rather than length, even if this segment was pronounced as longer in actual pronunciation.

Phrygian, we may note that New Phrygian merged the reflexes of OPh. *ę̄* and *ey* word-internally. In word-final position, the diphthong /ei/ was clearly graphically marked, though the phoneme is evidently known to have shown allophonic variants from before the New Phrygian era. The diphthong /ei/ in final position certainly tended towards phonetic monophthongisation, but the diphthong was at least phonemically still present in the earliest New Phrygian inscriptions. It is unclear how the phonetic monophthongisation would have impacted the development of the vowel system after that point.

II.2.3.1.3 Vowels before a final nasal

Mid-vowels followed by a nasal in final position mostly show the same situation as in Old Phrygian, that is, they are raised to mid-high vowels (cf. Brixhe 1983: 119-120).

<ον> alternates with <ουν> in the accusative singular *o*-stem ending *-on* (< PIE *-*om*) regardless of the following environment (e.g. κακον 'bad' ~ κακουν) (*ibid.*).

This ending and the closely related dative singular ending (found primarily in σεμουν 'this (DSg)'), the two of which had likely merged by the New Phrygian era, also appear written as <υν> (σεμυν °62^{C}; κακυν °62^{C}), <ιν> (σεμιν °76^{E},[75] °100^{E}, °107^{E}; κακιν °14^{NW}), <ων> (κακων °11^{S}), <εν> (κακεν °40^{W}, °97^{W+}, °119^{W}),[76] <ευν> (κακευν °45^{SE})[77], and <ν> (σεμν °34^{E}) (Šorgo 2019: 120-121, 124). In a limited number of cases, the final

[75] Possibly σεμυν (Brixhe 1999: 307).
[76] Sometimes seen as a variant of the adverb κακε (in e.g. PhL 264-265), but the supposed hypercorrect addition of a nasal has no parallel elsewhere in the corpus.
[77] Possibly κακουν (Brixhe 1999: 294).

nasal is not written or is not written with <ν>: <ουμ> (σεμουμ °5^{W}), <ου> (σεμου °19^{N}) (cf. *ibid.*).[78]

While writing with <υ> may simply be a writing convention that can be seen in internal position in κνυμανει (with numerous examples, though not in °62^{C} itself) and <ων> is most likely just an attempt to write [ọn], the examples with <εν> and <ιν> are puzzling. The unexpected spellings suggest that non-low vowels were beginning to merge before a final nasal for some speakers.

The two desinences <ουμ> and <ου> may betray traces of another process that affected word-final combinations of a vowel and a nasal: loss of a final nasal with possible nasalization of the vowel (Šorgo 2019: 121). <ουμ> may have been an attempt at transcribing a nasalized vowel: it appears before <κ> and assimilation of place of articulation in Phrygian is anticipatory, meaning a bilabial /m/ is both entirely unexpected and against the apparent constraint against final -μ# that is not the result of assimilation with a following sound.

The three examples that will be dealt with in §II.2.3.2.1 may prove telling in this instance as well: αδακεν με °5^{W}, αδδακεμ μανκαι °35^{E}, αδ[δα]κε μανκαι °60^{E}. While these cases are a result of an assimilation of a final unreleased stop,[79] it is possible that the result of this assimilation itself resulted in a nasalized vowel:

*-e$\overline{t}$ m- > *-e$\overline{n}$ m- > *-e$\overline{m}$ m- > *-ẽ m- <-εν μ-> ~ <-εμ μ-> ~ <-ε μ-> (Šorgo 2019: 124).

[78] We may potentially add κακε °21^{C}, °88^{C}, °99^{NW}, °124^{C} to this list, though it is more likely that this form actually represents an adverb ending in -ε; cf. OPh. *kakey* °B-05 (PhL 264-265). See further in §VI.4.

[79] As is argued in §II.3.3.2.

Assuming nasalization to have been a possible feature of final vowels, it is likely it would have shifted the relative articulations of the vowels, seemingly centralizing the back vowels (first proposed by Orel 1994: 60; expanded on in Šorgo 2019: 121), resulting in uncertainty as to which grapheme or combination of graphemes would best represent this resulting central vowel. Even the enigmatic κακευν °45^{SE}, if this is indeed the correct reading instead of κακουν and we discount scribal error or an error in our transmission chain as an explanation, is explainable within this framework as an attempt to transcribe a sound like [ɵ̃], i.e. a nasalised rounded central vowel (*ibid.*). It needs to be stressed that the nasalization and centralization of back vowels before a final nasal is only observable in a handful of inscriptions.

Final <εν> and <ιν> in general do not appear to be distinguished at first glance (Brixhe 1983: 119). The pronoun κιν (°9^{W}, °30^{S}, °98^{NW}, °100^{E}), however, showing an inherited high vowel (< PIE *$k^{w}im$), is consistently written with <ι>. This suggests that high-vowels remained phonetically distinct from the raised allophone of mid-vowels before a final nasal and that the strong version of Brixhe's proposal of a complete merger of mid- and high-vowels before a final nasal (1983: 119-120) must be rejected.

Brixhe (1999: 296) has proposed that the spellings κνουμμανει °44^{S}, °53^{SE} and κνουνμανει °101^{SE} show examples of hypercorrect gemination and drew direct parallels to αδδακεμ με and αδδακεν με. Since these have now received alternative explanations, it seems preferable to assume that the spellings are a result of the presence of an allophonic nasalised vowel, which most likely emerged as a result of being surrounded by nasal consonants on both sides; i.e. [*knũman*-]).

II.2.3.2 Consonantism

II.2.3.2.1 Word boundaries and sandhi

There are only three plosives that appear in word-final position in New Phrygian: -τ#, -κ#, -δ#.

Almost all examples of -τ# can be found in only two categories (Šorgo 2019: 123): 1) in the 3rd person singular ending (αδδακετ 'would do', αββερετ 'would bring', …); or 2) in the preposition αδ before a dental (ατ τιε, …). We shall leave aside the question of this preposition here, as that -τ# must have clearly emerged as a result of assimilation.

It is puzzling that a consonant only appears in coda in a single grammatical ending. This can be explained by examining all cases where this ending is expected, but not actually found. The instances are: αδακεν με °5^{W} < *αδακετ με, αδδακεμ μανκαι °35^{E} < *αδδακετ μανκαι, αδ[δα]κε μανκαι °60^{E} < *αδδακετ μανκαι, αδδακεκ γεγρειμ[ε]ναν °32^{E} < *αδδακετ γεγρειμεναν, αδ[α]κε ατε[τικμενο]ς °51^{SE} < *αδακετ ατετικμενος, αδδακε ταικαν °62^{C} < *αδδακετ ταικαν (*ibid.*). There are three examples where it appears that the ending was assimilated to some degree to the following consonant (into [+nasal] in °5^{W}, fully in °35^{E}, into [+velar] in °32^{E}). It is possible to interpret αδ[δα]κε μανκαι and αδδακε ταικαν as likewise being due to full assimilation and a subsequent simplification of a geminate (μμ > μ; ττ > τ). The usual reasoning is that these cases are examples of an irregular assimilation of final -τ (PhL 158).

An alternative explanation is possible, however: that these spellings fundamentally more closely represent the spoken reality of final /-τ/ and

that the very common spelling with final -τ found otherwise for this grammatical ending is an example of either an etymological spelling or a phonetic restoration. This may suggest that final dentals in New Phrygian were phonetically unreleased (cf. Šorgo 2019: 123-124). Synchronically speaking, the underlying form of this grammatical ending would still have been understood as /-t/.[80] Phonetically, one attractive possibility is that it was realized as unreleased [t̚] (*ibid.*).

This argument, if used to explain the 3rd person singular ending alone, offers some advantage. There exist, however, further phenomena that can be explained more readily if we proceed with this assumption.

Word-final -κ appears in only two positions: before a vowel and before a velar (*ibid.*). All cases of -κ in front of a vowel are in fact examples of the conjunction κε with elision of the final vowel in prevocalic position (compare with elision in Greek καί). All instances of final -κ before a consonant are: αδιθρερακ ξευνεοι °31^{S}, αδδακεκ γεγρειμ[ε]ναν °32^{E}, ουταν ακ κε οι βεκος °33^{E}, δαδωνκε οκκ αυγοι °69^{SE}, αδειτου ακ κε οι βεκος °76^{E}, μιρου ικ κναικαν °116^{W}.

The two instances of ακ are assimilated forms of the preposition αδ. οκκ most likely stands for οτ κε (cf. κε οτ εκτει[…] °92^{W} and οτ τιττετικμενος °124^{C} with the same preposition). ικ appears to be a preposition with its final element assimilated again (see §VI.1.4). αδδακεκ has been dealt with above. The remaining example αδιθρερακ is interpreted as the personal name Αδιθρερας (Neumann 1986), with final -κ explained by Orel (1997: 332) as an example of -σ#κ > -κ#κ assimilation.[81] There is no inherent

[80] No doubt reinforced by the presence of 3sg act. primary -τι or the 3sg middle endings -τορ and -τοι.
[81] For which see further below in this section.

reason to assume that the name must have ended in a sibilant, and it may have well originally ended with a plosive (cf. Šorgo 2019: 123):[82] the best option seems to be -κ itself.[83] Of the examples we do have, only two could have actually ended with an underlying element other than a dental stop. While uncertain, it is quite possible that -κ# was also pronounced unreleased, i.e. as [k̚].

The best evidence for the fate of final plosives in New Phrygian comes from the "geminating" preposition αδ. Usually, it surfaces as ατ in front of a dental stop (cf. ατ τι(η) 'by Ti-') and as ακ before a velar stop (cf. ακ κε), but also occurs as simply α before a dental stop (cf. α τιε). The single time it is found before a vowel, it is written αδ (αδ ατεαμας °14^{NW}) (Šorgo 2019: 123).

The preverb αδ must also derive from this preposition. Its final consonant assimilates into the following stop, with the resulting cluster then written with either a single or a geminate spelling. Crucially, however, it is written as αδ and never doubled when coupled with ειτου 'may he become' (i.e., in αδειτου '~id.'). The New Phrygian data points to the conclusion that the underlying synchronic form of the preverb was αδ at that point as well and that this δ was assimilated with a following consonant, but preserved before a vowel.[84],[85]

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[82] Recall Old Phrygian *vanak* 'king' < **vanak(t)s* instead of ***vanaks* or ***vanas*, demonstrating that word-final clusters of a velar and sibilant were simplified to the velar at that point.

[83] If the final plosive were -τ, the NSg form would presumably be **Αδιθρερατς > Αδιθρερας, which is identical to -ς. Final -π is theoretically possible, but seems unlikely.

[84] While true that αδειτου might be an example of a lexicalized verb, the presence of ειτου would make this a somewhat transparent formation to speakers of Phrygian. Furthermore, αδ ατεαμας cannot be a compound, so the synchronic New Phrygian pre-vocalic form of the preposition/preverb must have been phonetically realized as [ad-].

[85] The possibility that -δ- emerged as a result of secondary voicing between vowels is quite unlikely, since no evidence exists that such a development ever took place. In Old

As noted above, -τ# may have had an unreleased realization in New Phrygian, and the assimilation of -δ# to a following consonant suggests the same could hold true for it as well.

As we have seen above, the prepositions oC and ιC seem to show the assimilation of their final elements to a following consonant as well. The same holds for the preverb τιC, found in τιτ(τ)ετικμενος and τιγγεγαριτμενος. All of them must have then ended in some consonant that was assimilated to a following consonant.
In Old Phrygian, however, we are able to identify the preposition/preverb *tit*,[86] which is evidently ancestral to NPh. τιC, which we may now re-write as τιτ.

The fact that the ending -ετ is spelt with <τ> before a vowel, whereas αδ is spelt very consistently with <δ>, shows that the phonetic reflexes of /-t/ and /-d/, both of which emerged in late Proto-Phrygian after the original Proto-Graeco-Phrygian restriction against the presence of final stops was lifted, were not merged and that a phonological distinction was maintained.[87]

Phrygian, the preverbs *tit* and *met* preserve their final unvoiced consonant before a vowel in *tit=edatoy* '~ caused to be placed' °B-05 and *met=ebaes* 'spoke with[?]' °G-12, and in New Phrygian the same holds for οπ and οτ in οπεσταμεναν '~ erected' °9[W] and οτεκτε- '?' °92[W]. See also §VI.1.5, §VI.1.6, §VI.1.7, and §V.1.9.

[86] See §VI.1.9.

[87] It follows that final stops in general were not phonetically merged in final position. Without the pre-vocalic examples, one could also in principle suggest that word final stops lost their place of articulation entirely and merged as [ʔ], which would also explain the ease of their assimilation. Phonetic restoration of -τ would be more difficult in this case, however.

In summary, the following development took place at some point before New Phrygian (cf. Šorgo 2019: 122-124): -C# > - C̄#, followed by -C̄$_1$ / _C$_2$- > -C$_2$C$_2$- or -C̄$_2$C$_2$-, which commonly simplified as -C$_2$C$_2$- > -C$_2$-

As already mentioned, it has been suggested that a word final -ς was phonetically assimilated when followed by a word-initial κ- (Orel 1997: 332). The single example comes from an inscription from the area around Parorea: ικ κναικαν °116^{W}.

The proposed assimilation in ικ κναικαν < *ις κναικαν is far from a certainty. The final segment of the preposition ιC could have been -τ or -δ, both of which would have regularly assimilated into -κ. Orel (1997: 131) assumes that the preposition was ις on an underlying level, and it does appear two other times in the same inscription, though the meanings and contexts in which it appears are quite unclear.[88] A large number of counterexamples to the assimilation of -ς before κ- are known to exist,[89] so any potential assimilation of -ς before -κ is to be understood as a sporadic phenomenon.

If we take ικ/ις to be a reflex of **eks* 'out', a preferable possibility emerges. As we propose in §VI.1.4, **eks* would have developed into New Phrygian ις with reduction of unaccented **e* before two consonants followed by the

[88] See further in §VI.1.4.

[89] This is most notable in the ζεμελως κε δεως κε 'men and gods (both DPl)' formula, where a final sibilant is not assimilated. For this case, however, an explanation can be provided. The absolute vast majority of instances of a sibilant followed by κ in New Phrygian inscriptions has the κ being the first sound of a conjunction κ(ε). It is entirely possible that the assimilation would not have taken place for simple reasons of grammatical transparency when a form would be followed by an enclitic conjunction or that assimilation only took place over word boundaries and not with enclitic elements. This would also serve to explain the sequence ις κε εν τοις νιοι κνουμαν of inscription °116^{W}, where ικ κναικαν itself is found. There do exist at least three examples of -ς coming into contact with κ- of a fully accented lexical item, i.e. δεκμουταις κινουμα °9^{W}, ααις κνου[- °20^{C}, σκερεδριας κακουν °56^{E}. They certainly do seem to suggest that the assimilation of -ς did not take place in those inscriptions.

development **ks* > /ʃ/, which would have either developed into /s/ or been spelt as <σ> in New Phrygian. If the sound was underlyingly still /ʃ/, this might explain why we do not find the -σ > -κ assimilation in other situations: in those, the underlying sound would have been /s/, and only /ʃ/ would have assimilated to a following velar. This is phonetically plausible: [ʃ] would be more likely than [s] to be backed before a velar and if it was pronounced closer to [x] in such an environment, one way to write a sequence [-x k-] would be as <-κ κ->.

II.2.3.2.2 Geminate spellings

There can be no doubt that both Old and New Phrygian possessed a phonemically relevant geminate consonant /n:/, spelt as <n> in Old Phrygian and as <νν> in New Phrygian, which originated from PGPh. **-ntV* (PhL 68, cf. LL 1822, §II.3.2.3.8).

New Phrygian likewise certainly possessed a phonemically relevant geminate sibilant /s:/, written as <σσ> (§II.3.2.3.11). This segment likely existed in Old Phrygian already and was certainly present from at least some time before the New Phrygian era.

Some forms in which these two geminate consonants appear are: τοτοσσειτι 'may he give' °18^{W}, °99^{NW}, εγουννου 'may they hold' °130^{NW}, δεδασσιννι 'they would place' °130^{NW}, ιννου 'may they become' °71^{W}.

Quite clearly, New Phrygian did at least on occasion mark phonemic geminates with graphic doubling of the consonant.

In addition to the two word-internal geminate consonants that must be comparatively old (preceding Old Phrygian, in the case of /n:/), the

category of geminate consonants was vastly expanded in New Phrygian (cf. PhL 56) as a result of consonant cluster assimilation across word boundaries and univerbation.

In practically all cases, a geminate consonant emerges when a stop-final preverb or preposition is followed by a stop-initial head. This is most clearly seen with the preverbs αδ- and τιτ-, as well as the prepositions oC and αδ.

The preverbs developed from prepositions. Prepositions would have functioned as proclitics at first. Due to their inherently unstressed nature, a final *-i* was lost in clitics at some point around the Old Phrygian era (for which see §II.3.2.2). This would have resulted in the appearance of stop-final prepositions and preverbs. As we have observed in §II.2.3.2 above, word-final stops became phonetically unreleased before the New Phrygian era. It is not surprising, then, that when a stop-final proclitic attached itself to a following fully accented stop-initial word, its final consonant was assimilated to the following segment.

PPh. -$C_1i\ C_2$- > pre-NPh. $^{+}$-C_1 C_2- > pre-NPh. [-C_1]=C_2- > NPh. -C_2C_2-

PPh. $^{+}$*adi ber*- > pre-NPh. $^{+}$*ad ber*- > > NPh. αββερ- [90]

While this explains the emergence of geminated stops in New Phrygian, more can be discovered if New Phrygian inscriptions are closely examined. By far the most common words with gemination in the corpus are αδδακετ 'would do' and τιττετικμενος 'condemned', both a part of the standard malediction formula. The majority of spellings of these two words show gemination versus simple writing (52:25 for αδδ-:αδ-; 35:23 for τιττ-:τιτ-),

[90] The preverb αδ developed from an earlier **adi*. See further in §VI.1.1.

but the single spellings still need to be explained (see also Šorgo 2019: 125 for a quick overview of the following argument).

There is a metrical component to the standard malediction formula: its foot was a dactyl, with heavy syllables either long by position (where gemination was one means of producing a heavy syllable) or having a diphthong (Lubotsky 1998: 416ff.). One proposal has been that geminates were simplified in New Phrygian (Lubotsky 1998: 416) and that geminate spellings represent etymological spellings. As a result, gemination in spelling would have been used as metrical license to create heavy syllables (Lubotsky 1998: 416). While this is certainly a possibility to bear in mind, it does not appear accurate. The majority of all instances where we would expect geminate spellings based on etymological considerations actually shows geminate spellings. This surely points to the fact that a pronunciation with geminates was still present in at least some stage of New Phrygian; assuming these are all etymological spellings harkening back to an unwritten tradition is unlikely, but will be explored below.

Perhaps it is better to assume that geminate stops as a class were in the process of disappearing in New Phrygian.[91] This would need to be a change affecting the entire language system, not simply individual lexemes, and this seems to be confirmed by the data: the majority of inscriptions show a

[91] Based on the data available, we can only clearly say that the loss of gemination affected the stops. Whether continuants would have likewise been simplified is currently impossible to say. This need not concern us, however; the example of Old Phrygian shows that it is quite possible for a language to only permit gemination in certain classes of phonemes. From here on out in this section, the term "geminate" will refer to geminated stops only.

consistent spelling with either a simple or a geminate spelling in all instances where that is applicable.[92]

It is, of course, possible that gemination was entirely unwritten in some inscriptions even if phonetically present or consistently written for etymological reasons even when not phonetically present. Entirely consistent inscriptions, then, have little value for determining the state of geminates in a specific New Phrygian inscription, but the consistency itself shows that the reduction of geminates affected all of them simultaneously. It is, however, in inscriptions where gemination is written inconsistently that the broader question of the intra-New Phrygian development of gemination can be further pursued.

Before proceeding, the question of the interpretation of the meter of the standard malediction formula (Lubotsky 1998: 417ff.) needs to be reopened.[93] If we wish to uphold Lubotsky's view that we are dealing with a dactylic rhythm in both the standard protasis (ιος νι σε|μουν κνουμα|νει κακου|ν αδδακετ –UU –UU –UU –UU 'whoever would do something bad to this grave') and the standard apodosis (με ζεμε|λως κε δε|ως κε τι|η τιτε|τικμενος | ειτου –UU –UU –UU –UU –UU –U 'among men and gods may he become condemned by Ti-'), as seems most reasonable, we run into the issue of needing to assume that the form τιτετικμενος 'condemned' did not show a geminate consonant.[94] On the other hand, the majority of spellings of τιτ(τ)ετικμενος do show a geminate spelling.[95]

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[92] This holds for those inscriptions where at least two cases of an etymological geminate exist. Fragmentary inscriptions are thus of limited value in this instance.

[93] See also §II.2.2.1 above.

[94] The sequence τιττετικμενος scans as -U-UU, which is incompatible with a dactylic rhythm.

[95] Though note that the ratio is ~3:2 in favour of the geminates, as opposed to the ~2:1 ratio in favour of the geminates found in αδδακετ.

There are three possible explanations that come to mind: [96]

1) Phrygian never possessed etymological geminate stops as such. αδδακε- would then be an instance of metrical gemination, while τιτετικ- would appear as spoken. This possibility is unlikely. If αδδακε- was created due to metrical requirements, the many instances of τιττετικ- are puzzling. It is also overly convenient that the only metrically created geminate would appear precisely where we would etymologically expect it to appear if we assumed that some pre-stage of New Phrygian possessed gemination of stops.[97]
2) When the formula was composed, the language had geminates in the two discussed forms. αδδακε- 'to do' represents the original state of affairs, while τιτετικμενο- shows a metrically conditioned simplification of the geminate. This would explain why the ratio of geminate versus non-geminate spellings of αδδακε- and τιττετικ- is skewed. As the metrical understanding of the formula broke down, we would expect a non-metrically conditioned common form τιττετικμενο- to begin reasserting itself, whereas no change would be needed in αδδακε-. This is what the distribution suggests:

[96] Assuming an original state of affairs where αδδακετ had a geminated stop and τιτετικμενος did not is quite convoluted if one assumes a consistent phonological treatment of the geminates: one would need to assume the existence of 1) a non-geminating compositional phase during which τιτετικ- would be lexicalised, followed by 2) a geminating compositional phase, during which αδδακετ emerges, followed by 3) the creation of the standard malediction formula, and, finally, 4) a re-composition of τιττετικ- from the constituent elements that originally created τιτετικ- (in order to account for its existence).

[97] Do note that appealing to an etymological spelling for αδδακετ (and τιττετικμενος) presupposes that gemination *would* have been present in the form when the formula was composed in the minds of the speakers, either purely phonologically or as part of a deliberately archaic sociolect. This contradicts the first condition this assumption is based on: that etymological gemination did *not* exist in this form. For a modified version of this objection, see option 3.

αδδακε-:αδακε- shows a ratio of ~2:1, whereas τιττετικ-:τιτετικ- shows a ratio of ~3:2.

3) When the formula was composed, gemination was no longer a synchronic phonetic feature of the language. Nevertheless, either within an archaic or dialectal speech variety or in phonological terms, forms with gemination would still exist.
   a) Assuming αδδακε- to have been taken from a deliberately archaic or dialectal speech variety does explain its use in the malediction formula. Since τιττετικ- does exist, we need to further assume that it was, at a later stage, once the metrical structure of the formula was no longer transparent, adopted from either the same or a similar speech variety as αδδακε- was originally. This is reasonable in a more non-formulaic context. Within the context of a formula composed of stock phrases, however, it is dubious.
   b) Assuming αδδακε- to have synchronically shown a phonetic single stop while still preserving an underlying phonological geminate is, in practical terms, similar to the previous option: the phonetic realization of a geminate in αδδακε- would have first emerged as a deliberate poetic breaking of the preverb and the verb into two separate elements. If this was initially only required for αδδακε-, as the metrical structure of the formula became less understood, this poetic lexical breaking may have been re-interpreted as a feature of the poetic speech variety, producing the gemination of τιττετικ-, which may or may not have still preserved a phonological geminate.

Option 1 is obviously problematic, since it fails to explain τιττετικ-, but further consideration needs to be given to options 2, 3a, and 3b.
We must note here that the canonical malediction formula was obviously no longer perceived as metrical by the beginning of the New Phrygian era. Quite clearly, as evidenced by the many re-shuffles and variants, by attested New Phrygian, the malediction formula is better understood as a composite of older stock phrases. The fact that these variants exist shows that the original metrical scheme was no longer followed by the time attested inscriptions appear.

The fact that the majority of inscriptions show a state of affairs where both αδδακε- and τιτετικ- appear with either a consistent geminate or a consistent non-geminate spelling do suggest that the stock phrases in question, when their metrical make-up was no longer relevant, underwent a simplification of the geminates as a systemic process.[98]

We may distinguish four types of spelling patterns of αδδακε- and τιττετικ-:[99]

> *type* 1: both spelt with gemination, αδδακε- and τιττετικ-, inscriptions: °2^{W}, °3^{W}, °12^{S}, °39^{SW}, °45^{SE}, °53^{SE}, °57^{E}, °62^{C}, °76^{E}, °77^{E}, °80^{E}, °126^{W}, °130^{NW};
>
> type *2:* both spelt without gemination, αδακε- and τιτετικ-, inscriptions: °5^{W}, °14^{NW}, °20^{C}, °28^{SW}, °61^{SE}, °67^{SE}, °72^{E}, °93^{SW}, °94^{S}, °97^{W+}, °99^{NW}, °102^{S}, °106^{E}, °127^{SW};

[98] For one stock phrase to undergo degemination and the other not to is difficult to motivate.
[99] Do note that since not every inscription is preserved well enough to show both verbal forms, some inscriptions cannot be classified according to this scheme. It should also go without saying that non-formulaic inscriptions cannot be classified in accordance with their use of formulaic language.

type 3: αδδακε- and τιτετικ-, inscriptions °69^{SE}, °82^{C}, °86^{W}, °119^{W}, °128^{C}, °133^{N};

type 4: αδακε- and τιττετικ-, inscriptions °21^{C}, °68^{SW}, °112^{W}, °115^{W}.

A small number of other inscriptions that use another verbal form (αββερετ instead of αδδακετ) or another preverb that could have shown gemination (such as ατετικμενος < *αδ τετικμενος) can also be assigned to the four basic types outlined above.

Type 1: °6^{W} (αββερετ, τιττετικμενος), °25^{SW} (αββιρετο<ι>, τιττετικμενος), °40^{W} (αδδακετορ, τιττετικμενος), °63^{C} (αδδακετορ, τιτετετικμενος), °75^{E} (αββερετορ, τιττετικμενος), °88^{C} (αδδακετ, τιγγεγαριτμενος), °90^{W} (αδδακετ, εττετικμενος), °91^{W} (αββερετοι, τιττετικμενος), °114^{SW} (αββερετ, τιττετικμενος), °124^{C} (αδδακετ, οττιττετικμενος), °131^{C} (αββερετοι, τιττετικμενος).

Type 2: °51^{SE} (αδακε, ατετικμενος), °67^{SE} (αδακετ, ατετικμενος).

Type 3: °133^{N} (αδδακετ, τιτετικμενος).

Instances where we can observe both a geminate and a simple spelling must now be more carefully considered.

The type 3 pattern would have written the metrically still correct renderings of the stock variants of the malediction formula, whether it originated as a result of the development of option 2, or options 3a and 3b above.

In type 4, the less common spelling pair τιττετικμενος and αδακετ cannot be part of an original dactylic rhythm, however, and so cannot represent metrical adjustment in the original formula. αδακετ can, in essence, only

represent a phonetic reality or be part of an inscription where all geminates are simplified. τιττετικμενος, on the other hand, can represent either a phonetic reality or an etymological (= formulaic) spelling. Combinations of these two forms alongside each other are inherently contradictory within the context of the same speech variety.

Presuming the existence of an original malediction formula whence stock phrases originated, type 3 (αδδακε- and τιτετικ-) is entirely expected. Fully consistent spellings of the two elements, i.e. types 1 and 2 (either αδδακε- and τιττετικ- or αδακε- and τιτετικ-), are likely to represent a language-wide treatment of gemination.

Type 4 (αδακε- and τιττετικ-), the rarest type, as we may note, however, cannot in any reasonable way represent a natural representation of the spoken language; rather, the nonsensical written gemination is the product of speakers that no longer distinguished gemination, either phonetically or phonologically, where the geminate spelling or pronunciation was a means of hypercorrectly attempting to emulate, either graphically or verbally, a more prestigious language variety.

Ascertaining the chronology of entire inscriptions remains problematic, but we may use the data available to determine the synchronic status of the language variety in which different types were used. It needs to be stressed again that the metrical structure of the malediction formula was not understood by the speakers for the vast majority, if not the entirety, of the written New Phrygian era.

Type 1 inscriptions belong to a synchronic language variety that did distinguish phonetic gemination. The stock lexical item τιτετικ- of the

formula had its gemination re-introduced on the basis of the actual spoken language; no other possibility is likely.[100]

Type 2 inscriptions belong to a synchronic language variety that did not distinguish gemination. The stock phrases would have been spelt as spoken.

Type 3 inscriptions belong to a synchronic language variety that did distinguish gemination, either in terms of underlying representation or as spoken segments, at least when emulating the register of the formulaic phrases.

Type 4 inscriptions must belong to a synchronic language variety that no longer distinguished gemination in any meaningful way. The speakers would have been familiar with the notion of gemination being a feature of the formulaic register and would have a vague understanding of the forms in which it could appear, but the spelling pattern they employed would have been entirely arbitrary.

We must remark that, since knowledge of stock phrasing and the gemination present in it, even if applied incorrectly, was present in the speech community throughout written New Phrygian (with the possible exception of type 2 inscriptions), some of the type 1 and 3 inscriptions we observe may actually belong to the language variety of type 4 inscriptions, when gemination was not understood and was hypercorrectly used, but was, due to chance, actually used in the etymologically or formulaically expected place. Nevertheless, the relative frequencies of the four types are telling: *type 1:* 23x (~48%); *type 2:* 16x (~32%); *type 3:* 6x (~12%); *type 4:* 4x (~8%). Especially for type 1, even if some of those inscriptions are

[100] One could argue that, perhaps, like type 4, type 1 is also due to an incorrect emulation of a poorly understood language variety with gemination, but the fact that it is far more common (appearing 24 times) than type 4 (appearing 4 times) makes this an unlikely proposition.

accidentally etymologically "correct", the type is too common to be due to chance. The same holds for type 2 as well. It is only types 3 and 4 that are so closely matched in attestation that they may both be ascribed entirely to hypercorrection.

It is possible, then, to formulate a rough relative chronology based on the following considerations:

- the language variety in which the basic formula originated (*type 0*) before the New Phrygian era did distinguish gemination on a spoken level;
- type 1 inscriptions belong to a language variety that distinguished gemination on a spoken level;
- type 2 inscriptions belong to a language variety that no longer distinguished gemination on a spoken level and possibly no longer recognized gemination as a feature of the formulaic speech variety;
- type 4 inscriptions belong to a language variety that no longer distinguished gemination on a spoken level, but did recognize gemination was a feature of the formulaic speech variety, even if it employed it incorrectly;
- type 3 inscriptions are ambiguous: they are either faithful renderings of the type 0 pattern, are a subset of type 4, or both.

The rough relative chronology of Phrygian formulaic inscriptions, based on considerations of language alone, then, is the following:
**type 0* >> (possibly some instances of *type 3*) >> *type 1* >> *type 4* (and possibly some instances of type 3) >> *type 2*

Throughout the earlier part of written New Phrygian history, then, the language must have possessed spoken gemination in at least some, presumably prestigious, registers.

Inscriptions preserving only a single geminated verbal form out of two obviously cannot be securely classified:[101]

- inscriptions that belong to either *type 1* or *3:* °10^{S} (αδδακετ), °11^{S} (αββερετ), °13^{S} (αββερετ), °18^{W} (αδδακετ), °29^{SW} (αδδακ[ετ]), °32^{E} (αδδακεκ), °33^{E} (αδδακετ), °34^{E} (αδδακετ), °35^{E} (αδδακεμ), °38^{W} (αδδακ[ετ]), °43^{W} (αδδακετ), °48^{NW} (αδδακετ), °55^{E} (αδδακ[ετ]), °59^{E} (αδδακετ), °60^{E} (αδδακε), °63^{C} (αδδακετορ, τιτετετικμενος) [102] , °73^{W} (αββερετορ), °78^{E} (αδδακετ), °79^{E} (αδδακετ), °101^{SE} (αδδακετ), °113^{W} (αββερετορ), °120^{W} (αδδακετ), °129^{W} (αββερετοι);
- inscriptions that belong to either *type 2* or *3*: °19^{N} (ετιτετεικμενος), °92^{W} (τιτετικμενος), °96^{W} (τιτετικμενος), °100^{E} (τιτετικμενος), °103^{C} (ατιτικμενος),;
- inscriptions that belong to either *type 1* or *4*: °7^{W} (τιττετικμενοι), °26^{S} (τιττετικμενος), °56^{E} (τιττετικμενος), °65^{SE} (θιττετικμενος), °71^{W} (τιττετικμενοι), °108^{E} (τιττετικμενος), °121^{W} (τιττετικμενος), °123^{C} (τιττετικμενος);
- inscriptions that belong to either *type 2* or *4*: °4^{W} (αδακετ), °20^{C} (αδακετ), °36^{E} (αδακετ), °87^{W} (αδακετ), °105^{E} (αδακετ), °111^{NW} (αδακετ), °118^{W} (αδακετ).

[101] Recall that some instances of *type 3* can also be interpreted as a subset of *type 4*.
[102] Where the written τιτετετικμενος is obviously a spelling mistake. It is unclear whether it should be read as τιτ{ε}τετικμενος or τιτε{τε}τικμενος.

Inscription 103 ([(αβ)]βερετ, ατετικμενος, where the form of the first preverb, if it was even present, cannot be read) can belong to types 2, 3, or 4.

So far, we have focused on word-internal geminates that emerged as a result of the univerbation of a preverb and a verbal form. The situation is a bit different when dealing with a combination of a preposition and a noun. Do note that the prepositions would have behaved as proclitics, the same as the preverbs; the following analysis will show, however, that the preverbal proclitic elements underwent univerbation, whereas prepositional nominal phrases did not.

The combinations of the preposition αδ and a noun hold some clues as to the developments of the preverbs. The final consonant of the preposition is assimilated to the following one in many instances, but also appears unwritten on occasion (Brixhe 1999: 309-313).
All the spelling variations of consonant-final prepositions are listed below, classified according to the preverbial type of the inscription they appear in:

- preverbial *type* 1, and the preposition is written with a final consonant: °12^{S} (αδδακετ, τιττετικμενα, ατ τιε), °39^{SW} (αδδακετ, τιττετικμενος, ατ τιε), °45^{SE} (αδδακετ, τιττετικμενος, ατ τιε), °57^{E} (αδδακετ, τιττετικμενος, ατ τι), °62^{C} (αδδακε, τιττετικμενος, ατ τιη), °76^{E} (αδδακετ, τιττετικμενος, ατ τιε, ακ κε), °77^{E} (αδδακετ, τιττετικμενος, ατ τι), °80^{E} (αδδακετ, τιττετικμενος, ατ τι);
- preverbial *type* 2, and the preposition is written without a final consonant: °102^{S} (αδακετ, τιτετικμενος, α τιε);
- preverbial *type 2*, and the preposition is written with a final consonant: °51^{SE} (αδακε, ατετικμενος, ατ τι), °61^{SE} (αδακετ,

τιτετικμενος, ατ τιε), °72^{E} (αδακετ, τιτετικμενος, ατ τι), °94^{S} (αδακετ, τιτετικμενος, ατ τιε), °106^{E} (αδοκετ, τιτετικμενος, ατ τι).

- preverbial *type 3*, and the preposition is written with a final consonant: °69^{SE} (αδδακετ, τιτετικμενος, οκκ αυγοι (< *οτ κε αυγοι), °86^{W} (αδδακετ, τιτετικμενος, ατ τιη).

Ambiguous in terms of preverbial types are:

- preverbial type *1* or *3,* and the preposition is written with a final consonant: °11^{S} (αββερετ, ατ τι), °33^{E} (αδδακετ, ακ κε, ακκαλος), °101^{SE} (αδδακετ, ατ τι);
- preverbial type *1* or *4,* and the preposition is written with a final consonant: °56^{E} (τιττετικμενος, ατ τιε), °65^{SE} (θιττετικμενος, ατ τιη), possibly °108^{E} (τιττετικμενος, α]τ [τι]),
- preverbial type *1* or *4,* and the preposition is written without a final consonant: °7^{W} (α κε, α τι, τιττετικμενος)
- preverbial type *2* or *3,* and the preposition is written without a final consonant: °87^{W} (αδακετ, α τι), °103^{C} ([α(β)]βερετ, α τι, ατιτικμενος);
- preverbial type *2* or *4,* and the preposition is written with a final consonant: possibly °92^{W} (τιτετικμενος, ατ τιε), possibly °100^{E} (τιτετικμενος, ατ τιε);
- entirely ambiguous: possibly °44^{S} (ατ τι), possibly °70^{SE} (ατ τιε), °85^{E} (ατ τι).

What should be immediately obvious is that a preposition with a word-final stop is found with simplification of the resulting geminate in only a handful of inscriptions (i.e., °7^{W}, °87^{W}, °102^{S}, and °103^{C}). In all other cases, such a preposition is always spelt with its final segment preserved, albeit

assimilated, regardless of whether the geminates originating from preverbs combining with verbs appear to be preserved.

This is most easily explicable if we assume that the preverb and verb combinations had become univerbated at a comparatively early point and show a word-internal geminate that subsequently became reduced. On the other hand, combinations of a preposition and a noun were still treated as two separate elements, with the resulting geminate being the result of assimilation across word boundaries which was not treated identically to the word-internal geminates. It is uncertain whether the few inscriptions where the "sandhi" gemination across word boundaries seems to have been graphically simplified actually reflect the very latest stage of New Phrygian, where even this type of gemination was simplified.[103]

II.2.3.2.3 A relative chronology of New Phrygian inscriptions

We may now emend the relative chronology of New Phrygian inscriptions given above based on the preceding analysis. The preverbial type is given in subscript. A preceding superscript x marks inscriptions where only one verb with a preverb is attested, meaning its placement in the chronology may be ambiguous.

Stage 1

The stock vocabulary of the formulaic language is faithfully represented.

Some *type* 3 and *type 1/3* inscriptions likely belong to this chronological stage.

[103] The single outlier in the pattern is inscription °7^{W}, the only example of an inscription with gemination present word-internally, but simplified across word boundaries. No doubt, this inscription must belong to *type 4*, where gemination was no longer present in the spoken language, but a vague understanding that it existed in some forms still persisted.

Stage 2

The formulaic register of the language preserves spoken gemination, but the metrically adapted forms of stock vocabulary are levelled out in favour of their non-metrically conditioned counterparts.

This stage includes all *type 1* inscriptions and is the most prolifically represented in the corpus. At least some *type 1/3* and *type 1/4* inscriptions also belong to this stage.

Stage 3

The speakers of the language can no longer correctly use the formulaic register of the language, but retain the knowledge that specific vocabulary items showed gemination. This results in hypercorrect geminated and degeminated spellings.

This stage is characterised by *type 4* inscriptions. Most likely, some *type 3* inscriptions belong to this chronological stage as well as a result of accidentally correct spelling. Some of the ambiguous *type 1/3, 1/4, 2/3,* and *2/4* inscriptions must likewise belong here.

Stage 4

The speakers of the language no longer preserve word-internal gemination and apparently no longer attempt to emulate the geminated consonants of the formulaic language, suggesting they may no longer be familiar with it or find it relevant.

This stage is characterised by *type 2* inscriptions. Some of the ambiguous *type 2/3* or *type 2/4* inscriptions likely belong to this stage as well.

Stage 5

Gemination of stops is no longer tolerated in the language at any level. Most likely, a surface filter automatically simplifies what would otherwise surface as geminated consonants across a word boundary. No attempt is made to emulate the ancient formulaic register.

This stage can most likely be seen in inscriptions °87^{W}, °102^{S}, and °103^{C}, which would then be the latest New Phrygian inscriptions in terms of the language variety used.[104]

Stage 1	°69$^{SE}{}_{3}$, °82$^{C}{}_{3}$, °86$^{W}{}_{3}$, °119$^{W}{}_{3}$, °128$^{C}{}_{3}$, °133^{N}
	^{x}°10$^{S}{}_{1/3}$, ^{x}°11$^{S}{}_{1/3}$, ^{x}°13$^{S}{}_{1/3}$, ^{x}°18$^{W}{}_{1/3}$, ^{x}°29$^{SW}{}_{1/3}$, ^{x}°32$^{E}{}_{1/3}$, ^{x}°33$^{E}{}_{1/3}$, ^{x}°34$^{E}{}_{1/3}$, ^{x}°35$^{E}{}_{1/3}$, ^{x}°38$^{W}{}_{1/3}$, ^{x}°43$^{W}{}_{1/3}$, ^{x}°48$^{NW}{}_{1/3}$, ^{x}°55$^{E}{}_{1/3}$, ^{x}°59$^{E}{}_{1/3}$, ^{x}°60$^{E}{}_{1/3}$, ^{x}°63$^{C}{}_{1/3}$, ^{x}°73$^{W}{}_{1/3}$, ^{x}°78$^{E}{}_{1/3}$, ^{x}°79$^{E}{}_{1/3}$, ^{x}°101$^{SE}{}_{1/3}$, ^{x}°113$^{W}{}_{1/3}$, ^{x}°120$^{W}{}_{1/3}$, ^{x}°129$^{W}{}_{1/3}$
Stage 2	°2$^{W}{}_{1}$, °3$^{W}{}_{1}$, °6$^{W}{}_{1}$, °12$^{S}{}_{1}$, °25$^{SW}{}_{1}$, °39$^{SW}{}_{1}$, °40$^{W}{}_{1}$, °45$^{SE}{}_{1}$, °53$^{SE}{}_{1}$, °57$^{E}{}_{1}$, °62$^{C}{}_{1}$, °63$^{C}{}_{1}$, °75$^{E}{}_{1}$, °76$^{E}{}_{1}$, °77$^{E}{}_{1}$, °80$^{E}{}_{1}$, °88$^{C}{}_{1}$, °90$^{W}{}_{1}$, °91$^{W}{}_{1}$, °114$^{SW}{}_{1}$, °124$^{C}{}_{1}$, °126$^{W}{}_{1}$, °130$^{NW}{}_{1}$, °131$^{C}{}_{1}$
	^{x}°26$^{S}{}_{1/4}$, ^{x}°56$^{E}{}_{1/4}$, ^{x}°65$^{SE}{}_{1/4}$, ^{x}°71$^{W}{}_{1/4}$, ^{x}°108$^{E}{}_{1/4}$, ^{x}°121$^{W}{}_{1/4}$, ^{x}°123$^{C}{}_{1/4}$
Stage 3	^{x}°7$^{W}{}_{4}$,[105] °21$^{C}{}_{4}$, °51$^{SE}{}_{4}$, °67$^{SE}{}_{4}$, °86$^{W}{}_{4}$, °112$^{W}{}_{4}$, °115$^{W}{}_{4}$
	^{x}°19$^{N}{}_{2/3}$, ^{x}°92$^{W}{}_{2/3}$, ^{x}°96$^{W}{}_{2/3}$, ^{x}°100$^{E}{}_{2/3}$ ^{x}°4$^{W}{}_{2/4}$, ^{x}°20$^{C}{}_{2/4}$, ^{x}°36$^{E}{}_{2/4}$, ^{x}°105$^{E}{}_{2/4}$, ^{x}°111$^{NW}{}_{2/4}$, ^{x}°118$^{W}{}_{2/4}$
Stage 4	°5$^{W}{}_{2}$, °14$^{NW}{}_{2}$, °20$^{C}{}_{2}$, °28$^{SW}{}_{2}$, °51$^{SE}{}_{2}$, °61$^{SE}{}_{2}$, °62^{C}, °67$^{SE}{}_{2}$, °93$^{SW}{}_{2}$, °94$^{S}{}_{2}$, °97$^{W+}{}_{2}$, °99$^{NW}{}_{2}$, °102$^{S}{}_{2}$, °106$^{E}{}_{2}$, °127$^{SW}{}_{2}$
Stage 5	^{x}°87$^{W}{}_{2}$,[106] °102$^{S}{}_{2}$, ^{x}°103$^{C}{}_{2}$

Table #11: A possible relative chronology of the language varieties used in the New Phrygian inscriptions

[104] It is notable that all three inscriptions seem to share some slight familial resemblance: both °87^{W} and °102^{S} fill out the protasis by the addition of αινι τιαμας 'or *teamas*' °87^{W} ~ αινι α τεαμας °102^{S}, whereas both °87^{W} and °103^{C} seem to include variants of the same enigmatic sequence: παρτης '?' °87^{W} ~ παρταν '?' °103^{C}.

[105] Inscription °7^{W} shows the wholly unexpected use of an internal geminate and a simplification of a geminate across word boundaries. As such, it must belong to the chronological stage underlying preverbial type 4, when gemination was used hypercorrectly.

[106] Inscriptions °87^{W} and °103^{C} likely belong to the very latest stage of New Phrygian inscriptions, where etymological geminates were simplified even across word boundaries, as suggested by their spelling of prepositions.

It should be borne in mind that the preceding table is only a rough schematic representation of the relative chronology of Phrygian inscriptions given for convenience: any single inscription may well not necessarily belong to the chronological stage to which it was assigned; rather, the chronology operates with the broad concept of types of geminate spellings that need not always map onto a specific inscription absolutely.
It must also be stressed that the relative chronology provided marks the relative archaicity of the language variety used in a particular inscription when compared to a pre-New Phrygian prestigious formulaic register. It is in no way to be taken as a statement on when a particular inscription was actually written: the familiarity with the formulaic register would have differed depending on the time, place, social status, and knowledge of both the person who commissioned an inscription and the scribe. Rather, the relative chronology should only be used to infer a broad pan-Phrygian phonetic and sociolinguistic trend towards a progressive simplification of geminated stops.

II.2.3.2.4 Other geminate spellings

Next to the gemination of stops we have analysed in the previous sections, some other instances of geminated spellings are known in New Phrygian.

Most prominently, the inherited Old Phrygian geminates /n:/ and /s:/ are consistently spelt with two graphemes:

NPh. ειννου ‘may they become’ < PPh. *-*ntō*;

NPh. δεδασσιννι ‘they would place’ < PPh. *-*nti*;

NPh. δεδασσι- ‘would place’ < OPh. <*dedasi-*> /dedassę̄-/ < PPh. **dedāsī*- (§V.3.4.1);

NPh. τοτοσσει- ‘would give’ < OPh. $^{+}$/totossē̱-/ < PPh. **totōsī-* (§V.3.4.1).

Other geminate spellings are far less transparent; at least in some cases, they appear to be the result of hypercorrection, an attempt at spelling a nasalised vowel, or simple spelling error.

In μμυρα ‘foolishness (NAPl)’ °25^{SW} and κνουμμανει ‘grave (DSg)’ °44^{S}, °53^{SE} the gemination is probably used to attempt to spell a nasalised vowel that would have emerged allophonically when a vowel appeared between two nasal consonants: in κνουμμανει that environment is evident (and the spelling κνουνμανει also suggests a nasalised vowel was present), and μμυρα appears as part of a phrase αινι μμυρα ‘or foolishness’, which, if taken as a whole, sees the final -ι of αινι likewise appear between ν and μ. Recall the phrases αδδακεμ μανκαι and αδδακεν μανκαι that also appear to spell a nasalised vowel (§II.2.3.1.3).[107]

The spelling μακκα °94^{S} is clearly a non-standard spelling of μανκα ‘stele’. If not an outright scribal error, it may be an attempt at spelling what would have been pronounced [mãn̄ka], with the scribe re-interpreting the cluster /ank/ as a sequence of a nasalised vowel (a result of the vowel once again being nasalised between two nasal consonants) and a geminated consonant in an effort to preserve syllable weight.

Two outliers are the spellings of]κκιτορ and what has been read as κουσσ̣λ̣λ̣ον, both in inscription °72^{E}. We must note that inscription °72^{E}

[107] As discussed in §II.2.3.1.3 and §II.3.3.1.

was already badly worn when first read and the copy made by Calder (1913: 103-104) is not necessarily without error, as the copier himself admits.

For]κκιτορ, Calder supposes that it is an attempt at spelling αδ(δ)ακετορ 'he will cause to be placed' (*ibid.*), but it is entirely unclear why κ would be geminated or why ε would be entirely uncharacteristically be written with <ι>. If the sequence is an attempt at spelling αδδακετορ, we are likely dealing with some kind of a scribal quirk or error.[108] On the other hand, it is also entirely possible that the sequence spells some other verbal form. Perhaps the first -κ belongs to a preverb and the actual verb is κιτορ, whose root element κι- we could compare to that of the 3sg aorist middle form *od=eketoy* '~ she caused to be made', namely *kę̄-* 'to make' < PIE **k*^{w}*ei-,* which would have been spelt as either κει- or κι- in New Phrygian.[109]

In any case, the lack of an understandable context surrounding]κκιτορ renders this sequence difficult to analyse and it would be premature to draw any conclusions from it.

As for κουσσλλον, the reading is very much in question; the various editors disagree quite substantially on how the about four letter long sequence between κ[νο]υσ[and]ον should be read.[110] Obrador-Cursach's reading (PhL 590-591) of the sequence as κνου {σεμον} with scribal error as an explanation is appealing, though we might be dealing with some new Phrygian word as well. In any case, the reading κουσσλλον is almost certainly incorrect: not only does the term appear nowhere else in the Phrygian corpus, the presence of two adjacent sequences of geminates is too unexpected to be likely.

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[108] Damage to the stone that made the sequence KETOP appear more similar to KKITOP is also a remote possibility, but regarding this sequence of letters Calder (*ibid.*) emphatically states that "*[t]he last six letters in line 5 are, however, certain[.]"*

[109] See further in §II.2.3.1.2.

[110] For the references and alternate readings, see PhL 590-591.

II.2.4 Inscription from Dokimeion (°W-11)

The inscription from Dokimeion (°W-11) is the first Phrygian inscription written with the Greek alphabet and dates to the late 4th or early 3rd century BCE (CIPP2 7ff.), putting the language of this inscription at the half-way point between Old and New Phrygian – Middle Phrygian (CIPP2 7, PhL 52-54). The text shows obvious influences from Greek: the names Νικοστρατος and Κλευμαχος are evidently of Greek origin (CIPP2 20). Furthermore, the inscription seems to be divided into segments of 17 syllables each (Lubotsky 2017: 438); the regular structure and the obvious Hellenistic influence can be explained best if we assume the author of the text attempted to emulate a dactylic hexameter (*ibid.*: 438-9).

The phonetic and graphic characteristics of the inscription are the following:

- /āi/ is already written as α (cf. σα), but /ai/ remains written as αι (cf. αιδομενου < *$h_2eid^homh_1no$- 'blazing');
- -ον in word-final position is raised to -ουν (except once, in βλασκον '?') (CIPP2 16);
- ο and υ stand for /w/ (κιυιν '(pronominal chain)', υιταν '?', and κοροαν 'girl (ASg)' (Lubotsky 2017: 440-1);
- /ōi/ seems to be written as οι, but possibly only in Greek loans (κλευμαχοι 'PN (DSg)' and σοροι 'tomb (DSg)' [111]);
- OPh. /ō/ is already raised to ου (CIPP2 16-7);
- ει does not appear; it is uncertain whether this is a coincidence or the result of a different spelling (perhaps with <η>?);

[111] If Brixhe's assertion (2004: 18) that it is a loan from Greek σορός is correct.

- ν#μ > μ#μ > μ, with assimilation of the final nasal and subsequent degemination seems likely (CIPP2 18): cf. ματι μακραν 'big *mati* (ASg)' in line 3, and ματιν '? (ASg)'in line 5.

The changes seem to be in line with developments from Old Phrygian to New Phrygian: a) long diphthongs lost their glide; b) long vowels were possibly already shortened; c) pre-nasal raising of mid-vowels is still obviously in effect; d) if we uphold the νμ > μ rule, this demonstrates that this was one of the first environments where word-final nasalization took place.

On the other hand, there is no evidence to suggest that word-final stops had become unreleased yet.

The ending -οι, if only present in loanwords, might be a Greek case-form: it would indicate that the Greek declensional ending -ῳ was perceived as /oi̯/ without vowel length by Phrygians, suggesting that vowel length in Phrygian was lost before the 3th century BCE.

The one example that clearly preserves an inherited geminate is πεννιτι 'will pass by', where Obrador-Cursach (2020: 42ff.) has convincingly argued that πενν- is a reflex of PIE **pent-*. The difficulty with segmentation makes the state of other geminates unclear; where two identical graphemes appear adjacent to each other, there may well be a word boundary between them. On the other hand, the only two graphemes that appear with an identical adjacent grapheme are <ν> and <σ>, and it is certain that Phrygian at this time would have permitted both /n:/ and /s:/ (§II.3.2.3.11). As a result, attempts at segmentation of this inscription need to be made with the

knowledge that two identical consonants alongside each other need not suggest a word boundary.

Unfortunately, the inscription as a whole is rather poorly understood. As our understanding of Phrygian increases, other as-of-yet unrecognised developments may serve as a control for the developments that are and will be proposed for the period between Old and New Phrygian.

II.3 Developments from Proto-Indo-European to Phrygian

II.3.1 Developments from Proto-Indo-European to Proto-Graeco-Phrygian

While many matters regarding the segmental system of Proto-Indo-European are settled science, the question of how to best reconstruct certain elements of that system are still very a matter of vigorous scholarly debate. Traditionally, the PIE stops are taken to distinguish five places of articulation, labial, dental, palatovelar, velar, and labiovelar, and three manners of articulation, voiceless, voiced, and voiced aspirated (Fortson 2004: 51).

Since a system distinguishing between voiceless, voiced, and voiced aspirated stops is typologically highly questionable, a number of alternate proposals have emerged over the years which have re-interpreted this three-way contrast in different ways. The various approaches are further

developments of the "glottalic theory", which re-interpreted the traditional "voiced" series as glottalized (CIEL 128-129).

The specific approach followed in this work interprets the three-way contrast of stops in Late PIE (i.e. the stage immediately preceding the separation of Proto-Graeco-Phrygian) as one consisting of voiceless stops (**p, *t, *ḱ, *k, *kʷ*), pre-glottalized voiced stops (**(ˀb), *ˀd, *ˀǵ, *ˀg, *ˀgʷ*), and breathy-voiced stops (**b̤, *d̤, *ǵ̤, *g̤, *g̤ʷ*) (cf. Clackson 2008: 48).[112] The issue is, of course, still heavily debated. The arguments adduced by Kortlandt (1985) that the traditionally reconstructed *mediae* were pre-glottalized voiced stops are convincing and serve to explain a number of phenomena in the daughter languages. As far as the breathy-voiced stops are concerned, I believe their reconstruction is necessary for Proto-Graeco-Phrygian to account for the voiceless aspirate reflex in Greek and the voiced reflex in Phrygian. I project this interpretation into Late PIE as well, since, if breathy voiced stops were not inherited, their emergence in Proto-Graeco-Phrygian and Proto-Indic would need to have been independent, which seems questionable to me.

The three "laryngeals" of Late PIE are taken to have had the following phonetic realisations (cf. Kümmel 2022: 201ff.):

- **h₁* was a glottal stop [ʔ];
- **h₂* was a voiceless uvular fricative [χ];
- **h₃* was a voiced uvular fricative [ʁ].

[112] The interpretation of stops followed in this work is most closely aligned with that described by Wikander (2022).

The six resonants of PIE (**m, *n, *r, *l, *u̯, *i̯*) also had vocalic allophones (**m̥, *n̥, *r̥, *l̥, *u, *i*), which could form syllable nuclei in certain phonotactic environments (CIEL 138).

As is conventional, for ease of readability, the traditional notation used in Indo-European studies will be used throughout this work when reconstructed forms in PIE and PGPh. are provided. This is in no way an endorsement of the traditional reconstruction of the phonetic value of segments.

	labial	dental	alveolar	palatal	palatovelar	velar	labiovelar	laryngeal
V	**p* [p]	**t* [t]			**ḱ* [k]	**k* [k̲]	**kʷ* [kʷ]	**h₁* [ʔ]
G	*(*b)* ([ʔb])	**d* [ʔd]			**ǵ* [ʔg̲]	**g* [ʔg̲]	**gʷ* [ʔgʷ]	
B	**bʰ* [b̤]	**dʰ* [d̤]			**ǵʰ* [g̤]	**gʰ* [g̤]	**gʷʰ* [g̤ʷ]	
F		**s* [s]						**h₂* [χ] **h₃* [ʁ⁽ʷ⁾]
N	**m* [m]	**n* [n]						
R	**u̯* [w]		**r* [r] **l* [l]	**i̯* [j]				

Table #12: The consonantal phonemes of Late PIE. The abbreviations in the first column are: V = voiceless stop; G = pre-glottalized stop; B = breathy-voiced stop; F = fricative; N = nasal; R = resonant and semi-vowel.

The vowels of Late PIE were the following:

	front		mid	back	
high	*(*i)*			*(*u)*	
mid	**e*	**ē*	*(*ə)*	**o*	**ō*
low			*(*a)*		

Table #13: The vocalic segments of Late PIE.

The vocalic segments **i, *u, *a,* and **ə* were not phonemic (cf. CIEL 120). **i* and **u* are vocalic allophones of the consonantal phonemes **i̯* and **u̯*. **a* is an allophone of the phoneme **e* when appearing next to **h₂*.
**ə* is an epenthetic vowel. The most prominent example is "schwa secundum", a vowel which emerged in certain types of clusters composed of three or more consonants.

II.3.1.1 Vocalism

II.3.1.1.1 Development of vowels, diphthongs, and syllabic resonants

The vowels of Proto-Indo-European remained unchanged in Proto-Graeco-Phrygian in most environments.

PIE **e* > PGPh. **e*

PIE **bʰer-* 'to bear, carry' > PGPh. **bʰer-* 'id.' > Gr. φερ- 'id.', NPhr. βερ- 'id.' (PhL 62)

PIE **kʷe* 'and' > PGPh. **kʷe* 'id.' > Gr. τε 'id.', OPh. *ke* 'id.', NPh. κε 'id.' (PhL 62)

PIE **seǵʰ-* ‘to hold’ > PGPh. **hegʰ-* ‘id.’ > Gr. ἐχ- ‘to hold, have’, OPh. *eg-* ‘id.’, NPh. εγ- ‘id.’ (LL 1823)

PIE **o* > PGPh. **o*

PIE **-os* ‘(nom. sg. masc. them.)’ > PGPh. **-os* ‘id.’ > Gr. -ος ‘id.’, OPh. *-os* ‘id.’, NPh. -ος ‘id.’ (PhL 63)

PIE **i* > PGPh. **i*

PIE **kʷi-* ‘(interrogative pronoun)’ > PGPh. **kʷi-* ‘id.’ > Gr. τι ‘id.’, OPh. *ki-* ‘id.’, NPh. κι- ‘id.’ (PhL 63)

PIE **-ti* ‘(3sg. act. pres. athem.)’ > PGPh. **-ti* ‘id.’ > Gr. -σι ‘id.’, OPh. *-ti* ‘id.’, NPh. -τι ‘id.’ (LL 1823)

PIE **u* > PGPh. **u*

PIE **up-s-* ‘up, above’ > PGPh. **ups-* ‘id.’ > Gr. ὑψόθ-εν ‘from on high, from above’, NPh. ουψοδ-αν ‘above’ (Lubotsky 1993, PhL 64)

PIE **ē* > PGPh. **ē*

PIE **meh₂tēr* ‘mother’ > PGPh. **mātēr* ‘id.’ > Gr. μήτηρ ‘id.’, OPh. *matar* ‘id.’, NPh. ματαρ ‘id.’ (PhL 63)

PIE **ō* > PGPh. **ō*

PIE **-tōd* ‘(3sg. act. pres. impv.)’ > *PGPh. **-tō* ‘id.’ > Gr. -τω ‘id.’, OPh. *-tu* ‘id.’, NPh. -του ‘id.’ (PhL 64)

PIE **ei* > PGPh. **ei*

PIE **h₁ei-* 'to go' > PGPh. **ei-* 'id.'> Gr. εἰ- 'id.', OPh. *i-* 'id.', NPh. ει- 'id.' (cf. PhL 261-262).

PIE **eu* > PGPh. **eu*

PIE **bʰeudʰ-* 'to perceive' > PGPh. **bʰeudʰ-* 'id.' > Gr. ἀ-πευθ-ής 'ignorant', OPh. *bevd-os* 'image, perception, statue' (Lubotsky 2008, PhL 65)

PIE **ǵʰeu-* > PGPh. **gʰeu-* > Gr. χεῦμα 'that which is poured', Ph. ζευμαν 'spring, well, fountain' (Brixhe 1982: 244)

PIE **oi* > PGPh. **oi*

PIE **loisdʰ-* '(?)' > PGPh. **loizdʰ-* 'at last, at the end' > Gr. λοῖσθ-ιον 'id.', NPh. λοιδ-ιμον 'id.' (Lubotsky 1993: 130)

PIE **-oi* '(nom. pl. masc. pron.)' > PGPh. **-oi* 'id., (nom. pl. masc. them.)'> Gr. -οι 'id.', NPh. -οι 'id.' (PhL 65)

PIE **ou* > PGPh. **ou* (PhL 65)

no good Phrygian example

PIE **ēi* > PGPh. **ēi*

no good Phrygian example

PIE **ōi* > PGPh. **ōi*

PIE **-ōi* '(dat. sg. masc./neut. them.)' > PGPh. **-ōi* 'id.' > Gr. -ῳ 'id.', OPh. *-oy* 'id.', NPh. -ου 'id.' (PhL 65)

PIE **-ōis* '(inst. pl. masc./neut. them.)' > PGPh. **-ōis* '(dat. pl. masc./neut. them.) > Gr. -οις 'id.', NPh. -ως 'id.' (PhL 65)

PIE **ēu* > PGPh. **ēu* (PhL 65)

no good Phrygian example

PIE **ōu* > PGPh. **ōu*

no good Phrygian example (but cf. *Vasous* in LL 1819)

II.3.1.1.2 Developments of laryngeals

Laryngeals **h₂* and **h₃* coloured an adjacent **e* to **a* and **o*, respectively, in Proto-Indo-European already; subsequently, they were lost when adjacent to a vowel in Proto-Graeco-Phrygian. In pre-consonantal position, a sequence of a vowel followed by a laryngeal resulted in loss of the laryngeal with compensatory lengthening of the vowel.

PIE **h₁e* > PGPh. **e*

PIE **h₁e* '(augment)' > PGPh. **e* 'id.' > Gr. ἐ-, OPh. *e-*, NPh. ε- (cf. PhL 103)

PIE **h₁ei-* 'to go' > PGPh. **ei-* 'id.'> Gr. εἰ- 'id.', OPh. *i-* 'id.', NPh. ει- 'id.' (PhL 261-262)

PIE *h_2e > PGPh. *a

PIE *h_2eu ‘again’ > PGPh. *au-to- ‘self; he, she, it’ > Gr. αὐτό- ‘id.’, OPh. *avto*- ‘id.’, NPh. αυτο- ‘id.’ (PhL 65)

PIE *h_3e > PGPh. *o

no good Phrygian example

PIE *eh_1 > PGPh. *$\bar{e}$

PIE *d^heh_1- ‘to put’ > PGPh. *$d^h\bar{e}$- ‘id.’ > Gr. θη- ‘id.’, OPh. *da*- ‘id.’, NPh. δα- ‘id.’ (PhL 63)

PIE *eh_2 > PGPh. *$\bar{a}$

PIE *$meh_2t\bar{e}r$ ‘mother’ > PGPh. *$m\bar{a}t\bar{e}r$ ‘id.’ > Gr. μήτηρ ‘id.’, OPh. *matar* ‘id.’, NPh. ματαρ ‘id.’ (PhL 62)

PIE *b^hreh_2ter- ‘brother’ > PGPh. *$b^hr\bar{a}ter$- ‘id.’ > Gr. φράτερ- ‘id.’, NPh. βρατερ- ‘id.’ (LL 1821)

PIE *eh_3 > PGPh. *$\bar{o}$

no good Phrygian example

PIE *$oh_{1/2/3}$ > PGPh. *$\bar{o}$

no good Phrygian example

The only direct origin of the Proto-Graeco-Phrygian long diphthong *$\bar{a}i$ was the PIE sequence *eh_2ei.

PIE *eh_2ei > PGPh. *$\bar{a}i$

PIE *-eh_2-ei '(dat. sg. fem. them.)' > PGPh. *-$\bar{a}i$ 'id.' > Gr. -ῃ 'id.', OPh. -*ay* 'id.', NPh. -α 'id.' (PhL 64-65)

A laryngeal between two consonants is reflected as a vowel whose quality is determined by which laryngeal it developed from.

PIE *Ch_1C > PGPh. *CeC

PIE *d^hh_1s-o- 'sacred' > PGPh. *d^heh-o- 'god' > Gr. θεό- 'id.', OPh. *devo*- 'id.', NPh. δεο- 'id.' (LL 1823)

PIE *d^hh_1-to- 'something placed' > PGPh. *d^he-to- 'id.' > Gr. θετό- 'id.', MPh. δετο- 'id.' (PhL 62)

PIE *Ch_2C > PGPh. *CaC

PIE *ph_2tr- 'father (obl.)' > PGPh. *$patr$- 'id.' > Gr. πατρ- 'id.', OPh. *patr*- 'id.', NPh. πατρ- 'id.' (cf. PhL 328-329)

PIE *Ch_3C > PGPh. *CoC

PIE *dh_3-ti- 'gift' > PGPh. *do-ti- 'id.' > Gr. δόσις 'id.', OPh. *toti*- 'id.' (Ligorio 2016, PhL 64)

PIE *h_3nh_3mn 'name' > PGPh. *$onomn̥$ 'id.' > Gr. ὄνομα 'id.', OPh. *onoman* 'id.' (LL 1822, PhL 317)

In initial pre-consonantal position, a laryngeal is reflected as a vowel whose quality is determined by which laryngeal it developed from.

PIE *h_1C- > PGPh. *eC-

PIE *h_1su- ‘good, well’ > PGPh. *ehu- > Gr. εὐ-, OPh. *ev*- (PhL 62)

PIE *h_2C- > PGPh. *aC-

PIE *$h_2nēr$ ‘man’ > PGPh. *$anēr$ ‘id.’ > Gr. ἀνήρ ‘id.’, NPh. αναρ ‘id.’ (PhL 62)

PIE *h_3C- > PGPh. *oC-

PIE *$h_3nh_3mn̥$ ‘name’ > PGPh. *$onomə̃$ ‘id.’ > Gr. ὄνομα ‘id.’, OPh. *onoman* ‘id.’ (LL 1822, PhL 317)

Laryngeals in initial position before *$i̯$ and *i show a special development (Bozzone 2013: 6ff.).

PIE *$h_{2/3}i̯$- > PGPh. *j / #_

PIE *$h_1i̯$- > PGPh. *$ç$ / #_

PIE *h_1io- ‘(rel. pron.)’ > PGPh. *$ço$- ‘id.’ > Gr. ὅ- ‘id.’, OPh. *yo*- ‘id.’, NPh. ιο- ‘id.’

PIE *h_1i- > PGPh. *$çi$- [113]

PIE *h_1i- ‘(anaph. pron.)’ > PGPh. *$çi$- > Gr. ἴ-να ‘then’, OPh. *i*-’ (dem. pron.)’, NPh. ι- ‘(id.)’

[113] This development would also be fed by the *$ə_2$ > *i development.

In final position after a consonant, laryngeals are also reflected as a coloured vowel.

PIE *-*Ch₁* > PGPh. *-*Ce* (cf. LL 1823)

no good Phrygian example

PIE *-*Ch₂* > PGPh. *-*Ca*

PIE *-*h₂* '(nom./acc. pl. neut. them.)' > PGPh. *-*a* 'id.' > Gr. -α 'id.', NPh. -α 'id.' (LL 1823)

PIE *-*ih₂* '(nom. sg. fem.)' > PGPh. *-*(i)ja* > Gr. -ια, OPh. -*iya* (cf. Hämmig 2013: 134-138)

PIE *-*Ch₃* > PGPh. *-*Co* (cf. LL 1823)

no good Phrygian example

II.3.1.1.3 Development of the syllabic resonants

The syllabic resonants were still preserved as unitary segments in Proto-Graeco-Phrygian, as evidenced by their different reflexes in the various Greek dialects and their reflexes in Phrygian.

PIE **r̥* > PGPh. **r̥*

PIE **mr̥-* 'to die' > PGPh. **mr̥-* 'id.' > Gr. (poetic) βροτός 'mortal', MPh. μροτις 'death(?)'[114] (PhL 305)

quasi-PIE **pr̥* 'forward' > PGPh. **pr̥* > OPh. *por* (cf. PhL 64)[115]

PIE **l* > PGPh. **l̥*

no good Phrygian example

A sequence of a consonant, a resonant, and a laryngeal develops in two different ways depending on whether the following segment is a vowel or a consonant.

PIE **CRHV* > early PGPh. **CaRHV* > PGPh. **CaRV*[116]

PIE **ǵʰrHi-* > PGPh. **gʰari-t-* > Gr. χάριτ-, NPh. γαριτ- (LL 1823)

PIE **CRh₁C* > PGPh. **CRēC* (cf. LL 1823)

no good Phrygian example

PIE **CRh₂C* > PGPh. **CRāC*

The development of PIE **CRh₂C* into Greek **CRāC* is secure (CIEL 151). Unfortunately, in the only Phrygian example of this development, PIE **(s)lh₂gʷ-* 'to take, grasp, seize' > OPh. *lak-* 'id.' (Lubotsky 2004: 234, PhL 285), it is uncertain whether the vowel *a* is long or short. The matter is complicated by the fact that the Greek

[114] See further in §II.3.2.2.2, however.
[115] See §VI.1.8.
[116] If the vowel following the laryngeal is **e*, it is coloured in accordance with the laryngeal colouring rules laid out in §II.3.1.1.2.

thematic aorist stem λαβ-ε/ο- that developed from the PIE root **(s)lh₂gʷ-* shows an unexpected short vowel that must have emerged analogically (EDG 829). Nevertheless, it is likely on the basis of the Greek reflex and for systemic reasons that the regular Proto-Graeco-Phrygian reflex of PIE **CRh₂C* was PGPh. **CRāC*.

PIE **CRh₃C* > PGPh. **CRōC*

PIE **ǵʰlh₃-ro-* 'green, yellow' > PGPh. **gʰlōro-*'id.' > Gr. χλωρός 'id.', OPh. γλουρ-εο- 'golden' (PhL 202, CIPP2 17)

II.3.1.1.4 Development of the syllabic nasals

The fate of the two syllabic nasals **m* and **n* is slightly different to that of the two resonants **r* and **l*.

In final position, the two syllabic nasals merge into a single segment, which we may suppose was likely **n̥*:

PIE **-n̥* > PGPh. **-n̥*

PIE **-mn* > PGPh. **-mn̥* > Greek -μα, OPh. *-man*, NPh. -μαν (cf. PhL 67, LL 1822)

PIE **-m̥* > PGPh. **-n̥*

PIE **-m̥* '(acc. sg. of C-stems)' > PGPh. **-n̥* > Gr. -α, OPh. *-an*, NPh. -αν (cf. PhL 67, LL 1822)

We have no secure examples of a syllabic **m̥* in Phrygian before a consonant, so it is uncertain whether the two sounds merged or remained distinct in that position, but the otherwise identical treatment of nasals in Greek and Phrygian suggests a merger took place.

PIE **-n̥C-* > PGPh. **-n̥C-* (cf. Rix 1992: 66)

PIE **-n̥s* '(acc. pl. masc./fem.)' > PGPh. **-n̥s* > Gr. -ας, NPh. -αις (LL 1820)

PIE **-m̥C-* > PGPh. **-n̥C-* (cf. Rix 1992: 66)

PIE **g^{w}m-* 'to go' >> PGPh. **g^{w}n̥-ske/o-* > Gr. βάσκε 'go! (impv.)';
no good Phrygian example

The only environment where the reflexes of the two syllabic nasals differ is as part of a sequence with a laryngeal, where they develop along the same lines as **r̥* and **l̥* (see §II.3.1.1.4).

PIE **CnHC* > PGPh. **Cnē/ā/ōC* (CIEL 151)

PIE **ǵnh₃-ti-* > PGPh. **gnōti-* > Gr. γνῶσις;
no good Phrygian example

PIE **CmHC* > PGPh. **Cmē/ā/ōC* (CIEL 151)

PIE **ḱmh₂-to-* 'fatigued' > PGPh. **kmāto-* 'id.' > Gr. ἄ-κμητος 'indefatigable' (EDG: 632);
no good Phrygian example

PIE **CnHV* > PGPh. **CanV* (CIEL 151)

PIE **dʰnh₂-eto-* 'death' > PGPh. **dʰanato-* 'id.' > Gr. θάνατος 'id.' (EDG 2010: 533-534);

no good Phrygian example

PIE **CmHV* > PGPh. **CamV* (CIEL 151)

PIE **ḱmh₂-eto-* 'fatigue' > PGPh. **kamato-* 'id.' > Gr. ἀ-κάματος 'without fatigue' (Beekes 1969: 201, 206ff.);

no good Phrygian example

II.3.1.1.5 Laryngeal hardening

Laryngeal hardening is a term that refers to the process by which an original Proto-Indo-European laryngeal developed into a stop.

Martinet (1955) originally proposed a development of this type that would explain unexpected occurances of *-k-* in a final syllable in certain Latin and Greek forms, and Olsen (2009) subsequently endorsed and elaborated on the idea. Among the examples cited are: the Latin suffix *-ix* < **-ih₂s*; the Latin pair *senātus* 'senate' < **seneh₂-tu-* ~ *senex* 'old man' < **seneh₂-s*; etc. Olsen formulated the law as follows:

PIE **-VHs#* > **-Vks#* (NB: without laryngeal colouring)

More recently, Kortlandt (2018) has presented his own scenario on how a process akin to laryngeal hardening can be used to explain certain

unexpected instances of *-k-* in a final syllable.[117] His proposal does not assume a direct development of a laryngeal into a stop, but rather the insertion of an epenthetic **k* between a word-final sequence of a laryngeal followed by an obstruent:

PIE **-VHC#* > **-VHkC#*

PIE **steh₂-t* 'to erect (3sg aor. act.)' > **steh₂kt* > **stākt*

The two proposals differ in how they treat the actual development of the laryngeal and the ramifications of that for the development of an immediately preceding vowel, as well as the conditioning factors at play (i.e. whether it was operational word-internally and whether only a following **s* caused hardening); ultimately, both accounts need to assume that analogical remodelling of the vowel took place in some of the forms with an otherwise unexpected *-k-*.

Nevertheless, the shared assumption that a word-final sequence **-VHs* produced reflexes with **k* is extremely appealing and serves to explain certain otherwise enigmatic forms.[118]

Provisionally, when individual forms are discussed, Kortlandt's account will be taken as the basis, but the analyses impacting Greek and Phrygian forms are not contingent on this fact.[119]

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[117] Henceforth, Kortlandt's proposal will, like Martinet's and Olsen's proposals, be treated under the cover name "laryngeal hardening" for convenience, even though, strictly speaking, his account does not presuppose any hardening of the laryngeal itself and would better be described as "laryngeal *k*-epenthesis".

[118] The traditional alternative to assuming laryngeal hardening is to posit that any such unexplained **k* is a suffix of some sort. Such morphological explanations do not generally provide any additional insight into the forms being discussed and only serve as an *ad hoc* means of providing an explanation for the presence of **k*.

[119] Though, if Olsen's account is preferred, the *k*-formant in PGPh. **dēk-* must be taken as originating in the 2nd person singular.

For the purposes of Phrygian, we may provisionally give the following sound law:

PIE *-*VHC* > PGPh. *-*V*ˀ*kC#*

PIE *d^heh_1t ‘to put (3sg aor. act.)’ >(>) PGPh. *$dēkt$ ‘id.’ >> PGPh. *$dēk$- ‘id. (aor. and perf. stem)’ > Gr. θηκ- ‘to put (sing. aor. stem, perf. stem)’, Phr. *dak*- ‘id. (perf. stem.)’ (see further in §V.3.9.3)

II.3.1.2 Consonantism

II.3.1.2.1 Development of stops

Stops in Proto-Graeco-Phrygian preserved a three-fold phonological distinction found in Proto-Indo-European.

PIE *t > PGPh. *t

PIE *-*to*- ‘(adjective-forming suffix)’ > PGPh. *-*to*- > Gr. -το-, OPh. -*to*-, NPh. -το- (cf. PhL 108)

PIE *d > PGPh. *d

PIE *diu- ‘Sky-deity (oblique)’ > PGPh. *$di\underset{\cdot}{u}$- > Gr. δι-, OPh. *tiv*-, NPh. τι- (PhL 74)

PIE *d^h > PGPh. *d^h

PIE *d^hh_1-*s*-*o*- ‘sacred’ > PGPh. *d^heho- ‘deity’ > Gr. θεο-, OPh. *devo*-, NPh. δεο- (LL 1823)

Same as with the dentals, the place of articulation of the labials and the labiovelars was preserved unchanged:

PIE *p > PGPh. *p

PIE *ph_2tr- 'father (oblique)' > PGPh. *$patr$- > Gr. πατρ-, OPh. $patr$-, NPh. πατρ- (PhL 74)

PIE *b^h > PGPh. *b^h

PIE *b^her- 'to bear' > PGPh. *b^her- > Gr. φερ-, NPh. βερ- (PhL 73)

PIE *k^w > PGPh. *k^w

PIE *k^we 'and' > PGPh. *k^we > Gr. τε, OPh. ke, NPh. κε (PhL 74)

PIE *g^w > PGPh. *g^w

PIE *g^wnh_2- 'woman (oblique)' >> PGPh. *g^wnaik- > Gr. γυναικ-, OPh. $knayk$- (PhL 74) (for the stem *g^wnaik-, see §III.3.10.2)

PIE *g^{wh} > PGPh. *g^{wh}

PIE *d^hreg^{wh}- > PGPh. *d^hreg^{wh}- > Gr. τρεφ- 'to feed', NPh. δρεγ- 'id.' (PhL 73)

The palato-velars are reflected as plain velars, making Proto-Graeco-Phrygian a centum-language (cf. PhL 73-74):[120]

[120] Phrygian secondarily underwent a conditioned palatalization of its plain velars, but this development is posterior to the shift of palatovelars to plain velars. See §II.3.2.3.4 below.

PIE **ḱ* > PGPh. **k*

PIE **diḱ-* ‘to point (weak stem)’ > PGPh. **dik-* > Gr. δικ-, NPh. τικ- (PhL 74)

PIE **ǵ* > PGPh. **g*

PIE **meǵh₂-* ‘big, large’ > PGPh. **mega-* > Gr. μεγα-, OPh. *meka-*, NPh. μεκα- (PhL 74)

PIE **ǵʰ* > PGPh. **gʰ*

PIE **ǵʰriH-* ‘to smear’ > PGPh. **gʰrī-* > Gr. χρῑ- ‘to smear, anoint’, NPh. γρει- ‘anoint’ (PhL 73)

A cluster of two dental stops developed an epenthetic **s* in PIE already. The resulting sequence remained unchanged in Proto-Graeco-Phrygian.

PIE **-Tt-* > PIE **-tst-* > PGPh. **-tst-*

PIE **uoid-th₂e* ‘know (2sg perf. act. ind.)’ > PGPh. *uoitsta* > Gr. οἶσθα (Norbruis 2023)

PIE **-Td-* > PIE **-dzd-* > PGPh. **-dzd-* (Meier-Brügger 2010: 268)

PIE **-Tdʰ-* > PIE **-d(ʰ)z(ʰ)dʰ-* > PGPh. **-dʰzdʰ-* (Meier-Brügger 2010: 268)

pre-Proto-Phrygian **ad=dʰi* > Proto-Phrygian **adzdʰi* > **adzdi* > **azdi* > Late PPh. **adi* > NPh. αδ ‘(preposition)’ (see §VI.1.1)

In word-final position, plosives are lost.

PIE *$C_{[+plosive]}$ > PGPh. ∅ / _# (cf. Rix 1992: 88-89)

PIE *-*tōd* '(3pl act. impv.)' > PGPh. *-*tō* > Gr. -τω, OPh. -*tu*, NPh. -του (cf. PhL 102)

PIE *-*id* '(nom.-acc. neut. pronominal)' > PGPh. *-*id* > Gr. -ι (in, e.g., τί < *k^w*id*), OPh. -*i* (in *si* < *$\acute{k}$*-id*) (*contra* PhL 89)

PIE **nt* > PGPh. **n* / _#

PIE *-*ent* ('3pl. act. secondary)' > PGPh. *-*en* > Gr. -εν, NPh. -εν (in δακαρεν) (cf. PhL 105)

Word-final clusters of a non-dental stop and **s* are preserved as a cluster of a voiceless stop and **s*.
A final cluster of a dental and **s* is simplified into **s* (PhL 70).

PIE **Ks* > PGPh. **ks* / _# (Rix 1992: 95)

early PGPh. **u̯anakts* > **u̯anaks* > Myc. *wa-na-ka* [u̯anaks] >> OPh. *vanak* 'id.' (cf. PhL 70)

PIE **Ps* > PGPh. **ps* / _#

no good Phrygian example

PIE **Ts* > PGPh. **s* / _#

PIE **nepōts* 'nephew' > PGPh. **nepōs* > OPh. *nepos* 'grandson[?]'(cf. PhL 70)

PIE *b^heh_2- ‘to shine’ > PGPh. *$b^hō$-*t*-*s* and *$b^hā$-*t*-*s* (nom. sg.) > Gr. nom. sg. φώς ‘man, hero’, gen. sg. φωτός, NPh. nom. sg. βας ‘Bas’, acc. sg. βαταν (cf. PhL 193-194)

II.3.1.2.2 Dental-velar clusters in Proto-Graeco-Phrygian and beyond

The development of the dental-velar clusters is difficult to ascertain for Proto-Graeco-Phrygian.

In Greek, the cluster underwent metathesis:

PIE *tk > Proto-Greek *kt (Rix 1992: 96)

PIE *tV-tk- ‘to produce’ > PG *$tikt$- ‘to beget’ > Gr. τικτ- ‘id.’

PIE *d^hg^h > Proto-Greek *k^ht^h (cf. Rix 1992: 81-82)

quasi-PIE *$d^hg^hōm$ ‘earth (NSg)’ > PG *$k^ht^hōn$ ‘id.’ > Gr. χθών ‘id.’

In Phrygian, we only have a single unambiguous piece of evidence for the development of a *TK cluster in initial position.

quasi-PIE *d^hg^hemelo- > NPh. ζεμελο- (= *zemelo*-) ‘man’ (cf. LL 1824)

Since a PIE *$ǵ^h$ regularly develops into New Phrygian ζ /z/ before a front vowel (§II.3.2.3.4), a number of intermediate stages are possible:

	scenario 1	scenario 2	scenario 3
quasi-PIE	*d^hg^hemelo-		
PGPh.	**dgemelo-*	**gdemelo-*	*X*emelo-*
early PPh.	**dgemelo-* or **gemelo*	**gemelo-*	**dzemelo-*
late PPh./OPh.	**dzemelo-*	**dzemelo-*	
NPh.	ζεμελο-		

Table #14: Possible developments of the word for 'man' in Phrygian.

In scenario 1, no special development is required to account for the Phrygian forms: a dental-velar cluster would have simply developed entirely in accordance with the rest of the system, with possible simplification of the initial cluster. In this case, the Greek metathesis would need to have been post-Proto-Graeco-Phrygian.

In scenario 2, Phrygian would have undergone the same metathesis as Greek, meaning that the metathesis would need to have been of Proto-Graeco-Phrygian age. In this case, the resulting **gd* cluster would need to have been simplified into simply **g* in Proto-Phrygian.

Scenario 3 assumes a development more in line with that assumed for **TK* clusters in many other core Indo-European languages (i.e. except Anatolian and Tocharian), which has been suggested to be a common innovation of Core Proto-Indo-European (Fortson 2004: 59). In Indo-Iranian, Italic, and Greek an original PIE sequence **TK* has been suggested to have been metathesized with its now second element lenited into a fricative (*ibid.*):

PIE **d^hg^hom-* 'earth' > Core PIE **$g^hð^{(h)}om$-* > Skt. *kṣám-*, Av. *zam-*, Lat. *hom-*, Gr. χθον-

PIE **$h_2rtḱo$-* 'bear' > Core PIE **$h_2rkþo$-* > Skt. *ṛ́kṣa-*, Lat. *ursu-*, Gr. ἄρκτο-

If one assumes this development for Phrygian, i.e. from Core PIE **Kþ*, Phrygian would show a special development of **$g^hð^h$* into PPh. **dz* at least in initial position, while the fricative element would have undergone fortition in Greek (i.e. $g^hð^h > *g^hd^h > k^ht^h$).

One telling example that may help us discern the actual prehistoric reflex of an initial dental-velar cluster in Phrygian can be found in NPh. γουμεις °130^{NW}. If we interpret the syntagm σως γουμεις (dat. pl.) 'these *goum*'s' as referring to the burial grounds in a locative meaning, NPh. γουμ- 'earth, ground, (burial) plot' would be directly cognate to Greek χθον- 'earth, ground', with both descended from PGPh. **d^hg^hom-*. [121] With this identification, the situation becomes somewhat clearer. While the Greek development is entirely regular in its metathesis, the Phrygian reflex of initial **d^hg^h* must then have been simply *g-*. This would be entirely in line with the treatment of ζεμελο-, with the difference being that the velar was later palatalised before a front vowel:

[121] Synchronically, NPh. γουμ- is an *m*-stem, the only known example belonging to this type in synchronic Phrygian. While it is conceivable that it is a loanword, the PIE word for 'earth' is the only known *m*-stem in that language as well, which makes this identification likely on both semantic and formal grounds. See further in §III.3.8.

PIE **TK* > PGPh. **TK* > PPh. **K* / #_; then
PPh **k, g* > PPh. *(*t)*s, *dz* / _V[+front]
PIE **dʰgʰom-* > PPh. **gom-* > NPh. γουμ-;
PGPh. **dʰgʰem-* > PPh. **gem-* > LPPh. **dzem-* > NPh. ζεμ-.

If we uphold this etymology, this effectively disproves the "thorn"-treatment of the initial cluster (scenario 3), unless we assume the following series of developments:

PIE **TK* > PGPh. **Kþ* > PG **KT*, PPh. **K*

It is questionable whether this confers any benefit to the treatment of Phrygian and Greek data: in either case, both languages would have shown a special development of an original **TK* cluster, with the thorn scenario simply adding an unnecessary intermediate step. The only reason to postulate the thorn scenario is if one assumes that the development into **Kþ* was of PIE age already. While this matter is still under discussion, it ultimately seems unnecessary (Kloekhorst 2014: 65 *et passim*), and one of the arguments in favour of a thorn development in any case is the Greek metathesis, which is less likely to be inherited when Phrygian data is taken into account.

To decide between scenarios 1 and 2, we may more closely examine the forms *ektetoy*, *ktevoys,* and perhaps εκτε-. It is clear that *ektetoy* and εκτε- must be augmented forms belonging to a PPh. root **kt(e)*- (§V.3.2.3); whether the vowel *-e-* is the thematic vowel or a reflex of **h₁* is unclear from a purely phonological standpoint. Since both *ektetoy* and *ktevoys* appear in °B-01, it is likely that the *kt* element belongs to the same original

root and is in the zero grade. Leaving the question of the vowel *-e-* aside, the root in question must have had a basic shape **K^{w}T(h$_1$)-/*ḰT(h$_1$)-* or **TK^{w}(h$_1$)-/*TḰ(h$_1$)-,* if we assume metathesis took place.[122] What we may conclude is that the initial *kt-* of *ktevoys* and the other forms cannot be a reflex of **tḱ- > *tk-*, since the **k* would have otherwise been palatalised (**tke- > kte-* would suggest a parallel**d^{h}g^{h}e > **gde-*, instead of attested **d^{h}g^{h}e > ζε-*). Thus, *kt-* can only be a reflex of original **K^{w}t-*, **Tk^{w}-,* or **Ḱt-* (with the latter element being voiceless in Proto-Phrygian).

Taking into account the likely meaning of the forms discussed, I propose that *ektetoy* and *ktevoys* are zero-grade forms belonging to the PIE verbal root **ǵ^{h}ed-* 'to seize, grasp, take' (cf. Gr. χανδάνω 'to take in, hold'),[123] in which case the following development took place: PGPh. **g^{h}d* > PPh. **gt* > OPh. *kt*. This then suggests that an initial cluster **KT* remained unaffected by any special development. In other words, the reflexes of original PIE **TḰ* and **ḰT* clusters did not merge at any point in Phrygian pre-history, disproving scenario 2.[124]

Based on these considerations, it seems most likely that in initial position the dental-palatovelar clusters underwent the following development:

PIE **TḰ* > PGPh. **TK* > PPh. **K*.

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[122] *ektetoy* can descend either from **kth$_1$-C* or **kt-e-C-*, and *ktevoys* can be either a *vo-*adjective, **kth$_1$-uo-*, or an *evo-*adjective, **kt-evo-*. For the latter type, see §III.3.1.5. See also the previous footnote.

[123] See §V.3.2.3.

[124] If **gt < *ǵ^{h}d* did not go undergo palatalization in Proto-Phrygian, we would expect the same for ***gd* < PGPh. **d^{h}ǵ^{h}-*, which is contradicted by ζε-.

On the other hand, PIE palatovelar-dental clusters remained unchanged:

PIE **ḱT* > PGPh. **KT* > PPh. **KT.*

The proposed Phrygian development of the dental-palatovelar clusters in initial position is fundamentally identical to that of Italic and Balto-Slavic; the development would need to have been independent in all three instances.[125]

PIE **TK* > PIt. **K*, PBSl. **K,* PPh. **K*

PIE **d^hg^he/om-* 'earth' > Lat. *hum-*, OCS *zem-*, NPh. ζεμ-, γουμ-

As far as the dental-palatovelar clusters in non-initial position are concerned, there are no good Phrygian examples that permit an analysis.

II.3.1.2.3 Development of resonants

The resonants **r* and **l* are preserved in all positions.

PIE **r* > PGPh. **r*

PIE **b^her-* 'to bear' > PGPh. **b^her-* > Gr. φερ-, NPh. βερ- (PhL 69)

PIE **l* > PGPh. **l*

PIE **-elo-* '(nominal suffix)' > PGPh. **-elo-* > Gr. -ελο-, NPh. -ελο- (in ζεμελο-) (PhL 85)

[125] Also note that the cluster **TK* in initial position before a consonant was certainly simplified into **K* in Core PIE already (cf. Skt. gen. sg. *jmás*; Gr. χαμαί). The Italic, Balto-Slavic, and Phrygian developments would then simply be an extension of this simplification to all word-initial environments.

The nasal **n* was preserved in all positions.

PIE **n* > PGPh. **n*

PIE **penkʷe* 'five' > PGPh. **penkʷe* > Gr. πέντε, NPh. πινκε (LL 1820)

The nasal **m* was mostly preserved unchanged, except in final position, where it developed into **n*.

PIE **m* > PGPh. **m*

PIE **meh₂tēr* 'mother' > PGPh. **mātēr* > Gr. μήτηρ, OPh. *matar* (PhL 66)

PIE **m* > PGPh. **n* / _#

PIE **-om* '(acc. sg. thematic)' > PGPh. **-on* > Gr. -ον, OPh. *-un*, NPh. -ουν (PhL 67)

In initial clusters **sr*, **sl, *sm,* and **sn, *s* developed into **h.*[126] (Rix 1992: 76) In other environments, these clusters underwent separate developments in Phrygian and in the various Greek dialects, passing through the common stages **hr, *hl, *hm, *hn*.

PIE **sl* > PGPh. **hl* / #_V

PIE **sleh₂gʷ-* 'to seize, take' > PGPh. **hlāgʷ-* > Gr. dial. λhαβ- (aor.),[127] OPh. *lak-* (PhL 69, 70, Rix 1992: 76)

[126] Compare PIE **su̯* > PGPh. **hw*.
[127] With secondary short vowel (EDG 829).

PIE **sr* > PGPh. **hr* / #_V

no good Phrygian example

PIE **sn* > PGPh. **hn* / #_V

no good Phrygian example

PIE **sm* > PGPh. **hm* / #_V

no good Phrygian example

PIE **sR* > PGPh. **hR*

PIE **g^hesr-* 'hand' > PGPh. **g^hehr-* > Gr. χειρ-, OPh. ↑*ira*-, NPh. ζειρα- (§III.3.5)

PIE **-e-sm-o-* '(pronominal)' > PGPh. **-ehmo-* > NPh. -εμο- (in σεμο- 'this (oblique)' < **ḱesmo-*) (§IV.3.2)

II.3.1.2.4 Development of semi-vowels

The two semivowels **u̯* and **i̯* were preserved in almost all environments.

PIE **u̯* > PGPh. **u̯*

PIE **u̯erǵ-* 'to work' > PGPh. **werg-* > Gr. ἐργ-ο- 'work'; cf. OPh. *vrek-o-* 'sculpture' (PhL 243-244) (for the apparent Schwebeablaut in OPh. *vreko-*, see §III.3.1.3)

PIE **i̯* > PGPh. **j*

PIE **-e-i̯o-* '(adjective-forming suffix)' > PGPh. **-ejo-* > Gr. -εο-, NPh. -εο- (in γλουρεο- < **ǵ^{h}lh$_3$rei̯o-*) (PhL 84-85)

The clusters *$s\underset{\smile}{u}$ and *$s\underset{\smile}{i}$ saw the element **s* lenited (cf. Rix 1992: 80).

PIE **sw* > PGPh. **hw*

PIE **sue* 'self' > PGPh. **hwe* > Gr. ἕ, OPh. *ve-*, NPh. οε- (cf. PhL 69)

PIE *$s\underset{\smile}{i}$ > PGPh. **hj*

no good Phrygian example

II.3.1.2.5 Development of fricatives

The PIE fricative **s* underwent lenition in initial position before a vowel and between vowels.

PIE **s* > PGPh. **h* / #_V

PIE **seg^h-* 'to hold' > PGPh. **heg^h-* > Gr. ἕξω 'to have (fut.)', OPh. *eg-* 'to hold', NPh. εγ- (PhL 69)

PIE **s* > PGPh. **h* / V_V

PIE **d^{h}h$_1$-s-o-* > PGPh. **d^{h}eho-* > Myc. *te-o-* [t^{h}eho-] 'god', OPh. *devo-* 'id.', NPh. δεο- (PhL 70)

In clusters with stops, PIE **s* is preserved.

PIE **s* > PGPh. **s* / _C, C_ (LL 1823)

PIE **steh₂-* 'to stand' > PGPh. **stā-* > Gr. στη-, OPh. *sta-*, NPh. στα- (PhL 232)

PIE **u̯ēh₂gʰ-s-* 'to wail (*s*-aorist stem)' > PGPh. **u̯āks-* > OPh. *va*Ψ- (§II.1.1.4)

Word-finally, *s is preserved.

PIE *s > PGPh. *s / _#

PIE **-os* '(nom. sg. *o*-stem ending)' > PGPh. **-os* > Gr. -ος, OPh. *-os*, NPh. -ος (PhL 70)

II.3.2 Developments from Proto-Graeco-Phrygian to Old Phrygian

II.3.2.1 The segmental system of Proto-Graeco-Phrygian

	labial	dental	alveolar	palatal	velar	labio-velar	glottal
T	*p	*t			*k	*k^w	
M	*b	*d			*g	*g^w	
MA	*b^h	*d^h			*g^h	*g^{wh}	
fricative		*s					*h
nasal	*m	*n					
resonant	*w		*r *l	*j *$ç$			

Table #15: The consonantal segments of Proto-Graeco-Phrygian.

	front		mid		back	
high	*i	*$ī$			*u	*$ū$
mid	*e	*$ē$			*o	*$ō$
low			*a	*$ā$		

Table #16: The vocalic segments of Proto-Graeco-Phrygian.

Diphthongs: *ai, *ei, *oi, *$āi$, *$ēi$, *$ōi$, *au, *eu, *ou, *$āu$, *$ēu$, *$ōu$

Vocalic resonants: *$r̥$, *$l̥$, *$n̥$

II.3.2.2 The development of vowels

The majority of Proto-Graeco-Phrygian vowels remained unchanged by Old Phrygian.

PGPh. **a* > OPh. *a*

PGPh. **patr*- 'father (oblique stem)' > OPh. *patr*-, NPh. πατρ- (cf. PhL 62)

PGPh. **e* > OPh. *e*

PGPh. **b*^{h}*er*- 'to bear' > NPh. βερ- (cf. PhL 62-63)

PGPh. **ped*- 'foot' > OPh. *pet*-, NPh. πετ- (cf. Kloekhorst 2015: 115)

PGPh. **i* > OPh. *i*

PGPh. **k*^{w}*i*- 'who' > OPh. *ki*-, NPh. κι- (cf. PhL 63)

PGPh. **o* > OPh. *o*

PGPh. *-*os* '(nom. sg. *o*-stem ending) > OPh. -*os*, NPh. -ος (cf. PhL 63-64)

PGPh. **u* > OPh. $^{+}$*u* > NPh. /u/ <ου>, <υ>

PGPh. *upsod*^{h}*n̥* 'up, above' > Gr. *ὑψόθα (cf. ὑψόθ-εν 'from above'), NPh. (o)υψοδαν (cf. Lubotsky 1993, PhL 64)

PGPh. **ā* > OPh. *ā* <*a*>

PGPh. **māter*- 'mother' > OPh. *mater*-, NPh. ματερ- (cf. PhL 62)

PGPh. *$\bar{o}$ > OPh. $\bar{o}$ <*o*>

PGPh. *-*tō* '(3sg impv. act. ending)' > OPh. -*to*, NPh. -του (cf. PhL 64)

PGPh. *$\bar{u}$ > OPh. $^{+}\bar{u}$ <*u*> > NPh. ου

PGPh. **knū*- 'to dig, scrape' > NPh. κνουμαν- 'grave' (cf. PhL 64)

The front long vowels of Proto-Graeco-Phrygian underwent specific developments.

PGPh. *$\bar{e}$ > OPh. $\bar{a}$ <*a*>

PGPh. **mātēr* 'mother (nom. sg.)' > OPh. *matar,* NPh. ματαρ (cf. PhL 62)

PGPh. *$\bar{\imath}$ > OPh. $\bar{\varrho}$ <*e*>, <*i*>

PGPh. *-*ī*- '(optative suffix) > OPh. -*s-i/e*- '(sigmatic aorist optative suffix)', NPh. -σ(ε)ι- 'id.' (see §V.3.4.3)

The new mid-high front long vowel $\bar{\varrho}$ also emerged as a result of contraction and compensatory lengthening (cf. Brixhe 1983: 117).

PGPh. *-*eje*- > PPh. $\bar{\varrho}$

PGPh. *-*eje*- '(denominal verb-forming suffix)' > MPh. -ι-, NPh. -ι- (§V.3.1.4)

PGPh. *e > Ph. $\bar{e}$ / _hr

PGPh. *$g^{h}ehr$- ‘hand (oblique)’ > PPh. *$g^{h}ehrā$ ‘hand (*a*-stem)’ > OPh. ↑*ira*-, NPh. ζειρα- (§III.3.5)

The diphthongs remained unchanged, with the exception of PGPh. *$ēi$, which would have developed into OPh. $āi$.

PGPh. *ai > OPh. ay

PIE *h_1eh_2i > PGPh. *ai ‘when, if’ > PPh. *ai + ni > OPh. $ayni$ ‘if’ (cf. PhL 64, 65)

PGPh. *ei > OPh. ey

PGPh. *$māterei$ ‘mother (dat. sg.)’ > OPh. $materey$ (cf. PhL 65)

PGPh. *oi > OPh. oy

PGPh. *-toi ‘(3sg middle primary ending’ > OPh. -toy ‘id.’ (cf. PhL 65)

PGPh. *au > OPh. av

PGPh. *$auto$- ‘he, himself’ > OPh. $avto$- (cf. PhL 65)

PGPh. *eu > OPh. ev

PGPh. *$b^{h}eud^{h}os$ ‘image’ > OPh. $bevdos$ ‘statue’ (cf. PhL 65)

PGPh. *ou > OPh. u[?]

possibly pre-OPh. *$vasous$ > OPh. $vasus$ ‘PN’ (cf. PhL 65-66)

PGPh. **āi* > OPh. *ai*

PGPh. **-āi* '(dat. sg. *a*-stem ending)' > OPh. *-ai* (e.g. *esai* 'this (dat. sg.)') (cf. PhL 64-65)

PGPh. **ēi* > OPh. *ai*

PGPh. **-ēi* '(3sg subj. act. ending)' > OPh. *-ai* (e.g. *podaskai* 'may he trample') (§V.2.1)

PGPh. **ōi* > OPh. *oi*

PGPh. **-ōi* '(dat. sg. *o*-stem ending)' > OPh. *-oi* (e.g. *tadoy*) (cf. PhL 65)

PGPh. **āu* > OPh. *+au*

no good Phrygian example

PGPh. **ēu* > OPh. *au*

PGPh. **-ēus* '(nom. sg. agent noun)' > PPh. **-āu-* + *-os* > OPh. *-avos* 'id.' (cf. PhL 65)

PGPh. **ōu*

no good Phrygian example

The placement of the accent apparently played some role in vocalic developments.[128]

[128] For a treatment of the Phrygian accent, see §II.3.4.

PGPh. *$e_{[\text{-accent}]}$ > PPh. **i* / _CC > OPh. *i* (§II.3.4)

PGPh. **neptíja-* ‘niece, granddaughter’ > OPh. *niptiya-*

In proclitics, final *-i* was beginning to become syncopated by Old Phrygian.

PPh. **-i* > OPh. *-i*, -∅; NPh. ∅ / *in proclitics*

pre-Proto-Phrygian **ki* ‘this (neuter, clitic)’ > Proto-Phrygian **si* > Old Phrygian *s(i)* (cf. *s=materan, s=manes,* but *si=keneman*) (§IV.3.4)

Some instances of vowel raising are known to have taken place.

PGPh. **é* > OPh. *ę* / _$RV (§II.3.4, *contra* LL 1821)

Proto-Phrygian **kubéleja* > OPh. *kubeleya*, *kubileya* ‘DN’

Proto-Phrygian **béreto-* > NPh. βερετορ, βιρετο[ι/ρ] ‘to bring (3sg middle present/imperfect)’

PGPh. **e* > OPh. *ę* / _*n*# (Brixhe 1983: 119-120)

pre-OPh. **-en* ‘(acc. sg. *e*-stem ending)’ > OPh. *-in* (e.g. *manin* ‘Manes (PN) (ASg)’) (*contra* PhL 83)

PGPh. **o* > OPh. *ǫ* / _*n*# (Brixhe 1983: 119-120)

PGPh. **-on* ‘(acc. sg. *o*-stem ending)’ > OPh. *-un*, NPh. -ον, -ουν (cf. PhL 63-64)

This final development may have resulted in a phonemic merger of mid and high vowels before a nasal in a closed syllable, or it may have been another example of an allophonic raising.[129]

PGPh. **e* > [e̯] or /i/ / _N$C

PGPh. **penk*^{w}*e* > NPh. πινκε ‘five’ (LL 1820)

PGPh. **o* > [o̯] or /u/ / _N$C

no certain example, possibly NPh. πουντας ‘Pontic’, *derived from a loan of* Gr. Πόντος ‘Pontus’ (LL 1822)

II.3.2.2.1 Vowel raising in non-final position

New Phrygian mid-vowels appear to have remained unchanged in non-final position before a nasal. If we discount all instances of κνουμαν- ‘grave’ (most likely with an inherited /u/ < **ū* (Lubotsky 1998)) and of γεγρ(ε)ιμενο- ‘written’ (where ει/ι spells the reflex of PPh. **ē̯* < **ī*),[130] high vowels before nasals in inlaut appear in a comparatively small number of forms: μι̲μογα °18^{W}, μι̲μογας °18^{W}, σι̲μουν °25^{SW}, [ζ]ιμελως °25^{SW}, που̲ντας °48^{NW}, ει̲νεα °69^{SE}, διου̲νσιν °88^{C}, λο[-]δι̲μον °116^{W}, πι̲νκε °116^{W}, δεδασσι̲ννι °NC, κορου̲μανη 2x °130^{NW}, γου̲μεις 2x °130^{NW}, ειλικρι̲νη °130^{NW}, εγου̲ννου °130^{NW}.[131]

Some of these high vowels are certainly etymological (ου < *ō*, *u*, *ū*; ι < *i*; ει < *e̯i*, *ī*).

[129] See further in the following section.
[130] *Contra* Haas 1966: 66, who assumes an etymological /i/ or /e̯i/.
[131] For σιμουν and ζιμελως in °25^{SW}, see §II.3.4.

Some of these examples are consistent with the pre-nasal raising of mid-vowels in a closed syllable proposed for Old Phrygian: πουντας (derived from a loan of Greek Πόντος 'Pontus') and διουνσιν (possibly the Phrygian rendition of Greek Διόνυσος 'Dionysus') both show raising, πινκε 'five' is a regular reflex of PIE **penk^{w}e* (as proposed by Ligorio and Lubotsky (LL 1820)), and the 3pl act. impv. ending -ουννου [-un:u] can be etymologized as deriving from *-*onnō* < *-*ontō* (cf. PhL 68).

The following examples seem to contradict pre-nasal raising of vowels in closed syllables: ενσταρνα °48^{NW}, τεμρογειος °48^{NW},]τεν̣τουμενος °48^{NW}, αλενπ̣ατης °69^{SE}, γ̣εν̣τ̣ιβ̣ε̣π̣α̣ι °120^{W}, ριποτειτωμν[, ουελασκοννου °42^{W}, °120^{W}

Three of these examples are from inscription °48^{NW}, which was found near Eskişehir, which is somewhat remote compared to other locations where New Phrygian inscriptions were found. It is conceivable that the presence of spellings with <ε> is a dialectal convention. The two sequences of εν- (in ενσταρνα and]τεντουμενος) could ultimately reflect the preposition εν or compounds with it from after the raising rule was no longer productive. τεμρογειος is a river-name (Lubotsky 1997: 7) and is likely to be a borrowing.

γεντιβεπαι is difficult to read and segment, though the presence of a sequence -ντ- suggests a word boundary after γεν. ριποτειτωμν[begins the inscription; the presence of ω, which normally appears in a final syllable, makes a word boundary before <μ> likely, and it is likely μ could not appear word-finally in any case. αλενπατης has two unexpected features, specifically the lack of vowel-raising and a non-assimilation of <ν> to <μ> before a labial, which makes it extremely likely there is a word boundary between αλεν and πατης.

In ουελασκοννου, if Hämmig's (2022: 96 *et passim*) reading of ουελασκοννου as a single verbal form with a 3pl imperative ending (-οννου < *-*ontō*) is correct, which seems an appealing possibility, the /o/ could well have been paradigmatically restored. The other instance of κοννου °42^{W}, found in the sequence usually read as *με κοννου, is better read as belonging to ο̣[υ]ε̣λ̣α̣ς̣κοννου (Hämmig 2022: 94ff.). The paradigmatically restored vowel would still presumably be raised before a nasal (as suggested by the spelling εγουννου), but would have continued to be understood as phonemic /o/. Hämmig's account is preferable to the older suggestion that κοννου means 'joint, together' (Lubotsky 1998: footnote 14).

II.3.2.2.2 Development of syllabic resonants

The PGPh. vocalic resonant *n̥ was resolved into a sequence of *a* and a nasal consonant.

PGPh. *n̥ > OPh. *an*

PGPh. *-n̥ '(acc. sg. consonant stem ending)' > OPh. -*an*, NPh. -αν (cf. PhL 67)

The development of the two remaining syllabic resonants is somewhat uncertain.

PGPh. *r̥ > OPh. *ro*

PPh. *mr̥ti- 'death' > MPh. μροτι- (cf. PhL 69)

PGPh. *r̥ > OPh. *or* / _#

PGPh. *pr̥ > OPh. *por* (cf. PhL 69)

There are only two pieces of evidence for this development, and they both appear in an environment where **r̥* is preceded by a labial consonant.
This is relevant, since van Beek has proposed that the Epic dialect of Ancient Greek showed a conditioned reflex of Proto-Greek **r̥*, developing into -ρο- when followed by a labial and into -ρα- elsewhere (van Beek 2021: 501-503). If the Phrygian syllabic rhotic developed in the same linguistic area, its reflex may well have been conditioned by the presence of a labial as well.
On the other hand, in the Aeolic dialect of Ancient Greek, Proto-Greek **r̥* developed unconditionally into -ρο- (van Beek 2021: 501-503). It is thus also possible that the Phrygian segment developed in the same linguistic area as Aeolic and shows an unconditioned reflex.

This is not to say that the development of Proto-Phrygian **r̥* must be a part of some wider areal phenomenon; the reflex may well be an independent development. The possibility is mentioned because of the geographic proximity of Phrygian to the two dialects at certain points in time.
Hopefully, an unambiguous example of a reflex of Proto-Phrygian **r̥* in a non-labial environment will be found and will serve to conclusively settle the question of what the unconditioned reflex of the segment was.

Unfortunately, no examples of a reflex of earlier **l̥* are known in Phrygian.

II.3.2.3 Development of the stops

The system of the Proto-Graeco-Phrygian stops underwent three major developments on its way to attested Phrygian: 1) the shift of the

"traditional" plain voiced stops into plain voiceless stops and the development of "traditional" voiced aspirated stops into plain voiced stops; 2) conditioned palatalization of inherited plain velars (from PIE palatovelars and PIE plain velars); and 3) delabialization of labiovelar stops.

II.3.2.3.1 Voiceless stops

PGPh. voiceless stops remained voiceless in Phrygian.

PGPh. **p* > OPh. *p*, NPh. π

PGPh. **patr-* 'father (obl.)' > OPh. *patr-* (in *patriyo-* < **patr-(i)jo-*), NPh. πατρος (gen.sg.) (cf. PhL 72)

PGPh. **t* > OPh. *t,* NPh. τ

PGPh. *to-* '(dem. pronoun, neut.)' > OPh *to-* (in *tovo* 'gen. sg.'), NPh. το (cf. PhL 72)

PGPh. **k* > OPh. *k*, NPh. κ[132]

PGPh. **dik-* 'to point (weak stem)' > NPh. τικ- (cf. PhL 74)

PGPh. **kako-* 'bad' > OPh. *kako-* (in *kakuioi*), NPh. κακο- (PhL 265-266)

PGPh. **k*^{w} > OPh. *k*, NPh. κ

PGPh. **k*^{w}*e* 'and' > OPh. *ke*, NPh. κε (cf. PhL 73)

[132] Except under palatalizing conditions; see below in §II.3.2.3.4.

A special development of **p* between vowels has been proposed by Hämmig (2013: 135) and is endorsed by Obrador-Cursach (PhL 72).

possibly PPh. **p* > OPh. *v* / V_V

PIE **nepot-* 'nephew, grandson' > PGPh. **nepot-* > OPh. *nevos* (NSg), *neṿotan* (ASg)?

The examples in favour of this development are somewhat problematic. If we take a look at a copy of the inscription where the two forms appear, the form *neṿotan* clearly shows substantial damage to the letter read as *v*, and the reading of *v* is almost entirely conjectural. The form *nevos* appears clearer, but a reasonable argument can still be made that the word in question is not necessarily a reflex of **nepōts*, though that is certainly an appealing possibility. For this reason, this development is only listed provisionally for the time being.

II.3.2.3.2 Inherited plain voiced stops

Proto-Graeco-Phrygian stops that developed from the traditionally reconstructed plain voiced stops of PIE surfaced as Phrygian voiceless stops.[133] This development is commonly named the *Lautverschiebung.* Despite being proposed by Meister in 1909, comparatively early in Phrygian studies (see Woodhouse 2009 for an overview of the research on

[133] This is one argument in favour of reconstructing the plain voiced series as pre-glottalized voiced stops, in terms of VOT situated approximately halfway between modally voiced stops and voiceless stops, since they develop into plain voiced stops in Greek, and into voiceless stops in Phrygian.

Phrygian), this development was not generally accepted for a long time. In recent years, specifically after the publication of Lubotsky's paper (2004) which does endorse it, the consensus has shifted towards broader and broader acceptance, and the veracity of the *Lautverschiebung* is now the *communis opinio* in Phrygian studies.

The number of identified examples has steadily increased over the years.

PGPh. **d* > OPh. *t*, NPh. τ

PGPh. **ped*- 'foot' > OPh. *pet*-, NPh. πετ- (cf. Kloekhorst 2015: 115, PhL 71)

PGPh. **dik*- 'to point (weak stem)' > NPh. τικ- (cf. Lubotsky 2004: 235, PhL 71)

PGPh. **di̯u̯*- 'Ti- (weak stem)' > OPh. *tiv*-, NPh. τι- (cf. Lubotsky 2004: 229ff., PhL 71)

PGPh. **didō*- 'to give (present stem) >> NPh. τοτο- (cf. PhL 72)

PGPh **doti*- 'gift' > OPh. *toti*- (cf. Ligorio 2016, PhL 72)

PGPh. **g* > OPh. *k*, NPh. κ[134]

PGPh. **mega*- 'big' > OPh. *meka*-, NPh. μεκα- (cf. Obrador-Cursach 2016: 184, PhL 71-72)

[134] Except under palatalizing conditions; see below.

PGPh. *$b^h egos$ ‘a broken-off thing’ > NPh. βεκος ‘bread’ (cf. PhL 196)

PGPh. *g^w > OPh. *k*, NPh. κ

PGPh. *$hlāg^w$- ‘to grasp, seize’ > OPh. *lak*- (cf. PhL 74)

PGPh. *$g^w(V)naik$- ‘woman (oblique)’ > OPh. *knayk*-, NPh. κναικ- (cf. PhL 74)

A possible example exists for PGPh. **b* (< PIE **b*), depending on whether the interpretation of *apel* meaning ‘fruit’ is adopted.[135]

PGPh. **b* > OPh. *p*, NPh. $^+$π

PGPh. **abel*- ‘apple’ > OPh. *apel*- ‘fruit$^?$’

While discussing the matter of the *Lautverschiebung,* a far too commonly cited erroneous counter-example must be mentioned.
Lejeune (1979) provided *podas* as the pre-eminent example of a form that supposedly disproved the devoicing of inherited plain voiced stops, interpreting it as being identical to Greek πόδας ‘feet (acc.pl)’ < **podm̥s*. The inscription in which this word appears is decorated with a prominent image of feet, so Lejeune’s interpretation has long been taken as a crucial piece of evidence that PIE **d* developed into Phrygian *d*. The reasoning Lejeune employed was consistent with what was known about Phrygian at the time of publication.

[135] See §III.3.7.

With our present knowledge, Lejeune's interpretation of *podas* is problematic, however, even entirely ignoring the issue of Phrygian *d*. We know that a vocalic nasal in Phrygian first developed into **an* and that **an* appearing before **s* in word final positions had the reflex *-ai-*. The actual development of a hypothetical **podm̥s*, if we sidestep the *Lautverschiebung*, would have been: PIE **podm̥s* > PPh. **podans* > OPh. ***podais*. Note that this is not a hypothetical development of the ending; there are other attested accusatives plural that show the ending *-ais* (cf. LL 1826). Lejeune's interpretation, then, cannot be correct by virtue of the ending *-as* alone, though at the time of Lejeune's analysis, this would not have been known.

podas as a counter-example to the *Lautverschiebung* is certainly untenable, then, and has been so since Lubotsky's work on the matter (2004). It is hoped that this work, alongside many other recent works on Phrygian, will play a part in finally laying this ghost form to rest.

As far as the depicted image of the feet decorating the inscription is concerned, Kloekhorst (2015) has re-analysed the inscription and come up with a solution more in line with the rest of the Phrygian data and the other evidence in favour of the *Lautverschiebung*: the word for 'feet' does appear, but it is not *podas*; rather, it is *petes* (nom.pl.) 'feet' < PIE **ped-es*. He has quite convincingly analysed the sequence *podas* as belonging to a verbal form *podaska[i]*, and this interpretation is wholly endorsed in this work.[136]

[136] *podaskai* is best analysed as deriving from a preverb *po(C)* and an iterative verbal stem *daske/o-* (< PIE **d*^{h}*eh*$_{1}$*-ske/o-*) in the subjunctive mood. See §V.3.1.4 for a full analysis.

II.3.2.3.3 Inherited voiced aspirated stops

The PGPh. voiced aspirated stops developed into plain voiced stops (cf. PhL 70-1).

PGPh. *b^h > OPh. *b*, NPh. β

PGPh. *b^h*rāter*- 'brother' > OPh. *brater*-, NPh. βρατερ- (cf. LL 1823)

PGPh. *b^h*eud^{h}os* 'image' > OPh. *bevdos* 'statue' (cf. PhL 71)

PGPh. *b^h*er*- 'to bear' > NPh. βερ- (cf. PhL 71)

PGPh. *d^h > OPh. *d*, NPh. δ

PGPh. *d^h*ē*- 'to put, place' > OPh. *da*-, NPh. δα- (cf. PhL 71)

PGPh. *d^h*eho*- 'god' > OPh. *devo*-, NPh. δεο- (cf. PhL 73)

PGPh. *g^h > OPh. $^+$*g*, NPh. γ[137]

PGPh. *g^h*rī*- 'to annoint, smear' > NPh. γρει- 'to proscribe' (cf. PhL 71)

PGPh. *g^h*arit*- 'charity' > NPh. γαριτ- 'to curse, be devoted to' (cf. LL 1823)

PGPh. *g^h*lōrejo*- 'yellowish' > MPh. γλουρεο- 'golden' (cf. LL 1823)

[137] Except under palatalizing conditions; see below.

PGPh. *g^{wh} > OPh. *g*, NPh. γ

PGPh. *$d^{h}reg^{wh}$- ‘to make fat, feed, bring up, take care for’ > NPh. δρεγ-ρο- ‘palatable’ (cf. PhL 73, 358)

II.3.2.3.4 Palatalization

The idea that some palatalizing processes took place in Phrygian is not new. Indeed, early on, Phrygian was considered to be a *satəm* language (Woodhouse 2009: 170-171). While this initial proposal was later generally rejected, in the more modern era of Phrygian studies, Brixhe (1982) proposed that the PIE plain velars and palatovelars (in our framework, both would have merged into PGPh. plain velars), but not labiovelars, were palatalized when appearing before front vowels. Brixhe’s proposal is fundamentally identical to the framework adopted in this work, as well as provisionally in Obrador-Cursach’s *The Phrygian Language* (PhL 73). Curiously, however, despite there never appearing a proper refutation of Brixhe’s work from 1982, the idea seems to have never been properly explored and even Brixhe himself seems to have later treated his proposed sound law as more of a tendency rather than as an actual regular development. Even Obrador-Cursach, while generally endorsing the idea of this development, is not fully committed to it (cf. PhL 36-37, or his treatment of *kena* (PhL 270)).

Let us now revisit the evidence that suggests a palatalizing process took place in Phrygian.

Most crucially, the assumption of this development hinges on the distribution of the Old Phrygian grapheme <↑> and the New Phrygian

grapheme <ζ>. Both of these comparatively rare graphemes appear practically exclusively before front vowels.[138] Also, there can be no doubt that the New Phrygian grapheme <ζ> represents a voiced sibilant [z(:)], as it did in Koiné Greek during the time when New Phrygian inscriptions were written (Allen 1968: 55-56).

The only two New Phrygian lexemes with <ζ> from inscriptions are ζεμελο- and ζειρ-. The etymology of the first has been known to be **dʰǵʰemelo*- 'earthling, man' for a long time (LL 1820). A commonly proposed etymology connects ζειρα with Greek χείρ 'hand' < PIE **ǵʰesr*- (Neumann 1997: 25; Hämmig 2013: 150). This meaning seems to be quite firmly established when taking into account Kloekhorst (2015: 117): if *petes* does mean 'feet', a phrase in inscription °12^{S} can now be naturally read as ζειρα κε οι πε̣τες κε τιττετικμενα 'hands and feet (may become) condemned' (cf. PhL 331).

Ligorio and Lubotsky (LL 1824) propose that the initial ζ- in ζεμελο- is due to special development of a dental-velar cluster. Since we now have etymologies for two examples of New Phrygian ζ- and one of them derives from PIE **ǵʰe*-, there is no reason to assume that ζ must have developed from a dental-velar cluster. Rather, it is preferable to assume that a reduction of the cluster into simply PPh. **g* took place.[139] Both instances of ζ can now be derived from the same sequence of segments.

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[138] The one example going against this distribution is the form *a↑ses* (cf. the clearly related *a↑ion, a↑ios, a↑iiai*) If, as seems likely based on the analysis in §II.1.1.2, <↑> was at least initially used to represent /dz/, the use of <s> immediately following it can perhaps be seen as an attempt at writing a voiceless affricate [ts]. Most likely, then, this is a proper noun of a non-native origin.

[139] For an analysis of the treatment of original dental-velar clusters, see §II.3.1.1.2.

Since both the reconstructed onset (**ǵʰ*) and the attested onset are voiced, the only conclusion to be drawn is that the sound ultimately represented by NPh. <ζ> [z] remained voiced throughout the history of Phrygian and did not pass through an intermediate voiceless stage (*contra* Brixhe 1982: 210ff.).

Neumann (1997: 25) already connected New Phrygian ζειρα with ↑*iray* from the Vezirhan inscription. The vocalism is not problematic; we propose in this work that the Old Phrygian phoneme *ḛ̄* was commonly written with floating <*e*> and <*i*> in Old Phrygian, whereas its reflex was commonly written as <ει> in New Phrygian (§II.2.3.1.2).
This identification of ↑*ira* with ζειρα serves as a good example that the Old Phrygian phoneme represented by <↑> developed into a phoneme represented by New Phrygian <ζ>. That <↑> and <ζ> were used to represent the same phonemic lineage is, in any way, strongly suggested by the fact that there does not seem to be any other possible reflex of <↑>, which must have represented its own phoneme, other than <ζ>, which likewise represented its own phoneme.

Another example of this development can be found listed as a gloss (Hesychius): ζευμαν . τὴν πηγήν. Φρύγες. 'a spring. Phrygian'. Brixhe (1982: 244) has already suggested that ζευμαν is cognate with Greek χεῦμα 'that which is poured', with both being regular reflexes of an earlier **ǵʰeu-mn̥* (a neuter nominal formation from the PIE root **ǵʰeu-* 'to pour'). There is no reason to dispute this analysis.
Another possible example listed as a gloss (Photius) is ζετνα . φρύγιος ἡ λέξις . σεμαίνει δὲ τὴν πύλην. 'Phrygian word. Means the door.' This word has been connected to the PIE root **gʰed-* 'to close, shut' (whence, for

instance, Old English *geat* 'gate') (Brixhe 1982: 244). The word ζετνα would then regularly develop from **g*^{h}*ed-no-* 'a closing', and its plural inflection would presumably be due to referring to the two wings of a door.[140]

If we assume that an original voiced aspirated palatovelar before a front vowel was palatalized (as appears to be indicated by ζεμελο- and ↑*ira-*/ζειρα-), the question is naturally what happened to Proto-Phrygian voiceless velar stops (which would have been the reflexes of PIE voiceless and plain voiced palatovelars and plain velars) in this environment.

There does not appear to be a readily identifiable voiceless counterpart to <ζ> and <↑>. The arrow sign has an unclear origin and might be a Phrygian invention. The Phoenician alphabet had a separate sign for the sound [z], which was adapted by the Greeks as their zeta, but it cannot be the source of the Phrygian arrow sign.

If the final stage of palatalization of a voiced stop was [z(:)] (as can be reasonably inferred from the spellings with ζ), the expected final stage for voiceless stops would have been [s(:)].

[140] In addition to their unrealiability, the other glosses with <ζ> are not nearly as informative (cf. Brixhe 1982: 243ff.). The etymology of αζην 'beard' (Hesychius) is unclear. In ζελκια 'vegetables, greens' (Hesychius), we can likely find the reflex of the PIE root **ǵ*^{h}*elh*$_{3}$- 'yellow, green' (also found in zero grade in MPh. γλουρεο- 'made of gold' < **ǵ*^{h}*lh*$_{3}$*reio-*) (see also Brixhe 1982: 243-4), which would confirm the conditioned reflex of **ǵ*^{h} before a front vowel. See further in §III.3.3.3.

The primary and, so far, only example of a voiceless velar that underwent palatalisation is in the proximal demonstrative pronoun:[141],[142]

> PIE **ḱe* 'here' >> PGPh. **ke/i-* '(dem. pronoun)' > OPh. *si*, NPh. σε- (cf. PhL 73)

While the reflexes of PGPh. **k* and **g* seem to have surfaced as /s/ in Old Phrygian and beyond, what would have been the precise phonetic value of OPh. <↑> and NPh. <ζ>?

Occasionally, initial <ζ> makes position in New Phrygian inscriptions,[143] which is not the case for the <σ> found in the pronoun *se/i-*. This indicates

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[141] Ligorio and Lubotsky (LL 1824) have assumed that the attested *s-* of the proximal demonstative pronoun is the reflex of a cluster **kʲ-*. This analysis is unlikely to be correct for compositional reasons, for which see §IV.3.1. If our analysis of the vocalic developments conditioned by the Phrygian accent are correct (for which see §II.3.4.), there also exists a possible formal counterargument against deriving the initial *s* of the *si/e-* pronoun from **kj-*. The form *esai* (dat. sg. fem.) shows the *e*-prefixed stem variant of the demonstrative pronoun. As we may suspect on the basis of the pronouns *ibe-* and *ivi-*, this initial *e* was unaccented, and unaccented *e* before an original consonant cluster is raised to *i*, which is what we find in *ibe-* < **esbʰé-* and *ivi-* < **ehwé-*. Thus, if the initial *s-* for the demonstrative pronoun were derived from **kj,* we would expect its *e*-prefixed stem to surface as ***isi/e-* < ***ekji/é-*, which is contradicted by *esai*. Of course, however, if **kj* developed into **s* early enough, the development would not apply and the argument is not valid.

[142] In light of Ligorio and Lubotsky's interpretation, Alwin Kloekhorst wondered during a talk on the Phrygian palatalization I gave in Leiden (in July 2020) whether the palatalization of velars could have been limited to the original voiced aspirated series. Against this proposal, consider the arguments in the preceding footnote. Nevertheless, the idea cannot be fully dismissed out of hand. Should one firmly endorse the **kʲ-* interpretation, Kloekhorst's idea would be theoretically tenable, if requiring some difficult analogical remodelings along the way to produce the attested forms. In any case, it seems more systemically likely that palatalization would not be limited to a single segment of Proto-Phrygian.

[143] E.g., με ζεμελως κε δεως κε 'among men and gods' °3^{W}, °6^{W}, °97^{W+}, °113^{W}, °119^{W} with minor differences in spelling, metrically -UU-UU-U (Lubotsky 1998: 417). Note especially the addition of sigma in με σζεμελως κε δυος κε °113^{W} and με σζεμελως κε τιε κε °131^{C}.

a later simplification of the voiced segment as opposed to its voiceless counterpart.

<↑> was initially most likely adopted as a means of writing the segment /dz/.[144] Its reflex by at least the time of the composition of the New Phrygian malediction formula was still metrically long, but it is unlikely that New Phrygian <ζ> would have still been used to write /dz/. Not only was the value of <ζ> in contemporary Greek /z/ and /z:/, there is a spelling variant of ζεμελως that clearly show the initial element in the sound underlying NPh. <ζ> was not an affricate: σζεμελως °113^{W}, °131^{C}. For this reason, the best option is to assume that an older /dz/ developed into /z:/, and later, presumably, into /z/.

We may thus formulate the following sound laws:

PGPh. *g^h > PPh. **dz* / _V[+front] > OPh. /dz/ <↑> > NPh. /z:/ > $^{?}$LNPh. /z/

PGPh. **k,g* / _V[+front] > PPh. **(t)s* > OPh. /s/ <*s*> > NPh. /s/ <σ/ [145],[146]

Assibilative palatalization producing a system with a voiced affricate, but without a corresponding voiceless affricate, and this state of affairs remaining preserved for some amount of time is not unprecedented: the unconditioned reflexes of the palatovelars in both Armenian and Sanskrit show a sibilant for the voiceless series and an affricate for the voiced series,

[144] See §II.1.1.2.

[145] There is no known example of this development affecting PGPh. **g*, but since it merged with PGPh. **k* in other environments, we can reasonably assume the same would hold here. See also §II.3.2.3.4.

[146] Do note that the development of the voiceless stop into *s* is only securely known in word-initial position. It may well be that an affricate or geminate reflex would have been preserved longer when word-internal.

which undoubtedly emerged from an intermediate stage with affricates alone. This lack of symmetry in the system was resolved in these two languages by introducing a new voiceless affricate of a different origin. In Phrygian, the system was eventually realigned through the reduction of the voiced affricate to a sibilant.

The developments proposed for Phrygian explain the use of <↑> and <ζ> well and are typologically sound. Nevertheless, a number of apparent counterexamples exist that serve to explain why Brixhe's (1982) proposal of a conditioned palatalization has not been more enthusiastically accepted.

The first major class of exceptions are found when the reflex of PIE **ḱ/ǵ/ǵʰ* is found before the thematic vowel **e*: e.g. **segʰ-e- > ege-* 'to hold', instead of ***e↑e-*. This set is easy to explain: the thematic vowel appears as both **e* and **o* in different forms, meaning that a velar appearing in forms with **e* would have been palatalised, whereas a velar appearing in forms with **o* would not have been. This would result in a paradigm with a consonantal alternation in the stem. Such an alternating stem would be levelled in favour of one of its two allomorphs; in Phrygian, the preferred variant was apparently the unpalatalized one (cf. Brixhe 1982: 245).

This pattern of development need not only apply to thematic verbal formations. Most likely, the majority of intraparadigmatic consonant alternations resulting from vocalic alternations would have been levelled out of the system in favour of an unpalatalized allomorph.

For one among many parallels of such a development, we need only look at Greek. In some Greek dialects, the labiovelars were palatalised before a front vowel. This likewise produced paradigmatic consonantal alternations which were levelled out in favour of the non-palatalised stem variant. An

example: PG 1sg **leik^{w}-ō* ~ 3sg **leik^{w}-ei* > pre-Attic-Ionic 1sg *λείπ̲ω ~ 3sg *λείτ̲ει >> Attic 1sg λείπ̲ω 'to leave (1sg)' ~ 3sg λείπ̲ει 'to leave (3sg)'.

The second major class of exceptions is found in the reduplicated syllable of perfect verbal stems. As a general rule, a Phrygian verbal root formed its perfect stem by adding a reduplicated syllable composed of the first consonant of a verbal root and the vowel *e*: *C_1C_2- >> C_1e-C_1C_2-. If a verbal root began with a velar consonant, then, we would expect it to become palatalised in this environment. As we may observe, however, the creation of the perfect stem through reduplication was highly productive in Phrygian (§V.3.3) and it is very likely that reduplication would have been renewed to keep the C_1e-C_1C_2- pattern transparent to the speakers. This is clearly supported by the existence of the perfect medial participle σεσταμενο-, where the initial syllable must have been a secondary creation from after **s* > **h* had run its course; if it were not, it would have surfaced as **εσταμενο-. The same explanation applies for the perfect stems γεγαριτ- 'to curse' (< **ǵ^{h}rHit-*), γεγρει- 'to write' (< **ǵ^{h}riH-*), and any other potential similar examples.

The third class of exceptions to the palatalisation rule is eclectic and based on individual etymological proposals. These need to be considered on a case-by-case basis.

One such potential counterexample is *keneman* 'niche', where the initial *kene-* is assumed to be related to Skt. *khan^{i}-* 'to dig' and ultimately derived from a PIE **K(h$_1$)enh$_1$-* (cf. LIV$_2$ 344). While the pre-history of the root underlying the Sanskrit term is complex,[147] there is actually no basis in

[147] With an original aoristic root **k$^{(w)}$eH-* forming a nasal present, from which a neo-root **k$^{(w)}$enH-* was ultimately extracted, with the original zero-grade of the root aorist * *k$^{(w)}$H-*

favour of assuming that the root was **ḱ(h₁)enH-* rather than **kʷ(h₁)enH-*. Indeed, the lack of palatalization in Sanskrit suggests the latter variant more strongly. As such, there is no good reason to consider *keneman* an actual counterexample even if this etymological relation is wholly accepted; PIE **kʷ(h₁)enh₁-mn* would develop entirely regularly into OPh. *keneman*.[148]

The best available counterexample against palatalization is NPh. κενα (nom. pl.), usually taken to be an *s*-stem nominal directly inherited from PIE **ǵenh₁-os* 'generation, offspring' (> Gr. γένος, -ους 'id.') (cf. PhL 71). Assuming such a meaning for the Phrygian term is plausible, but by no means guaranteed, in one of the contexts where it is found, specifically in the apodosis of a curse formula: (ας ανανκαι) παντα κενα ιννου °35^{E} 'may all *kena* become'.[149] Lubotsky (2004: 234) translates ας ανανκαι as 'to mischief', though other translations are clearly possible and ας ανανκαι need not belong to the apodosis at all, which complicates this analysis further; we could read the protasis as ιος ... αδδακεμ μανκαι <u>ας ανανκαι</u> 'whosoever should do harm to the stele <u>by force</u>' (since Greek ἀγάγκη, whence Phr. ανανκα was loaned, also means 'force').[150] As another possibility, one could also take *kena* to be an adjective and translate the apodosis as παντα κενα ιννου 'may everything become *kena*', in which case an etymological connection of *kena* with **ǵenh₁-* would not be warranted at all. This was the assumption made by Haas (1966: 119) and Orel (1997:

> *kh* providing the initial aspiration (LIV$_2$ 344). Note that LIV$_2$ reconstructs the root as having **h₂* to account for the aspiration in their framework. If this is correct, Phrygian *keneman* cannot, in any case, be related to it. For the reason of upholding this relation, the final laryngeal is reconstructed as **h₁* here.

[148] See also §III.3.6.1.

[149] The appearance of *kenos* as the only word on a pottery sherd is more enigmatic and does not lend itself well to analysis.

[150] Cf. ιος ... αδοκετ <u>ζειραι</u>, ... 106 'whosoever ... should do harm <u>by hand</u>'.

255) (cf. also Brixhe 1993: 341-342), who saw *kena* as a case form of an adjective meaning 'empty', loaned from Greek κενός 'empty'.
Thus, while the possibility that *kena* is derived from **ǵenh₁-* cannot be disproven, one must weigh the explanatory benefit of upholding an etymological connection of one word found in a somewhat ambiguous context against the explanatory benefit of assuming that a Phrygian palatalization took place, which regularly explains all the etymologizable appearances of <↑> and <ζ> and has no further counterexamples. Quite clearly, the assumption of Phrygian palatalization is preferable by far.

II.3.2.3.5 Iotation

It is unknown how clusters of a stop and PIE **i̯* developed in Phrygian. In Greek, such clusters underwent special and complex developments (Brixhe 1982, Rix 1992: 92, Viredaz 1993), and it is possible that some types of **Cj* clusters underwent specific developments resulting in palatalised sounds (or affricates) in Proto-Graeco-Phrygian already. Alternatively, the developments found in Greek may well be entirely Proto-Greek and later.

Unfortunately, even if a Phrygian reflex of **Tj* or **Kj* could be securely identified, clusters of this type are so prone to a palatalising development we would still likely be unable to tell whether the Greek and the Phrygian reflexes shared some early common reflex.
Until an example can be identified, in any case, no judgement is possible on this topic.[151]

[151] The initial sibilant of the demonstrative pronoun *si/e-* has been proposed to derive from a **kj-* cluster, i.e. **kji/e-* (LL 1826), but the assumption of a plain palatalization of **k* before a front vowel is the more elegant solution. See further in §IV.3.1.

II.3.2.3.6 Development of the resonants

The Proto-Graeco-Phrygian resonants **r, *l, *m*, and **n* remained unchanged in isolation.

PGPh. **r* > OPh. *r*, NPh. ρ

PGPh. **māter-* 'mother (oblique)' > OPh. *mater-*, NPh. ματερ- (cf. PhL 66)

PGPh. **l* > OPh. *l*, NPh. λ

PGPh. **-elo-* '(nominal suffix)' > NPh. -ελο- (e.g. ζεμελο-) (cf. PhL 69)

PGPh. **m* > OPh. *m*, NPh. μ

PGPh. **mega-* 'great, big' > OPh. *meka-*, NPh. μεκα- (cf. PhL 297-298)

PGPh. **n* > OPh. *n*, NPh. ν

PGPh. **neptih₂-* 'niece, granddaughter' > OPh. *niptiya-* (cf. PhL 311)

PGPh. **u̯* > OPh. *v*, NPh. ου

PGPh. **-eu̯o-* '(adjective-forming suffix)' > OPh. *-evo-* (e.g. *ktevo-* < **gʰd-eu̯o-*) (§III.3.1.5)

PGPh. **j* > OPh. j, NPh. ι

PGPh. *-*ejo*- '(nominal suffix)' > OPh. -*eyo*- (e.g. *k↑ianaveyo*-), NPh. -ειο- (e.g. τεμρογειο-) (§III.3.1.4)

Where a sequence of two vowels emerged for any reason, e.g. due to regular phonetic developments or through morphological processes, if either of the two vowels was rounded, an epenthetic *v* developed as a hiatus filler.

PPh. *∅ > OPh. *v* / $V_{[+round]}$_V, V_$V_{[+round]}$

PGPh. *-*oho* '(gen. sg. *o*-stem ending)' > PPh. *-*o.o* > OPh. -*ovo*, NPh. -ου (cf. PhL 68, LL 1822)

PGPh. *d^h*eho*- 'god, divinity' > PPh. **de.o*- > OPh. *devo*-, NPh. δεο- (cf. PhL 68, LL 1822)

PPh. ∅ > OPh. ∅ / $V_{[-round]}$_$V_{[-round]}$

PPh. **edāes* 'he put (aor.)' > OPh. *edaes*, NPh. εδαες

II.3.2.3.7 Development of the fricatives

The Proto-Graeco-Phrygian fricative **h* was lost in all positions.[152]

PGPh. **h* > PPh. ∅ > OPh. ∅, NPh. ∅

PGPh. *heg^h*- 'to hold' > OPh. *eg*-, NPh. εγ- (cf. PhL 69)

[152] Its presence did affect the development of **hR*-clusters, however, for which see the following section.

The Proto-Graeco-Phrygian fricative **s* appears to have been preserved everywhere, except in certain types of clusters.[153]

PGPh. **s* > OPh. *s*, NPh. σ

PGPh. **-s-* '(aorist-forming suffix)' > OPh. *-s-*, NPh. -σ- (cf. LL 1823, §V.3.2.1)

PGPh. **stā-* 'to stand' > OPh. *sta-*, NPh. στα- (cf. PhL 70)

The Late Proto-Phrygian phoneme **s* would have had three basic sources: 1) inherited PGPh. **s*, 2) palatalized PPh. **k*, and 3) the reflex of earlier **ts*.

LPPh. **s* < PGPh. **s*; EPPh. **k* / _V[+front]; EPPh. **ts*

PGPh. **-s-* > PGPh. **-s-* '(aorist-forming suffix)' > OPh. *-s-*, NPh. -σ- (cf. LL 1823)

EPPh. **ki/e-* '(demonstrative pronoun)' > OPh. *si-* (strong stem), NPh. σε- (oblique stem) (cf. PhL 344; §IV.3)

EPPh. **-it-s-* '(*s*-aorist stem of denominal verbs from nouns with the suffix **-it-)* > OPh. *-is-*, NPh. -ισ- (§III.3.10.1.1)

[153] These are the inherited **-sC^h-* clusters (§II.3.2.3.8) and word-final **-Cs* clusters (§II.3.2.3.10). Another possible environment where **s* might have been lost could have been in restored **sR*-clusters, but since none of these are known, this is currently purely speculative.

The PGPh. voiceless palatal fricative **ç*, originating from earlier **si̯*, **h₁i̯-,* and **h₁i-*, underwent voicing and developed into *j*.[154] An example is only known for word-initial position.

PGPh. **ç* > PPh. **j* > OPh. *y*, NPh. ι

PGPh. **ç-* '(relative pronoun)' > OPh. *yo-*, NPh. ιο- (Bozzone 2013: 6)

II.3.2.3.8 Treatment of clusters

Proto-Graeco-Phrygian non-final clusters composed of two stops, those composed of a resonant and a stop, and those composed of a non-dental stop and **s* were apparently not simplified. Stops appearing in clusters underwent the *Lautverschiebung* and the resulting clusters were uniform in terms of voicing, assimilating to the final element.

Very few verbal roots, and even fewer lexemes, are attested in both Old and New Phrygian. As such, there are only a handful of cases where an Old Phrygian cluster can be explicitly shown to correspond to a New Phrygian cluster.[155] There is no evidence to suggest that any Old Phrygian cluster would have undergone a special development.

The PGPh. cluster **ts* was presumably simplified at a very early stage of Proto-Phrygian.[156] The simplification of this cluster likely remained a productive surface filter throughout attested Phrygian history.

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[154] Note that no example of a reflex of word-initial PGPh. **i̯-* is known in Phrygian.
[155] One tantalizing example that also demonstrates the principle of voicing assimilation is the treatment of the PIE root **gʰed-* in zero-grade: OPh. *ektetoy*, NPh. εκτε-.
[156] In word-final position, an earlier **-ts* had simplified into **-s* in Proto-Graeco-Phrygian already.

PGPh. *-*ts*- > OPh. *s*, NPh. σ

EPPh. *-*it-s*- '(*s*-aorist stem of denominal verbs from nouns with the suffix *-*it-)* > OPh. -*is*-, NPh. -ισ- (§III.3.10.1.1), cf. Gr. -ισ- aorists to -ίζω verbs

At least in word-final position, but possibly intervocalically as well, the PPh. cluster *-*ns*, originating from PGPh. *-*ns* and *-*nts*, underwent a special development.

pre-PGPh. *-*ns,* *-*nts* > PGPh. *-*ns* > EPPh. *-*ns* > OPh. -*js*, NPh. -ις (cf. PhL 67-68)

PGPh. *-*n̥s* '(acc. pl. consonant stem ending)' > EPPh. *-*ans* > LPPh. *-*ais* > OPh. -*ais*, NPh. -αις (cf. PhL 67-68)

pre-PGPh. *-*u̯n̥t-s* '*nom. sg.*' > PGPh. *-*u̯n̥s* > PPh. *-*vans* > OPh. -*vais* (cf. PhL 83-84)

This development is highly specific and is also attested in Lesbian Greek (cf. Aeolic παῖς and Attic-Ionic πᾶς 'all', both from PGr. **pans*) (Rix 1992: 67). Since the Proto-Phrygians would have migrated from the Balkans to Phrygia proper through areas that would have, at the time, been close to those populated by non-Ionic Greek speakers, it is very likely that the development of the **ns* cluster is an areal phenomenon.

The PGPh. cluster **nt* underwent assimilation and developed into a geminated nasal. In word-final position, *-*t* was dropped. For more details, see section §II.3.2.3.9.

PGPh. **nt* > OPh. <*n*>, NPh. νν

PGPh. **-nti* '(3pl act. primary ending)' > NPh. -ννι (cf. Avram 2015: 209, PhL 158)

PGPh. **-ntō* '(3pl act. impv. ending)' > NPh. -ννου (cf. PhL 68)

PIE **nt* > PGPh. **n* > OPh. *n*, NPh. ν / _#

PIE **-ent* '(3pl act. secondary ending)' > PGPh. **-en* > NPh. -εν (LL 1821)

The PGPh. semi-vowel cluster **hw,* originating from earlier **su̯,* dropped the **h*. There is no evidence that the resulting segment would have differed from the reflexes of PGPh. **u̯* > *u̯* in any way. An example is only known for word-initial position.

PGPh. **hw* > PPh. **w* > OPh. *v*, NPh. ου

PGPh. **hwe* 'self' > OPh. *ve-*, NPh. οε- (cf. PhL 68-70)

The simplification of **hw* must have been later than the reduction of unaccented **e* in closed syllables:

PGPh. **e*[-accent] > PPh. **i* / _C$ MUST PRECEDE PGPh. **hw* > PPh. **w*

PPh. **e=hwé-* > PPh. **ihwé-* > OPh. *ivi-* (§II.3.4)

In word-internal position, the clusters **hr* and **hm* were simplified into **r* and **m,* respectively, and caused compensatory lengthening of the preceding vowel. It is likely that the same would have happened to PGPh. **hl* and **hn* as well.

PGPh. **Vhr-* > OPh. *V̄r-*, NPh. Vρ-

PGPh. **g^{h}esr-* > PPh. **dzḛ̄rā-* > OPh. *↑ira-*, NPh. ζειρα- (§III.3.5)

PGPh. *-*Vhm-* > PPh. *-*V̄m-* > NPh. -Vμ- (cf. Lejeune 1969b: 296; cf. PhL 70)

PGPh. **ehmo-* '(demonstrative pronoun, oblique stem)' > OPh. *-imo-*, NPh. -εμο-/-ιμο-[157]

A voiced cluster composed of a sibilant and the reflex of the old voiced aspirated stop was simplified into the reflex of the stop only, without compensatory lengthening.

PGPh. **sD^{h}-* > PPh. **sC*[+voice] > OPh. C[+voice], NPh. C[+voice]

PGPh. *-*esd^{h}ō* '(3sg impv. mid. ending)' > OPh. *-edo*, NPh. -εδου (cf. Lubotsky 1993: 130, LL 1823, PhL 70)

This development must be posterior to the reduction of unaccented **e* in closed syllables.

PGPh. **e*$_{[-accent]}$ > PPh. **i* / _C$ MUST PRECEDE THE CLUSTER REDUCTION OF PGPh. **sC^{h}* > PPh. **C*[+voice]

EPPh. **e=sb^{h}é-* '(reflexive pronoun)' > OPh. *ibe-* (§II.3.4)

The Proto-Phrygian cluster **ks* in word-internal position underwent a special development into a sound represented by the grapheme <Ψ>, its

[157] See also §II.3.4.

most likely value being [ʃ] (§II.1.1.4). As already noted above (§II.3.1.2.1), a word-final *-*ks* lost its final segment.[158]

PPh. **ks* > OPh. <Ψ> [ʃ]

PPh. **deg-sī-ti* 'may he burn?' > OPh. *de*Ψ*eti* [deʃē̯ti] 'id.'

PPh. **ks* > OPh. *k* / _#

PPh. **u̯anaks* 'king (nom. sg.)' > OPh. *vanak* 'id.'

II.3.2.3.9 Sequences of nasal and dental

The Proto-Graeco-Phrygian cluster **nt* shows a regular development. In New Phrygian, the PGPh. 3pl active imperative ending surfaces with a spelt geminated consonant consistently: PGPh. *-*ntō* > -ννου (cf. PhL 68, LL 1822). In inscription °130^{NW}, the 3pl active primary athematic ending *-*nti* likewise surfaces as -ννι.

In the Middle Phrygian inscription °W-11, Obrador-Cursach (2020: 42ff.) has argued that the sequence πεννιτι is a verbal form derived from the reflex of the PIE root **pent-* > πενν-.[159]

Thus, we may explicitly say that PGPh. **nt* developed into a geminate nasal at least in Middle and New Phrygian and had a reflex different from inherited **n*, which was consistently spelt a <ν>:

PIE **nt* > MPh., NPh. <νν> /n:/

[158] To explain the development of the preverb ις < *iʃ, if from **eks*, we may note that the **ks* cluster would not have been word-final due to being part of a preverb. The same would hold for the preposition ις. See also §II.2.3.2.1 and §VI.1.4.

[159] For an analysis of this form, see further in §V.3.5.

As already noted before, Old Phrygian did not graphically distinguish consonantal gemination: since PGPh. **nt* > NPh. <νν> and PGPh. **n* > NPh. <ν>, a possible approach is to assume that the development of PGPh. **nt* > Phr. /n:/ took place in Old Phrygian already.

Unfortunately, since no certain explicit reflexes of an earlier **-nt* are known in Old Phrygian, we may only confirm this assumption through proxies.

The primary example suggesting the chronological development of PPh. **-nt-* > /n:/ is the treatment of the lexeme *panta-*/παντα- 'all' (cf. LL 1822, PhL 326-327).

Clearly, inherited **nt*-clusters developed into νν /n:/ by New Phrygian. If we wish to explain New Phrygian παντα-, then, we can only assume that this specific cluster ντ postdates the **nt* > *n:* sound law. παντα- does, of course, have a comparandum in Greek παντ- 'all' (PhL 44); as such, New Phrygian παντο- must have been loaned from Greek παντο- once the **nt* > *n:* sound law had stopped being operational.

The existence of an Old Phrygian *panto-* °B-05 clearly shows that the **nt* cluster was likewise no longer being phonologically adapted to /n:/ when the term was first attested. Thus, we can firmly determine that a **nt* > /n:/ sound law had been operational before the term *pant-* was loaned from Greek, at the latest at the time when inscription °B-05 was written. The non-assimilation of the nasal-dental sequence in this inscription also appears to be confirmed by *sin t'* and *sin ti* which would have been sequences of clitics and thus more likely to undergo cluster assimilation.

Names in *-evais* provide a possible argument that the development of PPh. **nt* > /n:/ preceded the Old Phrygian era in general. Etymologically, these names are derived with the use of the suffix **-u̯n̥t-* > PPh. **-vant-* (cf. LL 1822, PhL 83-84). The nominative singular would have regularly

developed as PGPh. **-e-u̯n̥t-s* (with simplification of **ts* > **s*) > PPh. **-e-van-s* > *-evais*. The oblique cases would have regularly developed as follows (the genitive is used as a model for the non-nominative cases): PPh. GSg **-e-vant-os* > **-evann-os* > OPh. <*-evanos*> /-evan:os/. Since Old Phrygian does not graphically distinguish gemination, the segment /n:/ would have been spelt simply as <*n*>.

Unfortunately, the argument is not conclusive. With NSg **-e-van-s* ~ GSg **-e-vant-os*, the stem **-e-van-* of the nominative singular could have easily spread to the oblique cases: **-e-van-s* ~ **-e-van-os*. In this case, the Old Phrygian spelling with <n> would simply reflect the single nasal of the oblique cases: OPh. <*-evanos*> /-evanos/. Unless a form of this suffix with an explicitly written geminate is found, the status of the nasal in names in *-evais* will remain uncertain.

Nevertheless, in more practical terms, the development **-nt* > /n:/ must have taken place at the very latest at some point during the Old Phrygian era, and quite likely at a time before Phrygian was attested as a written language. This is at least slightly supported by the fact that Old Phrygian inscriptions include almost no examples of a written sequence <nt>.[160]

[160] A written <nt> appears in: *bạt(o)ạntẹ* °B-04 and *ẹventnoktoy* °B-06. The meaning of these two words is unknown and it is quite possible that a word boundary exists between <n> and <t>. In *bat(o)ante*, *bat(o)an* may be the name of the god Bas in the accusative case (attested in New Phrygian as βαταν), which would mean a word boundary precedes *te* (Lubotsky 1989b: 149). In *eventnoktoy,* the simplest solution is to parse the sequence as being composed of three words: *even t(V) noktoy* (cf. PhL 222-223).

II.3.2.3.10 Word final clusters

The only word-final clusters permitted by Old Phrygian are composed of a semi-vowel and a sibilant. Every other word-final cluster was simplified in some manner.

Word-final clusters of almost every type simplified in favour of the first consonant in the cluster (cf. LL 1821):

PPh. *-$C_1C_2...C$# > OPh. -C_1

PPh. **vanaks* ‘king’ > OPh. *vanak* (PhL 70)

The only exception to this rule were word-final sequences composed of a semi-vowel and a continuant, i.e. **s* or a resonant.

PPh. *-$V\underset{\smile}{V}C$[+continuant]# > OPh. -$V\underset{\smile}{V}C$[+continuant]

EPPh. *-*ans* ‘(acc. pl. consonant stem ending)’ > LPPh. *-*ais* > OPh. -*ais*, NPh. -αις (cf. LL 1820, PhL 67-68)

II.3.2.3.11 Gemination

As we have already noted, Old Phrygian did not graphically distinguish gemination (§II.1.2.2). Nevertheless, there are instances of gemination in New Phrygian which must reflect pre-Old Phrygian developments. At least two phonemes must have allowed phonemic gemination in Old Phrygian, even if it was graphically unmarked.

The first Old Phrygian phoneme that could have been geminated was /n/. This development has already been described in section §II.2.3.2.2 and particularly in §II.3.2.3.9.

PGPh. **nt* > PPh. **nn* > OPh. <*n*>, NPh. <νν>

The second segment that would have permitted gemination in Old Phrygian already was /s/. When /s/ was geminated, it was retracted into /ʃ/, a sound spelt with <Ψ>.[161] The geminate sibilant most likely emerged as the result of mora-reassignment in a sequence of a long vowel followed by a prevocalic *s,* i.e. *V̄sV*.[162],[163]

PPh. **V̄sV-* > OPh. VʃʃV<VΨV> > NPh. VσσV

The retraction of the sibilant is confirmed by the spelling of the Old Phrygian form *da*Ψ*et*, a sigmatic optative verbal form.[164]

II.3.3 Developments from Old Phrygian to New Phrygian

II.3.3.1 Vowel developments

The vowel system was significantly simplified between attested Old and New Phrygian.

[161] For which see section §II.1.1.4.
[162] See §V.3.4.1 for the steps taken to arrive to this conclusion.
[163] This development has now also been independently proposed by Oreshko (2022: 158).
[164] See again §II.1.1.4.

The short vowels remained unchanged (cf. LL 1819), except around nasals.

OPh. *ă* > NPh. α

OPh. *mekă-* 'great, big' > NPh. μεκα-

OPh. *e* > NPh. ε

OPh. *petes* 'feet (nom. pl.)' > NPh. πετες

OPh. *i* > NPh. ι

OPh. *tivan* 'Ti- (acc. sg.)' > NPh. τιαν[165]

OPh. *o* > NPh. ο

OPh. *yos* '(rel. pronoun, nom. sg.)' > NPh. ιος

OPh. *u* > NPh. ου

PGPh. **upsod^{h}n̥* 'up, above' > OPh. $^{+}$*upsodan* > NPh. υψοδαν, ουψοδαν

The short diphthongs seem to have remained mostly unchanged (cf. LL 1819).

OPh. *ai* > NPh. αι

OPh. *ayni* 'if' > NPh. αινι

OPh. *oi* > NPh. οι

OPh. *-toy* '(3sg mid. primary ending)' > NPh. -τοι

[165] The loss of /u̯/ after the Old Phrygian era is analogical. See §III.3.4.

OPh. *au* > NPh. αυ

OPh. *avto-* '(reflexive pronoun)' > NPh. αυτο-

OPh. *eu* > NPh. ευ

no good example

There is no attestation of OPh. *ou*, so its reflex is unknown.

It is possible that OPh. *ai* lost its glide in word-final position (PhL 77). There is one inscription suggesting this development: in °12^{S} the phrase ζειρα κε οι πετες τιττετικμενα [...] αδεινν̣ου 'his hands and feet condemned [...] may-become' includes the words ζειρα and τιττετικμενα, the former assuredly of the feminine gender,[166] both in the nominative plural, suggesting that the expected Old Phrygian ending $^{+}$*-ai* developed into simply -α. This development is reminiscent of the common development -*āi* > -α in word-final position (*ibid.*).[167]

OPh. $^{+}$*ai* > NPh. α / _#

OPh. -*ai* '(nom. pl. *a*-stem ending)' > NPh. -α 'id.'

Old Phrygian *ei* was initially preserved as such (cf. Lubotsky 1998: 414-415). In final position, /ei/ could be spelt with <ει>, <ε>, <ι>, or <η>; these spellings may reflect phonetic developments that took place during the New Phrygian era (*ibid.*, §II.2.3.1.2).

[166] As suggested by the DSg forms ζειραι °105^{C} and ↑*iray* °B-05. See further in §III.3.5.
[167] See also further below in this section.

OPh. *ey* > NPh. ει

OPh. *-ey* '(dat. sg. cons. stem)' > NPh. /-ei/ <ει, ε, ι, η>

The spelling of a word-final diphthong *-ei* with <ει> is found predominantly in the Eastern part of the New Phrygian area, where other types of spellings scarcely appear (§II.3.3.3).

The system of the long vowels underwent significant changes that ultimately resulted in a system without distinctive vowel length (cf. LL 1819).[168]

OPh. *ā* > NPh. α

OPh. *mātār* 'mother' > NPh. ματαρ

OPh. *ō* > NPh. ου

OPh. *-edō* '(3sg impv. mid. ending)' > NPh. -εδου

OPh. *ū* > NPh. ου

PPh. **knūman-* 'grave' > NPh. κνουμαν-

The treatment of an OPh. word final *-āi̯* diphthong is inconsistent. By far the most common attested environment where the reflex of word-final *-āi* can be found is in the dative singular of *a*-stems. A common proposal (Brixhe 1982: 118, Lubotsky 1998: 416; LL 1819) is the following:

[168] The loss of vowel length is suggested by the fact that previously long vowels do not form heavy syllables in New Phrygian metrics. See further in §II.2.2.1.

pre-NPh. *ā̰i̯* > $^{+}\bar{a}$ > α / _#

OPh. *sai* ‘dem. pron. (dat. sg.)’ > NPh. σα ‘id.’

In general terms, this proposal seems to be correct for most examples. However, as the authors cited above note themselves, there is evidence that this development is somewhat irregular, with the reflex of *-ā̰i̯* in the dative singular sometimes being <αι>: OPh. *sai* ‘dem. pron. (dat. sg.)’ > NPh. σαι ‘id.’. The inscriptions in which this unexpected spelling αι appears, do, in most cases, also show the treatment *āi* > α (the exception is inscription °35^{E}, where all three instances of a reflex of *āi* are spelt with αι).
This irregular treatment of *-āi* can be found in the following identifiable instances: μανκαι °2^{W}, ται °18^{W}, ξαρναι °18^{W}, σαι °35^{E}, μανκαι °35^{E}, ανανκαι °35^{E}, μανκαι °60^{E}, σκελεδριαι °67^{SE}, σαι °69^{SE}, μανκαι °69^{SE}, ζειραι °106^{E}, ται °116^{W}, οεαυται °116^{W}.

The treatment of a final *-ōi* diphthong is more consistent than that of *-āi*. The synchronic dative singular ending of *o*-stems is usually written with <ου>[169], which is a reflex of Old Phrygian *ōi*.
The most parsimonious explanation is that pre-New Phrygian $^{+}$ō̰i̯ developed to $^{+}$ō before phonemic vowel length was lost and that this $^{+}\bar{o}$ subsequently developed into *u*, as expected.[170]

pre-NPh. *ōi* > $^{+}\bar{o}$ > NPh. /u/ <ου> / _#

MPh. σοροι ‘coffin (DSg)’ > NPh. σορου °124^{C}

[169] *Contra* Brixhe (1982: 119), who assumes simplification to *o* and subsequent neutralization of ο ~ ου in final position.
[170] Alternatively, *$\bar{o}$̰i̯ > *u* and *$\bar{o}$ > *u* could be simultaneous.

There is no good evidence that OPh. *-ōi* ever developed into *-oi* in a parallel manner to the peripheral *-āi* > *-ai*. The only such possible example is ξευνεοι °31^{S}, a loaned personal name (otherwise attested as ξευνη in the nominative singular) with an entirely unexpected *o*-stem ending. It would be premature to draw any conclusions from this particular example.
What we may note, however, is that in Middle Phrygian inscription °W-11, the reflex of *-āi* was already written as <α>, whereas the reflex of *-ōi* was still written <οι>: this is clearly seen in the phrase σα σοροι 'to this coffin'. The feminine noun σορος is loaned from Greek σορός (fem.). While it is possible that the Greek dative case form σορῷ was loaned already declined into Phrygian as σοροι for the purposes of this inscription and is as such uninformative for determining whether OPh. *-ōi* had already developed into $^{+}$*-ō*, if the spelling does represent a native declensional ending, it would suggest that the simplification of the two long diphthongs in word-final position did not take place simultaneously.

The long diphthong *-ōi* also had a special reflex when followed by word-final *-s* (as in the dative plural *o*-stem ending *-ōis*) (LL 1822):

PIE **-ōis* '(inst. pl. *o*-stem ending)' > PPh. **-ōis* '(dat. pl. *o*-stem ending) > OPh. /*-ōis*/ <*ois*> > NPh. <-ως> /-ọ/

PPh. **dzemelōis* 'earthling (DPl)' > NPh. ζεμελως 'man (DPl)'

In contemporary Greek, the grapheme <ω> was used to represent a long vowel /ō/, whereas <o> was used for a short vowel /o/. In New Phrygian inscriptions, the spelling ζεμελος appears three times instead of the expected ζεμελως. The timbre of the vowel represented by <ω> must have then been *o*-like, with no apparent *i*-offglide. The consistent use of ω

suggests that the vowel represented by it was still somewhat distinct from the vowel represented by <ο>.

In a very limited number of instances, ω is also used before a word-final nasal in place of expected <ο> or <ου> < OPh. *-o / _n#*. Since vowels before a final nasal were initially raised and later even centralised due to the spread of nasalization, the vowel represented by <ω> may have been somewhat higher than its counterpart written with <ο>. This would be parallel to the Phrygian distribution between <η> and <ε>, where, in contemporary Greek, the former was used to write a long mid-high front vowel [ē̞] and the latter a short mid front vowel [ɛ]. It is for this reason that the grapheme <ω> is taken as representing a raised vowel phoneme /o̝/, which was phonetically presumably [ō̞].[171],[172]

Before a nasal in final position, mid-vowels were raised to mid-high vowels (§II.2.3.1.3). This allophonic raising had been operational since the Old Phrygian era (§II.1.2.4).

PPh. **o* > OPh. *o̝* > NPh. *o̝* <ο, ου> / *_n#*

PPh. **e* > OPh. *e̝* > NPh. *e̝* <ε, ι> / *_n#*

There is evidence that mid(-high) vowels in such a position became nasalised (§II.2.3.1.3).

[171] Since New Phrygian was unlikely to have contrastively distinguished vowel length, the phoneme /o̝/ is not specified for length.

[172] We may also note that as the diphthong *ōi* monophthongized, the offglide *-i* could have transferred its [+high] property to the preceding vowel and raised it.

PPh. **e* > NPh. [ẽ] / _*n*#, PPh. **o* > NPh. [õ] / _*n*#

pre-NPh. $^{+}$*daket m-* > **daket̄ m-* > **dakem̄ m-* > **dakẽ(m̄) m-*> NPh. [dakẽ m] (spelt as αδδακεν με, αδδακεμ μανκαι, αδδακε μανκαι)

These nasal vowels may have been centralised for some speakers, possibly to the point of merging entirely (§II.2.3.1.3): consider the spellings κακιν, κακεν, and κακευν for usual κακο(υ)ν.

possibly NPh. [ẽ], [õ] > [ə̃]

This development is supported by the spellings of the Hesychian glosses. The glosses provided are usually given in the accusative case.[173] Nevertheless, the forms in which the glosses appear commonly end with -εν or -ην; e.g. αζεν 'beard', ζεμελεν 'slave', κικλην 'constellation *Ursa Minor'*, etc. This is extremely puzzling, since *e*-stem nouns are comparatively rare in Phrygian and in at least some cases the glosses cite a form that one would expect to belong to the *o*-stems; consider the gloss ζεμελεν and attested ζεμελο-, or the gloss κικλην, which is either borrowed from or etymologically related to Greek κύκλο-. This suggests that the glosses were corrupted in some manner and the specific change we may observe can be given a systematic explanation if we assume centralization of final nasal vowels. A word-final /-on/ would have been heard as [-ə̃] and transcribed by speakers of Greek as <-εν> or <-ην>, the closest Greek approximation of a non-native sound.

[173] E.g. ζευμαν (nom./acc. sg. neut.). τὴν πηγὴν (acc. sg. fem.). 'spring' or γλουρεα. χρύσεα. (both nom./acc. pl.) 'golden objects'.

Between two nasal consonants, vowels may have been allophonically nasalised (§II.2.3.1.3):

PPh. *V > Ṽ / N_N

Consider the spellings κνουμμανει °44^{S}, °53^{SE} and κνουνμανει °101^{SE} [knũmanei] for usual κνουμανει ‘grave (DSg)’, κνουμινος °5^{W} [knũmə̃nos] for expected $^{+}$κνουμανος ‘id. (GSg)’, μακκα °94^{S} [mãk:a] for usual μανκα ‘stele (DSg)’, and αινι μμυρα °25^{SW} [ainĩ mura] with an otherwise unexplainable initial geminate.

II.3.3.2 The development of consonants

Old Phrygian word-final stops became unreleased in pausa and before a consonant (§II.2.3.2.1).

OPh. -C[+stop] > pre-NPh. *-C̄ / _##, _#C

Unreleased stops assimilated to a following segment (§II.2.3.2.1). It is unclear whether the conditioning applies for all consonants or only some; evidence for this development exists for stops and nasals.

pre-NPh. *-C̄[+stop]#C_2 > C_2C_2

pre-NPh. **ad beret* > **ad̄ beret* > NPh. αββερετ ‘would bring to’

pre-NPh. **tit gegaritmenos* > **tit̄ gegaritmenos* > NPh. τιγγεγαριτμενος ‘~ cursed’

pre-NPh. **addaket mankāi* > **addaket̄ mankāi* > NPh. αδδακεμ μανκαι ‘would do to the stele’

but: pre-NPh. **ad eitō* > NPh. αδειτου ‘may he become’

The phoneme underlying the assimilated stop was restored, either graphically or phonetically, to its pre-vocalic value in non-univerbated forms at times, presumably for reasons of morphological transparency. This is seen in the majority of spellings of the 3sg act. secondary ending -τ (e.g. (αδ)δακετ, (αβ)βερετ).

No other consonantal changes can be firmly established to have taken place between Old and New Phrygian.

II.3.3.3 Phrygian dialectology and Eastern New Phrygian

If one examines the spellings of New Phrygian inscriptions, some patterns begin to emerge regarding the spelling choices of the scribes that are likely indicative of phonetic characteristics of the language in specific areas.

Most clearly, a distribution may be observed for the spelling of the dative singular consonant stem ending /-ei/ (cf. §II.3.3.1). In the easternmost areas of the Phrygian speaking area (encompassing quadrants E and SE as defined in §I.2.1), of a total of 25 endings of the dative singular consonant stem ending, 19 are spelt with -ει (κνουμανει in °32^{E}, °33^{E}, °34^{E}, °45^{SE}, °47^{E}, °53^{SE}, °54^{E}, °55^{E}, °61^{SE}, °64^{E}, °75^{E}, °76^{E}, °77^{E}, °79^{E}, °101^{SE}, °105^{E},

°106^{E}, °108^{E}, °110^{E}) and only 6 with <ε>, <ι>, or <η> (κνουμανε °57^{E}, °78^{E}, °100^{E}; κνουμανι °36^{E}; μροτιη °58^{E}; κνουμανη °114^{SE}).

In contrast, in the rest of the Phrygian speaking area (all quadrants besides E and SE), of a total of 50 attestations of the dative singular consonant stem ending, 21 are spelt with <ει> (κνουμανει in °3^{W}, °10^{S}, °14^{NW}, °18^{W}, °19^{N}, °20^{C}, °43^{W}, °44^{S}, °62^{C}, °87^{W}, °88^{C}, °92^{W}, °99^{NW}, °115^{W}, °118^{W}, °117^{S}, °122^{C}, °123^{C}, °131^{C}, °133^{N}; κολταμανει °18^{W}), and 29 are spelt with <ε>, <ι>, or <η> (κνουμανε °6^{W}, °25^{S}, °28^{SW}, °29^{SW}, °37^{SW}, °40^{W}, °63^{C}, °90^{W}, °93^{SW}, °95^{SW}, °97^{W+}, °102^{S}, °112^{W}, °119^{W}, °120^{W}, °126^{W}, °128^{C}; βρατερε °31^{S}; δουμε °48^{NW}; ματερε °129^{W}; κνουμανι °7^{W}, °12^{S}, °25^{SW}, °73^{W}, °86^{W}, °103^{C}, °127^{SW}; Ξευνη °15^{NW}; κορουμανη °130^{NW}).

The ratios between the spellings <ει> against <ε>, <ι>, and <η> are ~3:1 in the easternmost zone against ~2:3 elsewhere. If we look at the spellings in the western area alone (quadrants W, NW, SW), the spelling <ει> is comparatively even rarer, the ratio being 10:22 = ~1:2. Such a skewed distribution is unlikely to be the result of random chance. Rather, it suggests that monophthongization of the final diphthong /ei/ began in the western periphery of the Phrygian speaking area, where it is most commonly observed in the spelling, and only slowly radiated towards the east, where the majority of spellings indicate it had not yet taken place.

The spelling of the reflex of the OPh. diphthong *-āi* as <αι> may also be examined areally: it appears 8 times in the eastern zone (σαι °35^{E}, μανκαι °35^{E}, ανανκαι °35^{E}, μανκαι °60^{E}, σκελεδριαι °67^{SE}, σαι °69^{SE}, μανκαι °69^{SE}, ζειραι °106^{E}), and 5 times in the western part of the New Phrygian speaking area (μανκαι °2^{W}, ται °18^{W}, ξαρναι °18^{W}, ται °116^{W}, οεαυται °116^{W}). Notable is its absence in the centrally located quadrants S and C, as well as the immediately adjacent quadrant SW. This may suggest that

the treatment of *-āi* as <αι> is a peripheral phenomenon (cf. §II.3.3.1). This would make the most sense if we assumed that the regular development *-āi* > *-ā* > <α> (quite possibly under the influence of Greek, which had lost its own long diphthongs in the same manner before the beginning of the common era) was an innovation of the most central areas where Phrygian was spoken that then radiated outward, with the periphery preserving *-āi* until much later.

If we consider the proposed relative chronology of New Phrygian inscriptions from §II.2.3.2.2 and understand the language stages listed in table #11 as five distinct language varieties, we may attempt to determine whether any such language variety (or stage) is overly represented in a particular area. Should that be the case, it would suggest that the area in question is either more or less conservative with regard to its treatment of the geminates. For this purpose, only those inscriptions that can be securely established as belonging to a specific language stage will be considered.
Of 14 inscriptions that can be securely assigned a language stage from the eastern part of the Phrygian speaking area (quadrants E and SE), 1 belongs to stage 1 (°69^{SE}), 7 belong to stage 2 (°45^{SE}, °53^{SE}, °57^{E}, °75^{E}, °76^{E}, °77^{E}, °80^{E}), 2 belong to stage 3 (°51^{SE}, °67^{SE}), 4 belong to stage 4 (°51^{SE}, °61^{SE}, °67^{SE}, °106^{E}), and none belong to stage 5.
We may compare these numbers with 25 inscriptions that can be securely assigned a language stage from the western part of the Phrygian speaking area (quadrants NW, W, and SW): 2 belong to stage 1 (°86^{W}, °119^{W}), 11 belong to stage 2 (°2^{W}, °3^{W}, °6^{W}, °25^{SW}, °39^{SW}, °40^{W}, °90^{W}, °91^{W}, °114^{SW}, °126^{W}, °130^{NW}), 4 belong to stage 3 (°7^{W}, °86^{W}, °112^{W}, °115^{W}), 7 belong to stage 4 (°5^{W}, °14^{NW}, °28^{SW}, °93^{SW}, °97^{W+}, °99^{NW}, °127^{SW}), and 1 belongs to stage 5 (°87^{W}).

The ratios of the number of inscriptions in the eastern or western area belonging to a particular language stage to the total number of inscriptions found in that area are roughly comparable. This suggests that both the eastern and the western part of the Phrygian speaking area were equally innovative in terms of their treatment of the geminates and that the trend towards the simplification of geminates affected the entire language community.

We may also examine the 19 spellings suggesting the existence of a nasalized vowel (cf. §II.2.3.1.3): κακεν °40^{W}, °97^{W}, °119^{W}; κακιν °14^{W}; κακευν °45^{S}; σεμιν °76^{C}, °100^{C}, °107^{C}; σεμουμ °5^{W}; σεμου °19^{W}; κνουμινος °5^{W}; κνουμμανει °44^{S}, °53^{SE}; κνουνμανει °101^{SE}; αδακεν με °5^{W}; αδδακεμ μανκαι °35^{C}; αδ[δα]κε μανκαι °60^{C}; αινι μμυρα °25^{SW}; μακκα °94^{S}.
It is conspicuous that none of them are found in the E quadrant of the Phrygian speaking area, despite the fact that over a quarter (31 in total) of New Phrygian inscriptions were found there. This would seem to suggest that the nasalization of vowels in certain environments was a change that began in the west and which apparently failed to extend into the north-eastern periphery of the Phrygian speaking area.

The distribution of the middle verbal forms in the protasis of the curse formula likewise appears to be areally skewed. Of 10 such middle forms found in the corpus (αββιρετο<ι> °25^{SW}, αδδακετορ °40^{W}, αδδακετορ °63^{C}, αββερετορ °73^{W}, αββερετορ °75^{E}, αββερετοι °91^{W}, αββερετοι °113^{W}, αδδακετορ °121^{W}, αββερετοι °129^{W}, αββερετοι °131^{C}), only one (in °75^{E}) appears in the eastern part of the Phrygian speaking area, and all the rest

appear to the west.[174] The total number of middle forms is small, however, so it may be that the distribution is simply the result of chance.

One additional phenomenon ought to be noted for future reference. Of the three spellings of the first vowel of δακετ 'would do' with <o> (δοκετ °44^{S}, δοκετ °54^{E}, αδοκετ °106^{E}) (§II.2.3.1.1), all three are found in the eastern half of the Phrygian speaking area (PhL 158). To this list we may also add γεγρειμενον and ουτον, both in °106^{E}, for more common γεγρειμεναν and ουταν, again showing an unexpected <o>. While the low number of instances of this specific spelling strategy does leave open the possibility that this is simply due to chance, it seems more likely that the /a/ vowel was backed in this area, presumably being close to [ɑ], which would explain its occasional spelling with <o>.

What all of these analyses suggest is that there existed an eastern dialect of Phrygian that was linguistically conservative: it failed to fully participate in the *-āi* > -α shift, the monophthongization of *-ei* is only marginally observed, and there is no evidence for nasalization of vowels. Speaking in favour of the existence of an eastern dialect is also the spelling of expected <α> with <o>, an innovation that appears not to have spread to the west.
The most important innovations appear to have radiated from the western parts of the Phrygian speaking area. This may be due to their numbers and their proximity to areas where various other languages would have been spoken; the east, on the other hand, would have been more isolated and sparsely populated.

[174] While inscriptions °63^{C} and °131^{C} are classified as belonging to quadrant C, they were both found at the very western edge of that quadrant, in Bolvadin (PhL 550, 618) and Kadıkuyu (PhL 532-533, 618), respectively.

II.3.4 The Phrygian accent

Neither the Old nor the New Phrygian scripts provide any way of marking an accent. Thus, there is no direct evidence for where the Phrygian accent would have been placed in a lexical word. Nevertheless, on the basis of what we know of Greek and PIE accentuation, combined with a limited number of unexpected vocalic developments, we may begin to investigate this question. It should be remarked that the study of the Phrygian accentual system is still very much in its infancy. For this reason, it would currently be far too premature to speculate on where individual Phrygian words were accented. Rather, only those handful of forms which provide some evidence for the location of the accent will have it explicitly marked in this section.

It is unknown if there were any limitations on which syllables could carry the accent (such as the Law of Limitation found in Ancient Greek) or whether any grammatical categories underwent specific accentual developments (such as, again, Ancient Greek with its obligatory recessive accentuation of verbs).

The best way to begin to approach the question of the Phrygian accent is to take note of all unexpected vocalic alternations or developments which currently have no known conditioning factor. What we find are unexpected instances of *i* appearing where we would etymologically expect to find the vowel *e*.

The forms relevant for this analysis are: [175]

- *ibe-* °B-01, °B-05 '~ this' < **e-sb^{h}e-;*
- *ivi-* °B-05 'his[?]'< **e-su̯e-;*
- *niptiya-* °B-05 'niece, granddaughter' < **nep-t-ih$_2$-;*
- ζιμελως °25^{SW} instead of the usual ζεμελως 'man (DPl)';
- σιμουν °25^{SW} instead of the usual σεμουν 'this (DSg)' (cf. also OPh. dat. sg. *iv-imun* °B-05);
- αββιρετο<ι> °25^{SW} instead of the usual αββερετοι 'to bring to';
- *kubileya* °W-04 instead of *kubeleya* 'DN'*;*
- *akinanogava-* °M-04 instead of *akenanogavo-* '(religious title)'.

We may immediately remove σιμουν (as well as *ivimun*) from this list on the basis of a sound change we have previously proposed, i.e. **esR- > ḛ̄R,* for which see §II.3.2.2. If the segment *m*/μ does originate from a PIE element **-sm-* found in the pronouns, as we propose in §IV.3.2, then we would expect the sequence **-esm-* to develop regularly into *-ḛ̄m-*, which would be spelt as OPh. <-*em*>/<-*im*> and NPh. <-ειμ>/<-ιμ->, which explain the spellings *ivimun* and σιμουν. It is, then, the almost universally found form σεμουν that is the unexpected one. We may explain its existence by suggesting that the vocalism is the result of levelling from genitive singular [+]*-evo*.[176]

[175] [αδδα]κκιτορ 1x instead of the usual αδδακετορ, if the two may be compared at all, is probably best taken out of consideration, since it appears as part of a badly worn and fragmentary inscription °72^{E}. While the inscription is not be dismissed entirely, it is probably best analysed independently and not as being necessarily representative of other marginal processes that can be observed elsewhere in the corpus. See also §II.2.3.2.4.

[176] If one rejects this approach, another solution is to assume that the sound law **esR- > ḛ̄R* did not apply to all resonants and that compensatory lengthening did not take place when **m* was involved. In that case, the *-imun*/-ιμουν is to be explained along the same lines as those instances of *e* > *i* as those that appear in an open syllable before a resonant.

It is best to separate the remainder of this list based on the phonetic and phonotactic environment in which the vacillating vowel appears.
In the first of the two sections of the list, we find the *e*~*i* interchange in an open syllable before a resonant. This is relevant in the following examples: ζιμελως (1x) for usual ζεμελως, αββιρετο<ι> (1x) for usual αββερετοι, *kubileya* (1x) for *kubeleya* (1x), *akinanogava-* (1x) for *akenanogavo-* (2x).

As with many other types of spelling variations in Phrygian,[177] the different spellings most likely reflect an allophonic realization of what would have otherwise remained the same underlying phoneme.

What all the variant spellings with *i* have in common is: 1) they appear in an open syllable; 2) the following consonant is a resonant; 3) they appear in the antepenultimate syllable or earlier.
The idea that this vocalic development is due to the position of the accent is not new. Ligorio and Lubotsky (LL 1821) have proposed that the vowel *i* is a reduced variant of *e* in a pre-tonic position; Lubotsky (p.c.) now believes that this reduction may have also taken place in a post-tonic position or perhaps in unaccented syllables generally. The idea is certainly appealing, since a very similar development can be observed in Luwian: **e* > *i* / _$´ (Melchert 1994: 262); the development could then be understood as reflecting a broader areal feature.[178]

[177] Cf. spelling vacillations of vowels before a final nasal discussed in §II.2.3.1.3 and Šorgo (2019).
[178] An Iron Age West Anatolian linguistic area can be suggested on the basis of other commonalities shared between Phrygian, Lycian, Lydian, and Luwian, for which see Šorgo (2019).

Nevertheless, Ligorio & Lubotsky's idea is not in line with the expected location of the accent based on the morphological make-up of the forms in question and the comparative evidence.

In full-grade thematic verbal formations like βερε-, which derives uncontroversially from PIE **b^{h}er-e-*, the comparative evidence suggests that the accent fell on the verbal root, i.e. **bér-e-* (CIEL 254, LIV$_2$ 18). While true that sentence-final finite verbal forms were as a rule unaccented in PIE (Fortson 2004: 99), this did not hold for subordinate clauses, where the finite verbal form was regularly accented (*ibid.*). αββιρετο<ι> appears in a conditional, i.e. subordinate, clause, so we cannot claim that it was unaccented, unless we posited that most or all Phrygian verbal forms lost their accent by analogy with unaccented main-clause verbs, which is an unlikely proposition, and even if that did occur, it is almost impossible that the verbs would have remained unaccented up to the New Phrygian era, where we actually observe this change. If the *e* > *i* change observed in αββιρετο<ι> is due to the unaccented nature of the vowel, it would suggest that the accent in Phrygian shifted from its original position in stressed forms onto the first, penultimate, or the final syllable. No good morphological or analogical argument can be made for such a shift, so it would need to be mechanically conditioned.
On the other hand, if the original accent of the verb in stressed position was preserved, it would fall on the syllable whose vowel has the *e*~*i* vaccilation in spelling, meaning that the vowel quality would be the result of accent.

In ζιμελο-/ζεμελο-, we are dealing with a derivation utilizing the thematic nominal suffix **-elo-*. The closest comparanda to Phrygian ζεμελο- are

Latin *humilis* 'low' < **hem-el-* < **dʰǵʰem-el-* and Greek χθαμαλός 'low',[179] but both are adjectives and neither of the two is a perfect formal match: the formation is evidently not thematic in Latin, and the Greek form has its lexical root in the zero-grade while also showing evidence for a suffixal **-h₂-*, which would not have been present in Proto-Graeco-Phrygian. The Latin term is uninformative in terms of the accent, whereas the Greek term at least points towards an **-elo-*type adjective derived from some reflex of the stem **dʰǵʰVm-* being accented on the final syllable. If the same held for Phrygian and if ζεμελο- did originate as a nominalized adjective ('earth' > 'earthly' > 'one who is earthly' *vel sim.*), we would expect the original location of the accent to have been on the final syllable, which is one possibility.

If the accent in ζεμελο- fell on the penultimate syllable, this would certainly need to be due to a mechanical process of accent placement.

Finally, if the accent of ζεμελο- fell on the first syllable, it would once again mean that the vowel quality would be the result of the accent. This seems the most attractive possibility: since the presence of the *e*-grade in the root syllable and the fact that the Phrygian word is a noun both suggest that we are dealing with a noun-to-noun ('earth' > 'earthling' *vel sim.*) derivation, the accent could reasonably be placed on the root syllable.

In *kubileya/kubeleya* we are once again dealing with an **-eCo-*type nominal, in this case a derivation with *-ejo-* from a non-native theonym, and the accent could in principle fall on any syllable, with different implications as far as the explication of the *e~i* spelling vacillation is

[179] The Greek term can seemingly be transposed as **dʰǵʰmh₂-eló-,* but it is more likely to be a blending of a PG *χθεμελο- 'earthling' and *χαμα- 'Earth' (with Cretan χαμα-, as cited by Hesychius, likely being a reflex). For details, see §III.3.1.8.

concerned. The Greek form of the name Κυβήλη/Κυβέλη likely derives from a form of the name without the characteristically Phrygian feminine suffix *-e/iya-,* i.e. from **kubelā- vel. sim.*[180],[181] The Greek accentuation suggests that the accent was on the second syllable, though this cannot be extended as a certainty to Phrygian *kubeleya*, which is a derived form. For Phrygian, in principle, any of the syllables could have borne the accent.[182]

The religious title *akenanogavo-/akinanogava-* 'holder of the *akenan*' is an endocentric compound composed of the elements *akena(n)-* '(a religious term)' and *ogavos* << **soǵʰēus* 'holder'. *avo*-type nominals were originally derived from athematic nominal forms with a suffix **-ḗ/éu-,* so the accent of *ogavos* would have likely appeared on the second syllable. The Phrygian noun *akena(n)-* is attested twice in Old Phrygian: in *akenan* P-04a (acc. sg.), and in the sequence *akenas[* W-07 (unclear case form). The accent could in principle have appeared on any of its three syllables. Since we are dealing with a compound, it is uncertain which of the two constituent elements would have taken accentual primacy.[183]

[180] The accentuation of Κυβήλη/Κυβέλη, unless secondary, precludes the name from being a regular development of a preform *kubelējā* > **kubeléā* > **Κυβηλῆ.
[181] Compare also the Greek variant Κυβήβη and Lydian *Kuvava* (EDG 794).
[182] One particularity to note is that one of the variants of the Greek name of this deity is Κυβήλη, with a long vowel in the second syllable. If the Greek and Phrygian names were borrowed from the same original source that had a long mid-high vowel in the second syllable, it is entirely possible that the Greeks would have adopted the vowel as either their <ε> (to preserve the quality) or <η> (to preserve the length), whereas the Phrygians would have adopted it with their native /e̯/ (most similar in both quality and length), which was spelt with <e> or <i>. In that case, the *kubileya*/*kubeleya* would be entirely uninformative in terms of the placement of the accent, since the spelling vacillation would be the result of an entirely different reason.
[183] This is assuming, of course, that compounds were inherently limited to having a single primary accented syllable.

Combining these analyses, we may elaborate on the following four possibilities:

1) If the *e~i* vaccilation only took place in a syllable immediately preceding the accent, the forms αββιρετο<ι> and ζεμελως would need to have been accented on the penultimate syllable. Since this was not the original location of the accent, this accentuation would need to be the result of a mechanical rule that fixes the accent on the penultimate syllable; no other explanation is possible. This cannot explain *kubileya-* or *akinanogava-*, however. Even if the accent were preserved on the first member of the compound, *akena(n)-* would not have the proper accent location for a weakening of *e*. We may thus discard the possibility of a narrowly defined rule *e* > *i* / _*RV́*.

2) If the *e~i* vacillation before a resonant took place in unaccented syllables generally, this could serve to explain αββιρετο-, ζιμελως, *kubileya-* and *akinanogava-*. The issue with this account is that unaccented syllables are obviously more common than accented ones, so we should expect to find more examples on account of the conditioning environment being so broadly defined: most open syllables before a resonant would be liable to be affected, yet only these four instances are actually attested.

3) A more restricted formulation that vocalic reduction takes place before the accent, but in a non-adjacent syllable, could explain αββιρετο<ι>, ζιμελως, *kubileya-* and *akinanogava-*, if the former two were accented on the final syllable, and it sidesteps the issue of the conditioning environment being too common. The rule itself would be somewhat peculiar and oddly specific, however: *e* > *i* / _RV$́, but not when *e* > *i* / _$RV́.

4) The most elegant solution is that the *e~i* vacillation takes place in open accented syllables preceding a resonant: /é/ > [ḗ] / _$RV. In this case, we would be dealing with allophonic lengthening of the vowel. The

development is natural and the three conditioning factors, stress, being in an open syllable, and appearing before a resonant, are each individually conducive to such a change. The *e~i* spelling vacillation would be the result of attempting to spell this lengthened vowel, either as <*e*>/<ε> due to its quality being that of /e/, but ignoring the length, or as <*e/i*>/<ει/ι>, which is the strategy employed to spell /ē̬/, the most similar long vowel, though one with a slightly raised character. In this case, the accent of αββιρετο<ι> would be found in its expected location, in ζιμελως it would fall on the root syllable, in *kubileya-* it would match its location in Greek, whereas in *akinanogava-* it would evidently be the first member of the compound that was stressed, unless we assume the first member of the compound could carry a secondary stress.

The second category where we find unexpected *i*-vocalism in place of *e* are the lexical items *niptiya-, ibe-,* and *ivi-*.

The pronominal forms *ibe-* and *ivi-*, more thoroughly discussed in §IV.10, both show an unexpected initial element *i-* that has so far defied a clear interpretation (Hämmig 2013: 139-140 has identified *ibe-* as related to Gr. σφεῖς, Lat. *sibi,* OCS *sebe*, but stopped short of explaining the vocalism). Phrygian pronouns in general are known to appear in what are referred to in §IV.13 as "bound pronouns", i.e. a conglomeration of agglutinated pronominal elements (i.e. *e=si-, ve-=avto-*) that form a neo-pronoun. The *i-* found in *ibe-* and *ivi-* is thus likely to be a preposed pronominal element. It is clear that it cannot be the strong stem *i-* of the demonstrative pronoun, however; when appearing as a pronominal prefix, its oblique stem **e-,* was used, which we can see in the bound pronoun *e-si-* < **e-ke/i-* (§IV.2)*,* but also in Greek ἐκεῖνος < **e-ki/e-(e)no-*. On the other hand, no other known

Phrygian pronoun is vowel-initial; as such, none can be the origin of *i-*. It is best to assume, then, that the initial *i-* of *ibe-* and *ivi-* does ultimately originate in the anaphoric/demonstrative pronoun *i/e-*, specifically its weak stem PGPh. **e-*. The only likely factor that resulted in the different reflexes of **e* in *ibe-* < **e-sbe-, ivi-* < **e-swe-,* and *esi-* < **e-ki-* is the syllable structure of the three forms in Proto-Phrygian: the first two had the **e* appear in what was a closed syllable, whereas it appeared in an open syllable in the third.

Proceeding from the initial assumption that an **e* developed into *i* when followed by two consonants seems to be confirmed by the heretofore enigmatic *i*-vocalism in *niptiya-*, which is quite clearly derived from an older **nep-t-ih₂-*, i.e. an *ih₂*-feminine to the *t*-stem **nep-ōt-s* 'nephew, grandson' (Hämmig 2013: 134-138).

There are a number of counterexamples to the broad formulation of the rule as *e* > *i* / _CC. These are:
1) augmented forms such as *estaes* 'he erected' and *ektetoy* 'he caused to be acquired';
2) the 3sg middle imperative thematic ending *-e-do* < **-e-sd^{h}o;*
3) prepositional phrases (e.g. *perbeda, enstarna-, ...*);
4) reduplicated perfect stems built to roots with two initial consonants (e.g. *gegreimeno-* 'written');
5) various other examples of an *e-* followed by two consonants outside initial position, e.g. *vebra, evetekset-, evememesmeneya-*.

If the broad formulation of the rule is correct, three of these are easily explained through trivial analogical developments:

1) the augment, with its marked morphological function, would likely be restored on the basis of verbal forms that began with a single consonant, e.g. *edaes* 'he placed';
2) the 3sg middle imperative thematic ending *-*e-sd*^{h}*ō* > **-*i-dō* would be the only known thematic verbal form next to the unattested 2pl middle indicative/imperative thematic endings *-*e-sd*^{h}*e* > **-*i-de* where the thematic vowel would not surface as *e* or *o* and would thus likely be levelled to conform to the rest of the thematic conjugational pattern;
4) the formation of the perfect stems followed a productive pattern of reduplication with *-e-* vocalism for a considerable period of time, likely resulting in a renewal of reduplication with the expected vocalism.

Prepositional phrases (3) serve as poor evidence against the hypothesis, since they are, by definition, composed of two separate lexical elements. Even if the *e* > *i* change did take place in prepositions in certain environments, the *e* would have been easily restored through re-composition, though it would not be unexpected if we found some preserved relic forms.

Category (5) is more problematic: the examples are numerous and cannot be simply dismissed. On their basis, we must propose that there was a conditioning factor in play, and it is likely that the relevant condition was the location of the accent.

For *niptiya-*, we may note that the Sanskrit comparandum *naptī́-* 'daughter, granddaughter' is accented on the final syllable.[184] If the same was true for

[184] Compare also Greek ἀνεψιά 'female cousin'. The Greek term is derived from the masculine ἀνεψιός, which is itself extended with a suffix, however, so the location of the

the immediate predecessor of *niptiya-*, we may surmise that the *e* > *i* change only took place in unaccented syllables: $e_{[\text{-accent}]} > i$ / _*CC*.

This formulation can also serve to explain *ibe-* and *ivi-*. We have already noted (§IV.3.1) that Phrygian pronouns with a prefixed *e-* can be directly compared to Greek (ἐ)κεῖνος. The initial ἐ- is not accented in Greek, nor is it accented in the likely comparable Sanskrit *asáu* 'that', which likewise shows the reflex of a prefixed **e-* (EDG 397). The comparanda then suggest that the demonstrative prefix **e-* was unaccented, which falls in line with our formulation of the *e*-reduction rule.

In those instances where the *e* does not develop into *i* despite appearing before two consonants (*vebra,* ρεκτεο-, *evetekset-,* …), the *e* was either accented or was paradigmatically restored from environments where it appeared in an open syllable. We may also note that, if the augment was accented in Phrygian, as is suggested by the comparative evidence (CIEL 252), it would never have been reduced to *i-*, so our proposed explanation above that it would have been levelled is not necessary.

Phonetically, a conditioned reduction of *e* is not difficult to justify: the vowel would be shortened on account of the inherently longer duration of closed syllables as a means of normalizing syllable duration for open and closed syllables. The vowel **i* in Proto-Phrygian was durationally shorter than the vowel **e*, as is evidenced by its loss in proclitics during the Old Phrygian era.[185]

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accent is likely to be secondary (EDG 102). Incidentally, the Phrygian onset *n-* confirms that the Greek initial ἀ- does not originate in **h₂*.

[185] For which consider most obviously the loss of *-i* in *s=materan, s=manes,* but its preservation in *si=keneman*. See further in §IV.3.4.

In summary, then, we can propose these two accent-based rules for Phrygian:

e[-accent] > *i* / _CC

e[+accent] > [ę̄] / _$RV

Both rules suggest that Phrygian switched from a pitch-based accent, which we may reconstruct for Proto-Graeco-Phrygian due to its preservation in Greek, to a stress-based one. A reduction that aims to normalize syllable duration suggests the presence of a syllable-timed system for unstressed syllables, whereas the observed lengthening points to stressed vowels being pronounced as longer, which is more characteristic of stress-based systems. The evidence is meagre at this point, however, so no firm conclusions can be made.

III Nominal Morphology

Phrygian nominals consist of nouns and adjectives. These two parts of speech formally behave almost identically and, in a language as poorly understood as Phrygian, it is very often impossible to ascertain whether any given nominal form ought to be analysed as a noun or an adjective (LL 1824). While identifying when a specific nominal is used as a noun is generally easier for purely syntactic and semantic reasons, the adjectives complicate the picture by virtue of allowing substantivization (i.e. the use of an adjective to mean something that has the property of that adjective), which was evidently quite productive in Proto-Graeco-Phrygian and later in Phrygian itself. In terms of derivational processes, it is usually clear on the basis of comparative or language-internal data whether some nominal formation is explicitly a noun, but the extensive use of substantivization beginning in PIE itself has obscured the synchronic nature of many other nominal formations. It is for this reason that no formal distinction will be drawn between nouns and adjectives in this section, except in cases where such a distinction is clearly evident. Adjectives are generally used to modify nouns and agree with them in case and number.

Phrygian nominals appear to distinguish three genders (masculine, feminine, neuter), at least four cases (nominative, genitive, dative, accusative), and two numbers (singular and plural) (PhL 76, LL 1824).[186] Phrygian possesses a fusional morphology, meaning that any combination

[186] To the best of our knowledge. While the number of grammatical genders is practically a certainty and the number of cases is strongly suggested by the functions of the cases and the forms we have identified, it is plausible that Phrygian also possessed a dual number.

of gender-case-number shows an inflectional ending that encodes all three simultaneously. The type of ending that is used in a specific form depends on the gender and stem type of a nominal.

A Phrygian nominal stem is necessarily composed of a lexical root, which may, but need not, be followed by one or more derivational suffixes. The stems generally belong to the vocalic (*o-, a-, e*-stems) or consonantal type. The consonantal stems are generally categorised on the basis of the last consonant that appears in a non-nominative singular form of a nominal when the inflectional ending is removed.

This chapter is composed of two major parts: the first analyses the inflectional endings used in the various stem types and the second analyses the stem-types and their variants on an individual basis.

III.1 Phrygian nouns

The cases are generally used as following.

Nominative: The nominative case is used as one means of expressing the direct agent of a simple clause, either transitive or intransitive (PhL 114).[187] Much of the time, the agent of a clause need not be explicitly stated and is implicitly expressed in a conjugated verbal form. The nominative case is

[187] Strictly speaking, in clauses whose verb has a modal meaning, the agent is only potential. In syntactic terms, there is no distinction between a proper and potential agent, so there is no need to add the semantic category of 'potential agent' to the list of uses of the nominative case.

used for the semantic function of facilitator in a causeeless causative construction (§V.1.3).

Agent: *baba* [...] *sikeneman edaes* °M-01b ('Baba [...] this=niche placed' "Baba placed this niche")

Facilitator: *va knais manuka odeketoy* °B-07 ('his wife Manuka caused-it-to-be-made' "his wife Manuka caused it to be made")

Genitive: The genitive case pretty much uniformly indicates ownership by the head of a nominal phrase (cf. PhL 115). A genitival adjunct can be pre- or post-posed; both are equally viable.
By the New Phrygian era, the genitive case may have begun to become conflated with the dative case, presumably by absorbing some of its functions.

Ownership: γεγρειμεναν κ εγεδου τιος ουταν °32^{E} ('written may-he-hold of-Ti- punishment' "may he hold the written punishment of Ti-")

Quasi-dative: ις κε σεμουμ κ<ν>ουμινος <κακουν> αδακεν °5^{W} ('whoever to-this grave <something-bad> would-do' "whoever would do <something bad> to this grave")

Dative: The dative case in Phrygian encodes a plethora of functions.
Primary among these is the use of the dative to indicate the indirect object of a verbal action (PhL 115).
In addition to this unmarked function, the dative could apparently be used for a variety of locatival meanings which would in some instances require

the use of a specific preposition (*ibid.*); generally, we would expect the dative to encode the function of a pure locative, giving information where something is located without any reference to previous or further motion, though this may turn out not to hold in every instance.
The dative was also used to encode an instrumental meaning (i.e. 'by means of which').
Finally, in passive clauses, a bare dative or a dative appearing with the preposition αδ would be used to indicate the agent of a verbal action (*ibid.*).

Indirect object: ιος νι <u>σεμουν κνουμανει</u> κακουν αδακετ °87^{W} ('whoever <u>to-this to-grave</u> something-bad would-do' "whoever would do something bad to this grave")

Locatival: αινι ουεβαν δεδασσιννι πατρος <u>σεμουν κορο[υ]μανη</u> <u>σως</u> κη <u>γουμεις</u> °130^{NW} ('when/if monument they-would-place of-the-father <u>on-this graveplot</u> and <u>in-these grounds</u>' "when they will place the monument of the father in this graveplot and in these burial grounds")
<u>με ζεμελως</u> κε <u>δεως</u> κε ('<u>among men</u> and <u>gods</u>')

Instrumental: ιος νι σεμουν κνουμανει κακουν αδοκετ <u>ζειραι</u> °106^{E} ('whoever to-this to-grave something-bad would-do <u>by-hand</u>' "whoever would do something bad to this grave by hand")

Agent: <u>τιε</u> τιττετικμενος ειτου °115^{W} = <u>ατ τιε</u> τιτετικμενος ειτου °94^{S} ('<u>by-Ti-</u> condemned may-he-become' "may he become condemned by Ti-")

Accusative: The accusative case in Phrygian is primarily used to designate the direct object of a verbal action (PhL 114).
When used with a locatival meaning, it is preceded by a preposition; generally, we would expect the accusative to adopt allative semantics (motion toward), though the examples we have are ambiguous in this regard.
In passive clauses, an accusative appearing with the preposition αϛ can be used to designate the verbal agent.[188]

Direct object: *baba* [...] *si keneman edaes* °M-01b ('Baba [...] this niche placed' "Baba placed this niche")

Locatival: πουρ ουανακταν κε ουρανιον ιστ?εικετ διουνσιν °88^{C} ('and before/to? the king heavenly may-he-*isteike*- Dionysos' "and may he expose? himself? before the heavenly king Dionysos)

Agent: τιτετικμενος αϛ τιαν ̣ειτου °99^{NW} ('condemned by Ti- may-he-become' "may he become condemned by Ti-")
τιττετι[κ]μενος ειτου εικ? αδ αυτον μεκαν Τιαν °130^{NW} ('condemned may-he-become *eik?* by himself great Ti-' "may he become condemned by the great Ti- himself")

[188] In inscription °130^{NW}, the preposition αδ is used instead of αϛ.

III.2 Case endings

The Phrygian nominal endings broadly fall in two different categories: vocalic-stem endings and consonant-stem endings. The vocalic-stem endings are used with the *o*-, *a*-, and *e*-stem nominals, whereas the consonant-stem endings appear with all other nominals. The six subcategories of resonant-stem nouns (i.e. *-m*, *-n*, *-r, -l, -i, -u*) each show certain peculiarities. These, along with the peculiarities of the other types, will be more thoroughly discussed in §III.3, where each attested stem-type will be examined individually.

III.2.1 Vocalic type

	o-stems		*a*-stems		*e*-stems	
	OPh.	NPh.	OPh.	NPh.	OPh.	NPh.
nom. sg.	*-os* *-on* (neut.)	-ος	*-a* (fem.) *-a, -as* (masc.)	-α, -ας (masc.)	*-es*	
gen. sg.	+*-ovo*	-ου	+*-as* (fem.) +*-avo* (masc.)	-ας (fem.)	*-evo*	
dat. sg.	*-ōi*	-ου	*-āi*	-α, -αι	+*-ey*	
acc. sg.	*-un* (/on/)	-ον, -ουν	*-ān*	-αν	*-in* (/en/)	-ιν

nom. pl.	$^{+}$*-oi* *-a* (neut.)	-οι -α (neut.)	$^{+}$*-ai*	-α		
gen. pl.	*-un* (< *-ōn*)	$^{?}$-ουν				
dat. pl.	$^{+}$*-ōis*	-ως	$^{+}$*-āis*	-ας		
acc. pl.	*-ois* *-a* (neut.)	$^{+}$-οις -α (neut.)	*-ais*	-αις		

Table #17: The vocalic-type nominal endings of Phrygian.

III.2.1.1 Nominative singular

Endings:[189]

Old Phrygian: *-os* (*k↑iyanaveyos* 'PN$^{?}$' °M-01b)*, -a* (fem.) (*kubeleya* 'DN' °B-01), *-a* (masc.) (*Baba* 'PN' °M-01b), *-as* (*Midas* 'PN' °B-01dI), *-es* (e.g. *Ates* 'PN' °M-01a)

New Phrygian: -ος (τιττετικμενος 'condemned' °78^{E}), -α (fem.) (νενυεριια 'PN' °9^{W}), -α (masc.) (Μιτραφατα 'PN' °48^{NW}), -ας (πουντας 'Pontic' °48^{NW})

The *o*-stem nominative singular is characterized by the ending *-s* appended after the thematic vowel (PhL 79). This state of affairs is directly descended from PIE, where **-os* was the thematic nominative singular ending (*ibid.*, LL 1824), as found reflected also in Greek -ος and Sanskrit *-as* (CIEL 212).

[189] For each ending, only a single attested example will be provided, even if more exist.

The feminine *a*-stems have an ending -∅ appended to the stem-forming suffix -*ā*-, which reflects the PIE feminine nominative singular desinence *-*eh₂*-∅ (PhL 76, LL 1825), also found directly reflected in Greek -ᾱ and Sanskrit -*ā* (Fortson 2004: 119).

Proto-Graeco-Phrygian innovated the new category of masculine *a*-stem nouns (cf. Sihler 1995: 273-275). These initially differed from their feminine counterparts only in the nominative singular, where they are additionally characterized with the ending *-*s*, which was associated with the masculine gender due to the thematic nominative singular ending *-*os*. This addition of *-*s* was apparently not obligatory and there existed masculine *a*-stems without its addition; in Greek, we may adduce Boetian Πυθιονίκα 'winner at the Pythian games', [190] and in Phrygian we occasionally find masculine names without -*s* in the nominative singular (cf. *ata* and *atas*) (PhL 76-77, LL 1825). Nevertheless, the optional addition of *-*s* for the masculine *a*-stems had likely already begun to take place in Proto-Graeco-Phrygian, since we find it extensively used in both languages.

Other than in the nominative and possibly the genitive singular, the *a*-stem endings are identical to those of the *o*-stems, the only difference being the vowel preceding the ending.

The nominative singular of the *e*-stems is most commonly -*es* (PhL 82). The category is almost exclusively composed of masculine personal names of unclear (and likely non-native) origin, so the -*s*, where it was not already present, must have been added as a marker of masculinity. In an extremely small number of examples, where the names are written in complete

[190] I thank Daniel Kölligan for bringing this example to my attention.

isolation, we find some of the *e*-stem names written without *-s* (cf. *ate* for usual *ates*) (*ibid.*).

The *e*-stems are para-thematic and have the same basic set of endings as the *o*-stems, only differing by the vowel used.

III.2.1.2 Genitive singular

Endings:

Old Phrygian: $^{+}$*-o-vo*, OPh. (fem.) $^{+}$*-as,* OPh. (masc.) $^{+}$*-a-vo*$^{?}$, OPh. *-e-vo* (*atevo* 'PN' °W-10)*,*

New Phrygian: -ου (αργου '?' °30^{S}, °98^{NW}), NPh. (fem.) -ας (ουεναουιας 'PN' °88^{C})

The genitive singular ending of the *o*-stems was likely to have been $^{+}$*-ovo* in Old Phrygian and is attested as -ου in New Phrygian (LL 1825); the existence of $^{+}$*-ovo* is suggested by the pronominal GSg ending *-ovo* and the *e*-stem GSg ending *-evo*, the latter of which must have developed analogically.

The ending is cognate with Greek -ου < *-*o.o* (PhL 79). Both the Phrygian and Greek endings are descended from the PIE pronominal ending *-*oso* (*ibid.*), which began to replace the usual PIE nominal thematic ending *-*o-syo* in Proto-Graeco-Phrygian already (cf. García Ramón 2017: 659). In Proto-Graeco-Phrygian, PIE *-*oso* would have developed into *-*oho*, which then developed into a disyllabic *-*o.o* in Proto-Phrygian when **h* was lost. This disyllabic vowel sequence did not contract (presumably for reasons of morphological transparency) and *-v-* was inserted as a hiatus-filler (LL 1822). The New Phrygian -ου < pre-NPh. *-*ō* most likely emerged as the result of a post-Old Phrygian contraction of $^{+}$*-ovo* (PhL 79).

While Greek still preserves the reflex of PIE *-*o-sio* as -οιο in certain dialects, but has mostly replaced it by the classical era, there is no evidence of Phrygian preserving any trace of the original *-*o-sio* ending (PhL 79).[191,192]

There is a single example of an *e*-stem in the genitive singular: *atevo* (nom. sg. *ates* 'PN') (PhL 83). Since the category of *e*-stems is new, the ending -*vo* must have been imported from the *o*-stems (LL 1825). This suggests that while -*v*- did initially emerge as a hiatus-filler, it had become an integral part of the ending by the time the transfer took place. Alternatively, -*v*- was also the hiatus-filler in the sequence *-*e.o*. Since no genitive of an *e*-stem noun is known in New Phrygian, it is unknown what this ending would have developed into by that stage of the language.

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[191] The issue is admittedly complicated, since the reflex of *-*VsiV*- in Phrygian is not known. In principle, Old Phrygian -*ovo* could be a direct reflex, if intervocalic *-*si̯*- were lost just like *-*s*- was, but positing this development is not necessary. For purely structural reasons, assuming that *-*si̯*- and *-*s*- behaved identically (where they certainly did not in Proto-Graeco-Phrygian) seems dubious. The Proto-Graeco-Phrygian reflex of PIE *-*si̯*- was probably already -*hj*-, in which case we may compare PIE *-*sr*- > PGPh. *-*hr*- > OPh. -*r*- with compensatory lengthening, as well as the initial development PIE **sw* > PGPh. **ɦw* > OPh. *v*, with the preservation of the resonant; either with or without compensatory lengthening, we would expect the presence of *-*j*- in the Phrygian reflex, and there is no known sound law that could remove it. Thus, while the possibility of Phrygian -*ovo* reflecting PIE *-*osio* cannot be entirely discounted (a possibility might be assuming PIE *-*osio* > PGPh. *-*ohjo* > PPh. *-*ohho* > *-*o.o* > OPh. -*ovo*), it is an unnecessary structural complication. In any case, the matter can only be fully resolved once an unambiguous reflex of PIE *-*si̯*- is found in Phrygian.

[192] In light of the previous footnote, the questionable proposition that Greek -ου is the result of a late contraction of -*oo* < -*o-jo* < *-*o-si̯o* due to a loss of intervocalic -*j*- (Sihler 1995: 259) is now on even shakier grounds. Since Phrygian shows the proliferation of the -*ovo* < *-*o.o* < -*o-*ho* < *-*o-so* pronominal ending throughout its thematic system, it serves to further reinforce the suggestion, otherwise made on the basis of Greek data alone, that the pronominal to thematic shift in the genitive was already a feature of Proto-Graeco-Phrygian and that the two endings co-existed for a time, until the pronominal one ultimately won out in both languages.

The genitive singular ending of the feminine *a*-stems was *-a-s*, though the ending is only attested in New Phrygian (LL 1825). This ending faithfully reflects PIE *-*eh₂-es* (Clackson 2008: 97), which is also seen reflected in the Greek feminine *a*-stem genitive singular -ᾱς.

The genitive singular ending of the masculine *a*-stems is not known in Phrygian. Since Proto-Graeco-Phrygian innovated this category and the Greek ending is -ᾱο < *-*ā-ho*, using the pronominal ending otherwise found in the masculine *o*-stems, it is likely that the same holds for Phrygian. In that case, the expected ending would be $^{+}$-*ao* or, rather, with the hiatus-filler either emerging organically or being imported from the *o*-stems, $^{+}$-*avo* (cf. PhL 77).

III.2.1.3 Dative singular

Endings:

Old Phrygian: *-oi* (*Adoikavoi* 'PN' °G-02a), *-ai* (*niptiyay* 'niece, granddaughter' °B-05)

New Phrygian: -ου (σορου 'coffin' °124^{C}), -α (μανκα 'stele' °97^{W+}) ~ -αι (μανκαι °2^{W})

The dative singular ending of the *o*-stems is Old Phrygian *-oi* /-ōi/, New Phrygian -ου (PhL 80, LL 1825). This is a direct reflex of PIE *-*o-ei* (cf. PhL 80), also found reflected in Greek -ῳ, Sanskrit -*ā̲y̲-a*, etc. (CIEL 212-213)[193]

[193] When the contraction of *-*o-ei* into *-*ōi* took place is difficult to determine. It likely took place before the disintegration of Proto-Graeco-Phrygian, in any case, since Phrygian tends not to contract vowels, but rather inserts a hiatus-filler, which would have probably produced an ending **-*ovei* or **-*ojei*, unless we resorted to an analogical explanation.

The *a*-stems uniformly show Old Phrygian *-ai /-āi/*, New Phrygian -α, -αι (PhL 77).[194] This is a direct reflex of PIE *-*eh₂-ei* (*ibid.*, LL 1825), as found reflected in Greek -ᾳ, Latin -*ae*, etc. (Clackson 2008: 97)

The dative singular ending of the *e*-stems was most likely $^{+}$-*e-i* (cf. PhL 81). Such an ending would have been the result of analogical levelling: an original *-*e-ei* would have likely produced **-*āi* and would be a rare instance of the *e*-stem vowel not being identical to that found in the other cases. Even if we assume that *e*-stems only emerged as a category in the language after *$\bar{e}$ > $\bar{a}$ had already run its course, the resulting vowel would be *$\bar{e}_{\underline{i}}$, a diphthong that does not synchronically exist elsewhere in Phrygian. In either case, then, the ending *-ey* would need to have been analogically created, most likely following the masculine *a*-stem type: nom. sg. *-ās* :: dat. sg. *-āi* = nom. sg. *-es* :: X, X = *-ei.*

III.2.1.4 Accusative singular

Endings:
Old Phrygian: *-un* (*akaragayun* '?' °M-02), *-an* (*niptiyan* 'niece, granddaughter' °B-05), *-in* (*Manin* 'PN' °B-07)
New Phrygian: -ουν (δετουν 'monument' °31^{S}) ~ -ον (δετον °116^{W}), -αν (γεγρειμεναν 'written' °76^{E}), -ιν (ευκιν 'vow' °98^{NW})

The ending of the accusative singular of the *o*-stems is Old Phrygian *-un* [-o̰n] and New Phrygian -ουν/-ον [-o̰n].[195] This is a reflex of PIE *-*o-m*,

[194] This double reflex in New Phrygian is mostly likely the result of dialectal differentiation. See further in §II.3.3.1 and §II.3.3.3.
[195] The graphic representation of the sequence *-on* [-o̰n] in final position is almost uniformly <-un> in Old Phrygian, but the New Phrygian vacillation between -ον and -ουν

which developed into PGPh. *-*on* (PhL 79, LL 1825); cf. Greek -ον. The PIE ending is also found reflected in Skt. -*am*, Lat. -*um*, etc. (CIEL 212)

The accusative singular ending of the *a*-stems is Old Phrygian -*an* /-ān/ and New Phrygian -αν. This directly reflects PIE *-*eh₂-m* (PhL 77, LL 1825), also found reflected in Greek -ᾱν, Sanskrit -*ām*, etc. (Clackson 2008: 97)

The accusative singular ending of the *e*-stems is found at least once, in *Manin* (acc. sg. of *Manes* 'PN') (cf. PhL 82). The raising of the vowel before a nasal has a parallel in the raising of -*o*- in the *o*-stems, and the ending must have phonologically simply been /-en/.
The accusative singular ευκιν, if adopted from Greek εὐχή 'vow' as an *e*-stem (cf. PhL 234), shows the expected New Phrygian ending -ιν.

III.2.1.5 Nominative plural

Endings:
Old Phrygian: -*oi* (*agaritoi* 'PN' °G-02 (Kloekhorst 2015: 116)), $^{+}$-*ai*
New Phrygian: -οι (τιττετικμενοι 'condemned' °71^{W}), -α (ζειρα 'hand' °12^{S})

The ending of the nominative plural in the *o*-stems is Old Phrygian -*oi* and New Phrygian -οι. The original PIE ending *-*o-es* or *-*ōs* (found reflected in Skt. -*ās*, etc.) (CIEL 212) was entirely replaced in Proto-Graeco-Phrygian by the pronominal nominative plural ending *-*oi* (PhL 80, LL 1826; cf. García Ramón 2017: 659).

clearly shows that /o/ before a nasal did not merge with /u/ in Old Phrygian. See further in §II.1.2.4 and §II.3.2.2.

In the same vein, the original PIE *a*-stem nominative plural ending **-eh₂-es* was remade in Proto-Graeco-Phrygian on the basis of the pronominal ending and was **-ăi* (PhL 77-78, *contra* LL 1826). This ending surfaced as -α in New Phrygian, though that is likely to be a simplification of earlier ⁺-αι (PhL 77-78). The expected Old Phrygian ending is ⁺*-ai*.

Since the *e*-stem nouns are almost exclusively personal names, it is not surprising that no *e*-stem plural forms are attested.

III.2.1.6 Genitive plural

Endings:
Old Phrygian: ⁺*-ōn* (cf. *torvetun* 'tree[?]'°B-05)
New Phrygian: -ουν (τιτετουκμενουν[?] 'condemned' °28[SW])

On the basis of the Greek ending -ων (CIEL 212), it is likely that the Phrygian genitive plural ending was inherited from Proto-Graeco-Phrygian **-ōn*, which would have developed into Old Phrygian ⁺*-ōn* and New Phrygian ⁺-ουν. In the *o*-stems, I suggest that the genitive plural ending might be present in the form *torvetun* °B-05;[196] by the time of this inscription, the *ō* > *u* sound change had already taken place, producing the ending *-un*.
The form τιτετουκμενουν °28 has been proposed to show the GPl ending -ουν (PhL 80, LL 1826), though this is uncertain, as Ligorio and Lubotsky note themselves. Perhaps we may interpret the apodosis ιος τιτετουκμενουν ειτου as meaning something like 'may he become one of the condemned'.

[196] See further in §III.3.1.6.

On the other hand, since τιτετ<u>ου</u>κεμενο- is evidently a misspelling of usual τιτετ<u>ι</u>κμενο-, the ending may simply be another misspelling. [197]

III.2.1.7 Dative plural

Endings:
Old Phrygian: $^{+}$*-ois,* $^{+}$*-ais*
New Phrygian: -ως (δεως 'god' °97^{W+}), -ας (ονομανιας 'named' °116^{W})

The dative plural ending of the *o*-stems is *-ois* /-ōis/ in Old Phrygian and -ως in New Phrygian (PhL 80, LL 1826).[198] This ending is a direct reflex of the PIE ending *-ōis*, which was most likely a late variant of the thematic instrumental plural ending (CIEL 212). In Phrygian, this PIE instrumental plural variant ending *-*ōis* presumably replaced an older instrumental ending *-*$b^{h}i$* once the dative and instrumental cases had merged.
The instrumental ending *-*$b^{h}is$* > -*$p^{h}i$* still appears in Mycenaean and Homeric Greek (Goldstein 2020; cf. García Ramón 2017: 656).
The dative plural ending of the a-stems was presumably $^{+}$*-āis* in Old Phrygian and is attested as -ας in New Phrygian (PhL 78). Whether this ending is of the same age as the PIE ending *-*ōis* or if it is a later analogical creation of Proto-Graeco-Phrygian is unclear.

In Greek, the two Proto-Graeco-Phrygian endings, *-*ōis* and *-*āis* regularly developed into -οις and -αις via Osthoff's law, i.e. the shortening of a long vowel before a resonant and an obstruent (cf. Rix 1992: 140, CIEL 145).

[197] For the particulars of the spelling choices in this inscription, see §IV.6 and footnote #379.
[198] For the regular development OPh. -*ōis* > NPh. -ως, see §II.3.3.1.

The different New Phrygian reflexes of *-*ōis* > -ως and *-*ois* > -οις show that the long diphthongs were distinct from their short counterparts; the Phrygian endings then preserve a more archaic state of affairs, which was not affected by Osthoff's law.

III.2.1.8 Accusative plural

Endings:
Old Phrygian: -*oys* (*ktevoys* 'acquisition[?]' °B-01), [+]-*ais*
New Phrygian: [+]-οις, -αις (δεκμουταις[?] '?' °9[W])

The accusative plural ending of the *o*-stems is -*ois* in Old Phrygian (PhL 80, LL 1820) and was presumably -οις in New Phrygian. The ending regularly descends from the PIE accusative plural ending *-*o-ns*, also found reflected in Greek -ους, Sanskrit -*ān*, etc. (CIEL 212)

The accusative plural ending of the *a*-stems was presumably -*ais* in Old Phrygian and is attested as -αις in New Phrygian (PhL 78, LL 1820). This is likewise a regular continuation of the PIE ending *-*eh₂-ns* (*ibid.*), also found in Greek -ᾱς, Sanskrit -*ās*, etc. (Fortson 2004: 119)

III.2.1.9 Neuter nominative/accusative plural

Endings:
Old Phrygian: -*a* (*kaka* 'bad thing' °B-05)
New Phrygian: -α (μμυρα 'foolish thing' °25[SW])

The nominative/accusative plural ending is -α in New Phrygian and was *-a* in Old Phrygian. This ending is regularly descended from the PIE neuter collective ending *-*h₂* (PhL 80, LL 1826), which was used to refer to a multitude of neuter gender nouns, as also found reflected in Greek -α, Sanskrit -*ā*, etc. (Fortson 2004: 115, 118)

III.2.2 Consonantal type

	masc. / fem.		neut.	
	OPh.	NPh.	OPh.	NPh.
nom. sg.	*-s, -Ø*	-ς, -Ø	-Ø	+-Ø
gen. sg.	*-os*	-ος	+*-os*	-ος
dat. sg.	*-ei*	+-ει/ε/ι/η	+*-ei*	-ει/ε/ι/η
acc. sg.	*-n, -an*	+-ν, -αν	-Ø	-Ø
nom. pl.	*-es*	-ης	+*-a*	-α
gen. pl.				
dat. pl.	+*-eis*	+-εις	+*-eis*	-εις
acc. pl.	*-ais*	+-αις	+*-a*	-α

Table #18: The consonantal-type nominal endings of Phrygian.

III.2.2.1 Nominative singular

Endings:

Old Phrygian: *-s* (*Alus* 'PN' °W-09), *-Ø* (*matar* 'mother' °B-01), *-Ø* (neut.) (*bevdos* 'statue' °B-01)

New Phrygian: -ς (βας 'DN' °99^{NW}), *-Ø* (ματαρ 'mother' °18^{W}), +*-Ø* (neut.)

In the consonant stems, there is no formal distinction between the masculine and feminine nouns, so the two will be treated together throughout the section. Both the masculines and the feminines do, however, contrast in their declension with nouns of the neuter gender in the nominative and the accusative cases (as is the case in PIE (Meier-Brügger 2010: 335-336)).

Nouns of the masculine and feminine gender synchronically show two allomorphs of the nominative singular ending. In the first type of stems, i.e. nominal stems ending in *-r, -l, -m, -n,* and *-s,* the nominative singular ending is simply not expressed and is -Ø (PhL 80, LL 1825).

The masculine/feminine nouns that did not belong to the first type, i.e. the stems ending in (*-p), -t, -k, -i*, and *-u*, received the ending *-s* in the nominative singular (PhL 80, LL 1825). In the plosive stems ((*-p), -t,* and *-k*), this sigmatic ending was eventually lost through regular simplification of final clusters (PhL 80, LL 1821). The examples are: Βας 'DN' < **b*^{h}*eh*$_2$*-t-s* (cf. acc. sg. Βαταν < **b*^{h}*eh*$_2$*-t-m̥*), *vanak* 'king' < **u̯anaks*, μροτις 'death' < **mr̥-ti-s*.

Consonant stem nouns of the neuter gender do not receive an ending in the nominative/accusative singular case (PhL 80), e.g. in *bekos* 'bread' < **b*^{h}*eg-os-Ø*.

III.2.2.2 Genitive singular

Endings:
Old Phrygian: *-os* (*Artimitos* 'Artemis' °B-05)
New Phrygian: -ος (Τιος 'Ti-' °36^{E})

Consonant-stem nouns in Phrygian that have so far been identified as appearing in the genitive singular case all take the ending *-os* (PhL 81, LL 1825).
It is probable that some types of consonant stems would have preserved a reflex of the old ending *-*s*. Perhaps, for some types of nouns, the genitive singular ending could have even been more radically reworked (for instance, by contamination with the thematic ending *-vo*), though this must currently be considered as purely speculative.

III.2.2.3 Dative singular

Endings:
Old Phrygian: *-ey* (*materey* 'mother' °W-01b)
New Phrygian: -ει/ε/ι/η (κνουμανει 'grave' °118^{W}, κνουμανε °97^{W+}, κνουμανι °86^{W}, κνουμανη °114^{SW})

The dative singular ending of the consonant stem is *-ey* in Old Phrygian and -ει/ε/ι/η in New Phrygian. These endings are direct reflexes of PIE dat. sg. *-*ei* (PhL 81, LL 1825).

III.2.1.4 Accusative singular

Endings:
Old Phrygian: *-an* (*imenan* 'monument' °B-05), *-n* (*areyastin* 'DN epithet' °W-01a), *-Ø* (neut.) (*keneman* 'niche' °M-01b)
New Phrygian: -αν (Βαταν 'DN' °33^{E}), $^{+}$-ν, *-Ø* (neut.) (βεκος 'bread' °99^{NW})

The ending of the masculine/feminine accusative singular of the consonant stems in Old Phrygian and New Phrygian has two allomorphs (PhL 80-81). The first allomorph, OPh. *-an* and NPh. -αν, appears in all the consonant stems with the exception of the *i*- and *u*-stems. It is a direct reflex of PIE acc. sg. *-*m̥* > PGPh. *-*n̥*, which would have originally appeared behind inert consonants (PhL 80-81, LL 1825-1826).
The second allomorph, OPh. *-n* and NPh. -ν, appears in the *i*- and *u*-stems alone. It is a direct reflex of PGPh. acc. sg. *-*n* < PIE *-*m*, which would have appeared after vowels, vocalised semi-vowels, and diphthongs (PhL 80-81).
The same two allomorphs appear in Greek, meaning that the two allomorphs existed in Proto-Graeco-Phrygian already: cf. acc. sg. λιμέν-α < *-*n̥* < *-*m̥*, but πόλι-ν < *-*n* < *-*m* (García Ramón 2017: 656).

The neuter nouns would not have distinguished the nominative from the accusative case. The nom./acc. singular of the neuter stems did not receive an ending (PhL 81, LL 1826).

III.2.2.5 Nominative plural

Endings:
Old Phrygian: -*es* (masc., fem.) (*petes* 'foot' °G-02), $^{+}$-*a* (neut.)
New Phrygian: -ης (masc., fem.) (πατερης 'father' °93^{SW}), -α (neut.) (ακαλα '(a type of bread)' °35^{E})

The masculine/feminine consonant stem nouns had the ending OPh. -*es*, NPh. -ης. This is a direct reflex of the PIE nom. pl. ending *-*es* (PhL 81-82, LL 1826).

The neuter consonant stems did not distinguish between the nominative and accusative cases. In the plural, their nom./acc. ending was OPh. $^{+}$-*ă*, NPh. -ă. This is a direct reflex of the PIE collective neuter ending *-*h₂* (PhL 82, LL 1826).

III.2.2.6 Genitive plural

No example of a genitive plural consonant stem ending is known in Phrygian. Presumably, it would have developed from the PIE genitive plural ending *-*om* (CIEL 186) or *-*ōm* (Fortson 2004: 106). In Greek, the ending is -ων in both the thematic and athematic (i.e. consonant) stems. Depending on one's reconstruction of the PIE genitive plural ending, the Greek ending is either a faithful reflex of the PIE ending *-*ōm* or a generalisation from the *o*-stems.
In Phrygian, then, the expected ending for the genitive plural in the consonant stems would have been $^{+}$-*ŏn* (if one assumes PIE *-*om*) or $^{+}$-*ōn*

(if one assumes either PIE *-*ōm* or that the possible generalization found in Greek took place in PGPh. already).

III.2.2.7 Dative plural

Endings:
Old Phrygian: $^{+}$-*eis*
New Phrygian: -ειϛ (γουμειϛ 'ground' °130^{NW})

The dative plural ending of the consonant stems was presumably $^{+}$-*eis* in Old Phrygian and is attested as -ειϛ in New Phrygian.

This is not the continuation of the PIE state of affairs, where the dative plural ending would have been *-*mus* (CIEL 186), *-*mos* (Ringe 2006: 41), or *-*bʰos* ~ *-*mos* (Sihler 1995: 248, 251-252). It is clear that in the *o*-stems, Phrygian adopted the instrumental plural ending for the dative plural. This did not happen in the consonant stems, however; the Phrygian data is incompatible with the PIE athematic instrumental plural ending: *-*bʰi* (CIEL 186) or *-*bʰis* ~ *-*mis* (Sihler 1995: 248).[199] Rather, the Phrygian ending -*eis* is a comparatively trivial analogical creation on the basis of the thematic type of endings: Proto-Phrygian *o*-stem dat. sg. *-*ōi* : dat. pl. *-*ōis* = *a*-stem dat. sg. *-*āi* : dat. pl. *-*āis* = consonant stem dat. sg. *-*ei* : dat. pl. X; X = *-*eis*.

[199] While Phrygian did not preserve an instrumental case into the historic period, the fact that PGPh. still possessed a separate instrumental plural case ending in *-*bʰi*-, as we can surmise on the basis of Mycenaean /-*pʰi*/ (García Ramón 2017: 655-656), means that this case form was still present in the earliest stage of Proto-Phrygian. Some fossilised forms showing this ending could have in principle been preserved into the historic period, though no such example is currently known. The expected reflex of PGPh. *-*bʰi* would have been $^{+}$-*bi* or $^{+}$-*b* with *i*-syncope.

The Greek dialects are notorious for showing a number of consonant-stem dative plural endings that must all be secondary creations of one kind or another: cf. Attic -σι, -εσι, Aeolic -εσσι (cf. Rix 1992: 157-158). These forms all show that a canonical ending for the consonant stem dative plurals had not emerged by the end of the Proto-Greek era, and, by extension, in the Proto-Graeco-Phrygian era either. Presumably, at the PGPh. stage, various innovative analogical endings would have been in competition in this category.

III.2.2.8 Accusative plural

Endings:
Old Phrygian: *-ais* (masc., fem.) (*braterais* 'brother' °B-04), $^{+}$*-a* (neut.)
New Phrygian: $^{+}$-αις (masc., fem.), $^{+}$-α (neut.)

In the masculine/feminine gender of the consonant stems, the Phrygian ending was OPh. *-ais*, which would have presumably developed into NPh. $^{+}$-αις (PhL 82, LL 1820, 1826). This is a direct reflex of PGPh. acc. pl. *-*n̥s* < PIE acc. pl. *-*ms* (PhL 82, LL 1826).[200]

[200] No accusative plural of an *i*- or *u*-stem is attested, but they are potential exceptions. As in the accusative singular of those stems, the nasal of the reflex of PIE *-*ms* would not have been vocalic in Proto-Graeco-Phrygian if the semivowel were the vocalised segment, giving PGPh. *-*i-ns, *-u-ns*. Whether such a PGPh. ending could have existed in the plural depends on whether an ablaut pattern that would see the semi-vowel vocalised was even possible at that stage. If so, the Phrygian reflexes of this type would have been PPh. *-*ijs, *-*ujs*, though the type would be extremely marginal and quite likely to be replaced with the far more common *-*ais* type ending.

The neuter accusative plural would not have been distinguished from the neuter nominative plural. The ending must then have been OPh. $^{+}$*-a*, NPh. $^{+}$-α (*ibid.*).

III.2.2.9 *s*-stem contractions

Due to operation of regular phonological developments, the original PGPh. *s*-stems would have been exceptional among the Phrygian consonant stems by having its suffixal consonant lost between two vowels. This would not have been problematic in the nominative/accusative singular, where the consonant would have been preserved in final position: e.g. nom./acc. sg. *bekos* 'bread' < PIE **b^{h}eǵ-os* (cf. PhL 81). In every other case-number form, the loss of an original intervocalic **-s-* would have resulted in two adjacent vowels: gen. sg. **-es-os,* dat. sg. **-es-ei*, nom./acc. pl. **-es-h_2*, etc. > PPh. **-e.os*, **-e.ei*, **-e.a*.

The rules of vowel contraction are poorly understood in Phrygian, and the attested reflexes of sequences of vowels that emerged through phonological developments are difficult to analyse due to analogical processes that would have affected such forms, not to mention the different chronology of when specific vowel sequences would have arisen. The only really unambiguous example of how an early vowel sequence developed is PIE gen. sg. pronominal **-o-so* > PGPh. **-oho* > OPh. *-ovo* (LL 1822).

The one likely attested case form that may show how vowel contraction affected the *s*-stems is the nom./acc. pl. form ακαλα (if belonging to the *s*-stem ακκαλος '(a type of bread)',[201] which is an appealing possibility) and the nom./acc. pl. form κενα (if belonging to $^{+}$κενος, which is far from

[201] For a discussion of the ακκαλος nominal, see §III.3.9.

secure). Based on this case form, the nom./acc. pl. of the *s*-stems would have developed from PIE *-*es-h₂* > PGPh. *-*eh-a* > EPPh. *-*e.a* > Phr. -*a*, with a contraction of the two vowels. If this example is taken as valid, we can at least see that the *s*-stems would not have restored any consonantal element once it was lost. The actual desinences of the other *s*-stem case-number forms would then have most likely developed according to regular phonological developments that affected sequences of vowels, whatever those may have been.

III.3 Nominal stems

There are two basic ways to form a nominal stem in Phrygian. The more common of the two nominal stem types are suffixed nouns, composed of a lexical root and one or more suffixes. The far rarer nominal stem type are the root nouns, whose nominal stem is simply identical to the root. This is basically how nominal stems were treated in PIE as well (CIEL 179).

A number of nominal stem types show two variants, one used in the strong cases (i.e. the nominative singular and plural and accusative singular) (cf. Meier-Brügger 2010: 336),[202] and one used in the oblique cases (i.e. all the rest). There is no indication that such an allomorphy ever appears in the thematic stem type (i.e. the *o*-stems and the *a*-stems) in PIE (cf. CIEL 211), a state of affairs that is continued in Phrygian.
From a PIE point of view, however, the distinction between the strong and weak-stem variants is expected to occur in all the non-static consonant-

[202] Do note that the strong stem can show two variants, one used for the nominative singular, and the other for the rest of the cases requiring the strong stem form.

final nominal stems.[203] Unfortunately, due to the sparsity of the Phrygian corpus, the number of instances where a noun is attested in both the strong and weak-stem variants is exceedingly small. Indeed, the only actual unambiguous example is: nom. pl. πατηρες 'father (NPl)', gen. sg. πατρος 'id. (GSg)'.

The distinction between the two variants was probably preserved synchronically in at least some stem types. By comparing attested Phrygian nominal stems that only appear in one of the two variants to the corresponding types in Greek and PIE, however, it will become clear that the distinction between the strong and weak stem variants in consonant stems was pervasive in Proto-Graeco-Phrygian and remained highly relevant in Proto-Phrygian as well. In PIE, the distinction between the strong and the weak stem variants was the result of ablaut. As a rule of thumb, the accent was moved rightward in the oblique stem variant (Meier-Brügger 2010: 336). **e*-vocalism was strongly associated with the placement of the accent in mobile stems, but no longer absolutely correlated by the latest stage of PIE (CIEL 176-177).

As in the other Indo-European languages, there is a marked tendency to reduce or remove the distinction between the strong and weak stem variants through analogical processes. Some of these date to the Proto-Graeco-Phrygian era already, whereas others only took place in Proto-Phrygian or later.

[203] For the purposes of classifying stem types, the synchronic Phrygian vowels /i/ and /u/ are to be understood as consonants, since they continue PIE **i̯/i̯* and **u̯/u̯* which were originally consonants in phonological and phonotactic terms.

The aim of this section is to examine the development and the synchronic status of all attested nominal stem-types in Phrygian.

III.3.1 Thematic stems

The thematic stems are by far the most common nominal stem type in Phrygian. They are defined as those nominals that form a stem ending with the thematic vowel *o* or *a*. As a result, we may subdivide thematic nominal stems into *o*-stems and *a*-stems.

In general terms, the thematic vowel *o* is characteristic of nominal formations in the masculine and neuter genders.[204] The thematic vowel *a* is usually characteristic of nominal formations in the feminine gender, but a number of masculine *a*-stems nouns exist which differ from the feminines in some case forms.[205]

Synchronically, for the most part, the *a*-stems serve as feminine counterparts to *o*-stem masculines and neuters. This is illustrated by thematic adjectives, which will, as a rule, decline as *o*-stems in the

[204] There do exist some *o*-stem feminines. These always take feminine syntactic agreement (e.g. σα σοροι W-11 'to this casket (dat. sg.)'), but most likely decline entirely identically to their masculine counterparts. Only a handful of *o*-stem feminine forms are attested, so this is not secure, but expected in light of Greek, where feminine *o*-stems are not declined any differently from the masculine *o*-stems. Henceforth, whenever masculine *o*-stems are mentioned, it is to be understood that feminine *o*-stems behave identically outside of syntactic agreement.

[205] These are treated in §III.3.1.10.

masculine and neuter genders, and as *a*-stems in the feminine gender (cf. PhL 76, 78).[206]

Thematic nominal formations display no ablaut alternations within a single paradigm, meaning there is no strong-weak stem distinction. In principle, then, any single case form can be used to extract the nominal stem from which all other case forms are predictable.[207] In the case of thematic adjectives, a single form in any gender should be enough to predict all other gender-case-number form combinations of that adjective.

A great number of Late PIE nominal suffixes were thematic in nature, composed of the thematic vowel (i.e. **o* or **ā* < **eh₂*) preceded by varying consonantal elements. The majority of these suffixes were used to form adjectives, which could subsequently be substantivized. Phrygian shows a considerable number of these; where identifiable, each will be treated in a separate section below.

III.3.1.1 *o*-stem basics

The *o*-stems are primarily of masculine or neuter gender, though a limited number of feminine nouns also belong to the category of *o*-stems (PhL 78-80).[208] The masculine/feminine and neuter *o*-stems only decline differently in the nominative and the accusative of both singular and plural, but are treated identically in all other cases.

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[206] This still mostly holds for male-female noun pairs, but it is also possible such a pair may differ in terms of word-formation as well. Such disparate pairs may be archaic or innovative.
[207] This is notably not the case in athematic, i.e., consonant stems.
[208] See footnote #204 above.

The masculine *o*-stems take the ending *-os* in the nominative singular, *-on* in the accusative singular, *-oi* in the nominative plural, and *-ois* in the accusative plural (§III.2.1).
The neuters never distinguish between the nominative and accusative cases. The neuter *o*-stems take the ending *-on* in the nominative-accusative singular and *-a* in the nominative-accusative plural (§III.2.1).

III.3.1.2 *a*-stem basics

The *a*-stem nominal formations are normally associated with the feminine grammatical gender. The *a*-stem adjectives all exclusively refer to the feminine gender (PhL 76-78).[209]
The *a*-stem masculine nouns are an innovation of Proto-Graeco-Phrygian that persevered into attested Phrygian. The majority of attestations of this type are for personal names, which suggests the category was heavily bolstered by incorporation of non-native onomastic material (PhL 77, LL 1825). For further discussion, see §III.3.1.10 below.

III.3.1.3 Simple thematic stems

Relevant examples: *benagono-* 'PN?', *deo-* 'god', *kako-*/κακο- 'bad', *vreko/a-* 'sculpture', μανκα- 'stele'

The simple thematic stems are characterized by being composed of a lexical root and a suffix that consists of the thematic vowel alone.

[209] The one known exception is the adjective *meka-*/μεκα- 'great, big', which declines as a masculine *a*-stem in that gender.

The examples we have available suggest that the pure thematic vowel suffix could attach to a root in either *e*- or Ø- ablaut grade:

Ø-grade: **dʰh₁s-o-* > *deo-*

**mn̥ḱ-eh-₂-* > μανκα-

e-grade: **u̯reǵ-o/eh₂-* > *vreko/a-*

The example *vreko/a-* appears to be descended from a Schwebeablaut variant of the PIE root **u̯erǵ-*. Greek ἔργον and ἔρδω preserve the ablauting vowel in the expected slot, as reconstructible from other IE languages (LIV$_2$ 686-687), though there also exists a verbal form ῥέζω < **u̯reǵ-je/o-* with the full grade vowel in the historically unexpected slot. We might attempt to explain this disparity between Greek and Phrygian as arising from the co-existence of both **u̯erǵ-* and **u̯reǵ-* in PGPh.[210] We may suppose that PGPh. reflexes of the root **u̯erǵ-* only appeared in zero-grade formations, once such example being Mycenaean *wo-ze* 'work (3sg ind. present)' < **u̯r̥ǵ-je/o-*, and that the full grades were secondarily reintroduced into the formations we find attested.[211] At the Proto-Phrygian stage, the simple nominal formation would have actually been **u̯r̥k-o/a-*. Only subsequently would the full-grade be re-introduced into the root, presumably on the basis of other full-grade simple thematic nominal stems (which might have coded for some specific semantics), with the full-grade

[210] Most accounts of Schwebeablaut presuppose it emerged when a formation in zero-grade could not be synchronically related to a full-grade root, thereby necessitating the creation of a neo-full-grade which need not have placed the ablauting vowel into the historically expected slot. If the inherited full-grade version of the root actually appeared in a transparent manner, there would have been no reason to create a neo-full-grade and there would have existed no Schwebeablaut variant.

[211] The vowel appearing in the expected slot in Greek ἔργον, when compared with, e. g. German Werk < PIE **uerǵom*, would then be the result of chance.

vowel *-e-* appearing in a historically unexpected place. This explanation is attractive in light of the proposal given in §II.3.2.2.2 that Proto-Phrygian **C̥rC-* would vocalize as *CroC* (or, at the very least, *CrVC*): the re-inserted vowel *e* would have then taken the place of the vowel that appeared in zero-grade forms. The sequence of developments would then be: PPh. **u̯r̥k-o-* > (regular phonetic development) **u̯rok-o-* >> (re-introduction of the full grade) *vrek-o-*. This scenario suggests, if nothing else, that pure-thematic-vowel suffixes with *e*-grade in the root were still a productive category of word-formation in Phrygian after the resonants had vocalized.

The use of an *o*-grade in the lexical root in this type of construction is not attested in Phrygian. Due to the fact that some other thematic suffixes do appear with *o*-grade in the root (i.e. *korvo-, ordo-*) and that *o*-grade pure-thematic-vowel suffixed nouns and adjectives were an extremely common type in Greek and PIE, suggesting they held this status in PGPh. as well, we would certainly expect this type to appear in Phrygian as well. The lack of examples must be due to chance.

Nevertheless, the example *vreko-* shows that its immediate predecessor **vroko-*, where the root would have been synchronically misanalysed as appearing in the *o*-grade, but actually originating in **u̯r̥k-o-*, shifted its apparent *o-o* type ablaut to an *e-o* type. Precisely why such a shift from an *o-o* type to an *e-o* type could have occurred and how common the development was is unclear. A phonological explanation that would assume some sort of vowel dissimilation or vowel disharmony does not appear to be supported by language internal evidence; most likely, an *e-o*

type noun would have had some specific semantic nuance that would differentiate it from an *o*-*o* type.[212]

III.3.1.4 -(*e*/*i*)*i̯o*- suffixed nominal formations and reflexes of *-*ih₂*-stems

Relevant examples:

jo- and *ijo*-types: *a↑io-, patriyo-* 'fatherly[?]', *(por)niyo-,* ονομανια- 'named', (ποκ)γονιο-, ποκραιο-

ejo- and *eja*-types: *dumeya-* 'pertaining to the religious community', *evememesmeneya, imeneia, kubeleya* 'DN', *k↑ianaveyo-* 'PN', *lagineyo-, mireyo-, tiveia* 'PN[?]', γλουρεο- 'golden', μαιμαρηα-, ρεκτεο- 'monument', τεμρογειο- 'of Temrogis'

iya-type*: kraniya-* 'spring, fountain[?]', *niptiya-* 'niece, granddaughter', νενυεριαι 'PN', ουεναουια- 'PN'

The analysis of thematic adjectives that were suffixed with *-(e/i)jo-* is greatly complicated by how precisely we analyse the attested material. There can be no doubt that *-ejo/a-* was a prominent suffix in Old Phrygian, as evidenced by OPh. *dumeya-* 'pertaining to the religious community', *evememesmeneya-* '(?)', *teveya-* '(?)', *kubeleya-* 'Cybele (divine name)', *tiveya-* 'PN[?]', etc. (PhL 84-85) On the other hand, formations derived with

[212] Whether this means that one can consider this particular segment of Phrygian morphology as fundamentally non-concatenative, i.e. transfixal, depends greatly on how one interprets the underlying system. We may only note that this derivational pattern would not have been fundamentally innovative: a change in an ablaut pattern (such as the one underlying Gk. πόντος 'sea' ~ πάτος 'path') would have been semantically distinctive, if perhaps only marginally, in Late PIE already. That situation can also be synchronically analysed as showing the presence of transfixes, if one followed a specific framework of analysis.

the suffix *-*jo*- would have seen the coalescence of *-*j*- with a previous consonant in many environments, presumably not all of them identifiable or even synchronically parseable to the speakers, with some *-*jo*-formations appearing with the *-*ijo*- Sievers variant of the suffix.

The inherited *-*ih₂* feminines of PIE are covered in this section as well (cf. PhL 85). One example of an *-*ih₂* feminine we have attested can hardly be disputed: *niptiya* 'granddaughter, niece' quite faithfully reflects PIE **nep-t-ih₂* 'id.'> **nept-i̯a* > *niptiya*,[213] with the caveat that its suffix appears in its Sievers variant *-*i̯ih₂* (PhL 85). Another example of a *-ja* feminine is *kraniyas* °B-05, though this is most likely a secondary derivation of a noun ultimately loaned from Aeolic κράννα 'spring, fountain' (PhL 279). It should be noted here that *-*ih₂* was the suffix most commonly used in PIE to derive feminines from masculine nouns in athematic stems.

In synchronic Phrygian, the evidence quite clearly suggests that feminine nominal derivatives to non-feminine consonant-stem nouns are formed by the addition of the suffix *-eja-*. This is evidenced by the pairs: *tiv-* 'Ti-' ~ *tiveya-* 'PN (pertaining to Ti-)', δουμ 'religious community' ~ *dumeya-* 'pertaining to the religious community'. Comparing this to the PIE pattern and the still preserved pair *nepos* 'grandson, nephew' (< **nep-ōt-s* 'id.') ~ *niptiya* (< **nep-t-ih₂*), *iman* 'memorial; PN' ~ *imeneya* 'pertaining to Iman', there is an unmistakable pattern. If we take *tiveya* and *dumeya* at face value,[214] the *-*Vja*- suffix seems to have been used in a feminizing function, to form either a related adjective or a noun.[215] The non-low

[213] With the *i* of the first syllable being the result of a regular development PPh. *$e_{[\text{-accent}]}$ > OPh. *i* / _CC. See §II.3.4.

[214] That is, not assuming they are spelling or phonetic adaptations of earlier **tiviya* and **dumiya.*

[215] Indeed, in some cases the *eyo*-derivative would become used as a generic noun (e.g., in *kubeleya* from **Kubela* (cf. Gr. Κυβήλη)).

vowels are known to have been somewhat phonetically ambiguous in certain environments, e.g. before a nasal. Quite likely, old sequences *-*ej*- and *-*ij*- might have resulted in phonetically very similar realizations, and it is questionable whether we can expect complete consistency in their spelling.[216]

By New Phrygian times, the issue of identifying historically entirely different formations would be further compounded by spelling ambiguities; for instance, ονομανια- 'named[?]' may just as well reflect an earlier [+]*onoman-ja*- or [+]*onoman-ija*, with the Sievers variant of the suffix. The nominal derivations ρεκτεο- 'monument[?]' and γλουρεο- 'golden (things[?])', on the other hand, see the *j* graphically dropped in intervocalic position.[217],[218]

The suffix -*ejo/a*- certainly appears to have been used at some stage to form adjectives out of a previous nominal formation (PhL 84-85); γλουρεος and *dumeya* seem to confirm this view. Most likely, the suffix -*ejo/a*- was originally an adjective-forming suffix that subsequently saw some of the derived adjectives nominalized (e.g. *tiveya* 'PN', *k↑ianaveyos* '(religious title)'). Its primary function, at least outside the feminine gender, must have remained adjective-forming (PhL 84-85), as suggested by Τεμρογειος

[216] Such a conflation would undoubtedly be related to the spelling uncertainty regarding the reflex of *e_2.
[217] There is no evidence that *j* was actually dropped phonetically. Rather, this is the result of the conventions of spelling contemporary Greek, which had no phonemic /j/.
[218] There is no way to be certain ρεκτεον actually reflects an -*ejo*- formation and not an -*evo*- formation, other than supposition. On the other hand, γλουρεος is supported by the Hesychian glosses γλουρος 'golden' and γλουρεα 'golden things', suggesting this derivation is an -*ejo*-adjective of material, with the meaning 'made of gold', of the type paralleled in Greek; cf. ἀργυροῦς < *αργυρέος < *h_2*(e)rgu-r-e̯jo*- (Risch 1974: 131-134).

'pertaining to Temrogis', an adjective derived from the (possibly non-native) river name Temrogis.

The simple suffix derived from PIE *-*io*- > PGPh. *-*jo*-, as mentioned, is not as readily identifiable. ονομανια- and *patriyo*- 'fatherly[?]', however, are quite clear examples of this suffix being used; it is ambiguous whether ονομανια- represents /onomanja-/ or /onomanija-/, but it seems quite clear *patriyo*- shows a Sievers variant *-*ijo*- in its expected environment, i.e. after a heavy syllable. We may conclude on the basis of *patriyo*- that when forming a denominal adjective, the *jo*-suffix attaches itself to the weak stem of the noun, in this case *patr*-.

The pervasiveness of these types of constructions suggests that other attested forms ending in *-iyo/a-* or *-eyo/a-* or some variants thereof are likely to belong to this class, though this is by no means certain for all.

III.3.1.5 -(*e*)*vo*- suffixed nominal formations

Relevant examples: *ktevo*- 'acquisition[?]', *ordo*- 'proper[?]', κορογα- 'girl'

The Phrygian forms that appear to show the presence of the suffix *-*(e)uo*- are few and somewhat ambiguous to analyse. While *ktevo*- showing this suffix is beyond reproach, *ordo*- and κορο-ο/α- /koru̯-o/ā-/ are more ambiguous and will be treated first.

The interpretation of *ordo*- as showing a reflex of the PIE *-*uo*-suffix is predicated entirely on one's analysis of *ordoineten* °B-07. As argued elsewhere (see §V.3.1.2), *in=et*- is a verbal form cognate with Greek

*ἐνέδω (only attested in the aorist as ἐμφάγω 'to eat one's full'), with *ordo-* modifying the verb. The context of the inscription in question does lend itself to an analysis that sees the verbal form *ordoinet-* as referring to someone executing the funerary feast (i.e. 'to eat one's full' (ἐμφάγω) =~ *inet-*), where *ordo-,* as a modifier of the verb, can be understood as being etymologically related to Greek ὀρθο-, with the whole verbal complex *ordoinet-* meaning 'to eat/feast in a proper/proscribed manner'. If this is the case, both Phrygian $^{+}$*ordo-* and Greek ὀρθο- are regular developments of a PGPh. adjective *ord^{h}-u̯o-* 'proper, straight, correct' (EDG 2010: 1101).[219] Obrador-Cursach (2021b: 54), though differing in his analysis of the entire form *ordoineten*, likewise assumes that Phrygian $^{+}$*ordo-* is cognate with Greek ὀρθο-. PGPh. *ord^{h}-u̯o-* is itself a regular reflex of a PIE adjective *$h_3(e)rd^{h}$-uo-* 'upright, erect, straight', which also has attested descendants in Skt. *ūrdhvá-* and Latin *arduus* (EDG 2010: 1101). Phrygian $^{+}$*ordo-* and Greek ὀρθο- are wholly ambiguous in terms of the ablaut grade found in the lexical root, but since both Sanskrit and Latin suggest the adjective had a zero-grade in PIE, the same likely holds for Proto-Graeco-Phrygian.[220]

The existence of a Phrygian $^{+}$*korvo-* is assumed on the basis of two forms found in MPh. inscription °W-11, assuming the segmentation is correct: κοροος 'boy' and κοροαν 'girl (ASg)'.[221] Lubotsky (2017: 440) suggests that κοροαν /koru̯ān/ is actually the Phrygian word for 'girl' in the

[219] The loss of *u̯ in Proto-Phrygian is regular before *o.
[220] While ὀρθοέδω is not attested in Greek, the use of ὀρθο- in a complex verb meaning 'to do X properly' is attested copiously in Greek (e.g. ὀρθογνωμέω, ὀρθογνωμονέω 'to think properly' and others). The use of *ord^{h}-uo-* as a verbal prefix is likely of Proto-Graeco-Phrygian age already.
[221] Segmentations have been attempted where κορο is taken as a separate word, but Lubotsky (2017: 440) makes a compelling argument that κοροαν [*korwān*] is a single word, which applies equally for κοροος [*korwos*].

accusative singular case, with this noun being directly comparable to Greek κόρη < PG **koru̯ā-*. If this is upheld, κοροος, in a more uncertain semantic context, can also be interpreted as **korvo-*, comparable to Greek κοῦρος < PGr. **koru̯o-* (Chantraine 1999: 567-568). **korva-* 'girl' and **korvo-* 'boy' are clearly simply a pair of thematic nouns, the feminine one being an *a*-stem and the masculine one being an *o*-stem. An important question regarding these two terms is whether they are native, i.e. inherited from Proto-Graeco-Phrygian, or loaned from Greek, specifically from a dialect that preserved the old **ru̯* cluster, i.e. a loan from Proto-Greek **κορϝο/ᾱ-* or dialectal Greek **κορϝο/ᾱ-* regularly descended from this Proto-Greek term. A Proto-Graeco-Phrygian **kor-u̯o/ā-* would have regularly developed into the attested Greek and Phrygian forms.[222] On the other hand, the attested Middle Phrygian term may well have ultimately been borrowed from Greek at any point since the two languages separated.[223] For the time being, no clear judgement is possible. It is true that κορο-ο/α- is only attested after Phrygian found itself spoken in an increasingly Hellenized environment in the 4th century BCE, but the presence of /u̯/ suggests that the term, if it were borrowed this late, would need to have been adopted from some local variety of Greek that differed quite substantially from canonical Koiné; there is, however, no evidence that the local variety of the Koiné at the time of Alexander preserved any trace of an old digamma. More likely, if the term were borrowed in the Koiné era,

[222] While it is true that PPh. **u̯* was lost before **o*, meaning we would expect a masculine PGPh. **kor-u̯o-* to surface as Phrygian ***koro-*/κορο-, the close association of masculine **kor-u̯o-* > PPh. **kor-o-* 'boy' and feminine **kor-u̯ā-* > PPh. **kor-u̯ā-* 'girl' would have greatly facilitated the re-introduction of **u̯* into the masculine paradigm once the sound law was no longer operational. Such a development is so trivial that it can hardly be an argument against direct descent of attested Phrygian κοροος.

[223] Depending on when such a supposed borrowing would have taken place, the argument from the previous footnote applies equally.

it would need to have originated in a sub-standard local dialect, which seems somewhat dubious. Thus, there is hardly any reason to assume that the borrowing of *korvo/a-* would have been in any way related to the Hellenization of Asia Minor in the 4th century BCE; rather, if the term was indeed loaned from Greek, it would have been due to the simple fact that Greek and Phrygian were spoken in close proximity, not due to a situation where Greek was a clear superstrate. In this case, then, there is no reason to assume that the borrowing must be late (though, admittedly, it may well have been). Thus, there really are no clues which could help us ascertain whether Phrygian $^{+}$*korvo/a-* was loaned from a Greek dialect or whether it developed regularly from a Proto-Graeco-Phrygian **kor-u̯o/ā-*. Ultimately, the question hinges on what the etymology of Greek **koruo/a-* actually was.

The nominal stem *ktevo-*, appearing in the dative plural *ktevoys*, cannot be divorced from the verbal form *ektetoy*, which appears in the same inscription.[224] The nominal form itself is fairly uninformative in context beyond suggesting that the suffix appearing in it is either *-evo-* or *-vo-*, depending on the type of formation being used. An analysis of the verbal form performed in §V.3.2.2 shows that the second *e*-vowel of *ekt<u>e</u>toy* is not an element of the lexical root (i.e., not a reflex of an earlier **h₁*), but rather the thematic vowel. On this basis, then, we must conclude that *ktevo-* is an *evo*-type formation belonging to a lexical root that surfaced as *kt-* in this context, thereby necessarily being in the zero-grade. Based on a contextual reading and further formal analysis of the verbal form, the lexical root underlying *ktevo-* ultimately likely originated in PIE **g^{h}ed-* 'to seize' (cf.

[224] As well as, possibly, in New Phrygian εκτε[.

Gr. χανδάνω) (cf. LIV$_2$ 194). The nominal formation *ktevo-* is likely to mean ‘an acquisition *vel sim.*’.

III.3.1.6 -(*e*)*to*-suffixed nominal formations

Relevant examples: *spereto-* ‘seed[?]’, *torveto-* ‘tree[?]’, δετο- ‘monument’, ομαστο-

The nominal forms with a(n) *(e)to*-suffix in Phrygian seem to behave roughly the same as (ε)το-suffixed nominals in Greek.

In PIE, the suffix *-*to-* was used to form verbal adjectives from verbal stems (Meier-Brügger 2010: 421). The function of the suffix was evidently expanded in Proto-Graeco-Phrygian to allow its use in denominal constructions as well (Risch 1974: 21). The distribution of the variants *-to-* and *-eto-* in Greek is still contested.

Of the four nominal forms with the suffix *-(e)to-* that are attested in Phrygian, one, ομαστο-, is entirely enigmatic; the meaning of the term (which syntactically appears to be used as a noun, not an adjective) is currently unclear (PhL 317) and, as such, no further comment is possible.

δετο- most likely means ‘monument’ and is apparently a nominalized verbal adjective originating in PIE *$d^{h}h_1$*-to-* ‘placed’, with the semantic development ‘a thing placed’ >> ‘monument’ (PhL 212). We may note that the formation was formed in zero-grade. In any case, the specific formation *$d^{h}h_1$*-to-* is surely old, as is evidenced by the comparanda Gr. θετός, Skt.

dhita-. The semantic development into 'monument' appears to be a Phrygian innovation.

torveto- has only recently been associated with PIE **doru* 'tree' on the basis of a Greek addition to inscription °B-05 including the term δρυν (cf. Hämmig 2013: 150-152, LL 1823). The protasis of the imprecative formula in the inscription reads *ivimun inmeney asenan daket torvetun ↑iray* '(whoever) to-this[?] memorial *asenan* does *torvetun* by-hand'.[225] Hämmig (2013: 150) and Obrador-Cursach (PhL 364) argue that the form *torvetun* is a nominative singular form of the participle of a verb derived from the noun for 'tree' that pertains to the cutting of trees (presumably **torv-e-t-on(t))*; the protasis would then mean something like '(whoever) to-the memorial *asenan* does cutting-the-trees by-hand'. But more attractive is the interpretation that *torvetun* is a noun in the genitive plural derived from the noun for 'tree' with a similar meaning that modifies the noun *asenan*; the protasis can then simply read '(whoever) to-the memorial does an *asenan* of-trees by-hand'.

Derivationally, it is simplest to posit that PIE **doru* 'tree' was extended with the suffix **-eto-*: **doru-* + *-eto-* > **doru̯eto-* > *torveto-*. This specific form is likely quite old: it must have originated at a point when the vocalization of semi-vowels was still allophonic, which was almost certainly before the disintegration of Proto-Graeco-Phrygian.[226] Assuming a participle to a verb with the stem **torvet-e/o-* derived from the word for 'tree' is more problematic, since it is difficult to explain a participial formation having an **-et-ont-* conglomeration of suffixes.

[225] The expected indefinite pronoun *yos* 'whoever' is not explicitly expressed in this protasis due to having already appeared earlier in the inscription. See further in §IV.10 under *ivimun*.

[226] Otherwise, we would expect PPh. **toru* + **-eto-* to surface as ***toruveto- vel sim*.

Finally, *spereto-* also appears to use the suffix *-*eto-* and syntactically functions as a noun, but the semantics are not perfectly clear. As has been suggested before (Lubotsky 1997: 125), *spereto-* may mean 'seed', which would mean the root element was a reflex of PIE **sper-* 'to sprinkle, scatter', which underlies Greek σπείρω 'to sow'. Semantically, this may fit: the clause in which this word appears reads *yos tivo ta spereta ayni kin telemi* °B-01 'whosoever *tivo* these *spereta* or some *telemi*', but the following clause is too fragmentary to be properly analysed. If this identification is correct, in terms of word formation, *spereto-* is an *eto-*adjective built to a verbal root **sper-* in the full grade.[227]

III.3.1.7 -*ro*-suffixed nominal formations

Relevant examples: μακρο- 'big', μμυρο- 'foolish', δρεγρο- 'edible'

Two *ro*-stem nominals that appears in Phrygian both have clear cognates in Greek: NPh. μακρο- 'long' is cognate with Gr. μακρό- (cf. CIPP2 18), both originating in PGPh. **makro-*, and NPh. μμυρο- 'foolish' with Gr. μωρό- 'stupid, foolish', both presumably originating in PGPh. **mōro-* (Orel 1997: 446).[228]

[227] While the semantic context is admittedly ambiguous, it seems questionable with our current knowledge of Phrygian suffixes and Indo-European word-formation patterns to attempt to decompose *spereto-* into anything beyond a lexical root *sper-* and a derivational morpheme *-eto-*. A Phrygian lexical root *sper-* can hardly reflect anything other than PIE **sper-*.

[228] It is also possible that the Greek and Phrygian terms are not related at all and that Phrygian μμυρο- is actually a reflex of older **mŭro-*, in which case the closest comparandum of the Phrygian term is Skt. *mūrá-* 'foolish' (cf. EDG 992).

PGPh. **makro*- is a reflex of a PIE adjective **mh₂ḱro*- 'long', also reflected in Latin (*macer*) and Germanic (OHG *magar*) (EDG 2010: 895). The short vowel of Greek confirms that the root of this adjective was in the zero grade in PGPh.; presumably, the vowel remained short in Phrygian.

PGPh. **mōro*- has no cognates outside the Graeco-Phrygian subgroup. If the lexical root descends from PIE, it can be transposed as **meh₃*-. Should that be the case, a full grade is needed in **meh₃-ro*- > PGPh. **mōro*- to account for Greek μωρό- and NPh. μμυρο- < OPh. $^{+}$*mōro*-.

Another *ro*-nominal appearing in Phrygian is τιδρεγρουν < **tis-dreg-ro*-, where the root element **dreg*- is cognate with Greek τρέφω 'to feed', both from the PIE root **dʰregʷʰ*- (PhL 358). The whole nominal likely means 'inedible', composed of the particle τι- 'un-, dis-' and the adjective δρεγρουν 'edible' derived from the full-grade of the verbal root (*ibid.*).

Little more can be said about the class of *ro*-nominals in Phrygian; the treatment and development of this class of nominals appears to be identical to that of Greek based on the data that is currently available.

III.3.1.8 -*elo*-suffixed nominal formations

Relevant example: ζεμελο- 'man'

The only Phrygian nominal form with a suffix -(*e*)*lo*- is the copiously attested ζεμελο-, which appears exclusively in the dative plural form ζεμελως (PhL 85).

The meaning 'man' has been ascertained early in the history of Phrygian studies (Ramsay 1905 *apud* Lubotsky 1998: 419) and the term is also attested as a Hesychian gloss: ζεμελεν . Ανδραποδον. Φρύγες. 'slave. Phrygian*'* (Lubotsky 1998: 419).[229]

Etymologically, the element ζεμ- is derived from the PIE noun **dʰeǵʰom-* 'earth, ground'[230] and the attested nominal form ζεμελο-, originally 'earthling', can be transposed in its entirety as PIE **dʰgʰem-elo-*. A similarity between Phrygian ζεμελο-, Greek χθαμαλός 'low, near the ground', and Latin *humilis* 'low' is evident, but the Greek and Latin terms are adjectives, whereas Phrygian ζεμελο- is a noun. In any case, the three forms cannot be formally reconciled (cf. de Vaan 2008: 292); Greek χθαμαλός shows *a*-vocalism that suggests a preform **dʰgʰmh₂-elo-* (with the unexplained addition of **h₂*), while Latin *humilis* is synchronically an *i*-stem that developed from an original *l*-stem: **dʰgʰem-el-* > **hum-il-* + *-i-*. Most likely, then, Phrygian ζεμελο- is a language-internal creation, though one potentially based on the same *l*-stem that developed into Latin *humilis.*

III.3.1.9 The adjective *meka-*

The adjective *meka-* 'great, big' occupies a special place in Phrygian grammar (PhL 78). Originally belonging to an ablauting paradigm, it developed a special type of a declensional pattern. The masculine and

[229] The translation is apparently somewhat imprecise. The unexpected spelling of the expected accusative singular ending -ο(υ)ν as -εν needs to be understood in the context of the New Phrygian development -$V_{[\text{-low}]}n$ > [ə̃], which would not have a clear phonetic equivalent in Greek.

[230] For the semantics, compare Latin *homō* 'man', Gothic *guma* 'id.', Old Lithuanian *žmuõ* 'person', all from PIE **dʰgʰ(e)m-on-*, which is a derivation from **dʰeǵʰom-* (de Vaan 2008: 287).

feminine forms of the pronoun are identical, which separates *meka-* from the usual *a*-stem type.

The attested case forms of the adjective *meka-* 'great', all in the masculine/feminine gender are:

	meka-	
	OPh.	NPh.
nom.	*mekas*	μεκας
dat.		μεκα
acc.		μεκαν
dat. or acc. pl.	*mekais*	

Table #19: The attested case forms of the Phrygian lexeme *meka-* 'great, big'.

In PIE, the adjective **meǵ-h₂-* declined as a very archaic holodynamic *h₂*-stem: nom. sg. **méǵ-h₂* ~ acc. sg. **mǵ-éh₂-m* ~ obl. **mǵ-h₂-´* (EDG: 8, 917-918).

This declensional type must have persisted into Proto-Graeco-Phrygian, at least initially, as is clear from the following Greek forms: nom. sg. μέγᾰς, descended from PIE nom. sg. **meǵh₂s*, the adverb ἄγᾱν from acc. sg. **m̥ǵeh₂m*, neuter nom./acc. sg. μέγᾰ from **meǵh₂* (EDG: 7, 8, 917-918). The original masculine/feminine accusative ἄγᾱν of Greek was later replaced in the masculine by an analogical μέγᾰν, but remained preserved as a fossilized form in the adverb ἄγᾱν 'too much'.

The oblique masculine/neuter singular forms of the adjective in Greek show the addition of a suffix -λο-: gen. sg. μεγάλου, dat. sg. μεγάλῳ (*ibid.*). The same suffix was also used to create an entirely innovative separate Greek feminine paradigm μεγάλη, and provided the stem for the non-

singular numbers. The only forms in Greek that preserve the stem without the addition of -λο-, then, are: nom. sg. masculine μέγας, old acc. sg. masculine/feminine *ἄγᾱν, analogical acc. sg. masculine μέγαν, nom./acc. sg. neuter μέγα.

Greek is exceptional among the Indo-European languages by preserving the direct reflex of nom. sg. masculine ***mégh₂-s*** > μέγᾰς and acc. sg. masculine ***m̥gh₂-eh₂-m*** > ἄγᾱν.
Phrygian is, perhaps, even more exceptional in this respect. While it is true that we cannot graphically ascertain the length of the vowel in Phrygian nom. sg. *mekas*/μεκας, the exceptional nature of the Phrygian declension lies in the fact that the nom. sg. of both the masculine and the feminine forms ends in *-s*: *Iman mekas* ‘great Iman (masc.)’ °P-03, *devos ke mekas* ‘great god (masc.)’ °P-03, μανκα μεκας ‘great stele (fem.) °W-11. Even if the quantity of the preceding vowel changed (and that is unlikely), this serves as a remarkable proof that the original PIE *h₂*-adjective ***megh₂*** did not distinguish between the masculine and feminine genders, but rather preserved the ancient animate-inanimate distinction.
Also highly relevant is the fact that the Phrygian oblique cases were not formed with the addition of a *lo*-suffix, which was the case in Greek. Certainly, the Germanic data suggests that there did exist a *lo*-derivative from ***megh₂*** in PIE already (EDG: 918), one which ultimately supplied the Greek stem μέγαλο- of the oblique stems, but its absence from the Phrygian paradigm shows that the generalisation of the *lo*-type in Germanic and the *lo*-type in the oblique cases in Greek were independent processes.

Let us elaborate on the identity of the masculine and feminine nominative singular endings in Phrygian. In Proto-Graeco-Phrygian, old *h₂*-stems

developed into the non-ablauting *ā*-stems of the feminine gender that served as counterparts to the *o*-stem nominals (cf. also Fortson 2004: 119). Proto-Graeco-Phrygian is exceptional in its treatment of old *eh₂*-stems by way of having innovated a masculine *ā*-stem category: the usually feminine *eh₂*/*ā*-stems could be assigned a masculine gender by changing their declension by using endings of the *o*-stem type, i.e. by optionally adding an ending *-*s* in the nominative singular (adopted from the masculine *o*-stem *-*o*-*s*) and also, most likely, by using the genitive singular ending *-*so* after *-*ā*- (adopted from the masculine *o*-stem *-*o*-*so*) instead of the usual feminine *ā*-stem desinence *-*ās*.[231]

In this highly relevant innovation of Proto-Graeco-Phrygian, a fundamental formal difference would begin to emerge between the feminine *ā*-stems and the masculine *ā*-stems. The nominative singular case form of the former would have been *-*ā*, whereas the latter would have also begun to utilize the ending *-*ās*. In addition, the vowel length of the two types of neo-thematic *ā*-stems would have certainly been levelled throughout the paradigm.

Taking into account the Phrygian and Greek data combined, the declension of the reflexes of the paradigm of PIE **meǵ-h₂* would have been entirely dissimilar to both types. As we may glean from Greek μέγᾰς, the declension of this adjective certainly did not belong to the masculine *ā*-stem type, which should have shown a long vowel. Conversely, the Phrygian nominative singular forms of both the masculine and the feminine were identical and, as such, cannot be a part of the emerging masculine-feminine *ā*-stem differentiation.

[231] For the genitive singular of the *a*-stems, see §III.2.1.2.

The PIE adjective **meǵ-h₂* must have then showed an idiosyncratic, or at least uncommon, paradigm type in Proto-Graeco-Phrygian, as neither of the languages show the expected productive differentiations at that point.
The Greek example ἄγᾱν definitely confirms that, at least initially, Proto-Graeco-Phrygian still preserved an ablauting paradigm in this adjective (EDG 8). [232] Nevertheless, since Greek only preserved this archaic accusative singular form as an adverb, it is possible that the form became fossilised early in Proto-Graeco-Phrygian already, with both languages adopting PGPh. **n̥gă̆n* in an adverbial sense and Phrygian either losing the expected **ankan* entirely or it not being attested. Should that have been the case, this old accusative would have been replaced by an analogical PGPh. **megăn* that would regularly develop into Greek μέγᾰν and Phrygian *mekan*. If we assume the old ablaut pattern to have persisted until after the disintegration of Proto-Graeco-Phrygian, both languages would need to have independently innovated their new accusatives singular on the basis of the nominative singular.
What we may be sure of is that the declension of PGPh. **megă-* certainly did not adopt the long *ā* vocalism of the *ā*-stems before the two languages separated; otherwise, the short vocalism of the Greek-specific λο-derived stem μέγᾰλο- cannot be explained.

It is unclear whether the Phrygian adjective *meka-* ever adopted *ā*-vocalism in any of its case forms, since we can make no judgement regarding the

[232] Also of note is the fact that the zero grade of the adjectival root **meǵ-* 'big' underlies the Greek intensifying prefix ἀγα- (< PIE **mǵh₂-*), comparable to the Avestan intensifying prefix *aš-* (< PIE **mǵs-*) (EDG 7).

length of the vowel in nom. sg. *mekas*/μεκας, acc. sg. μεκαν, dat. sg. μεκα, or dat. pl. *mekais.*[233]

III.3.1.10 Masculine *a*-stems

Relevant examples: *atas* 'PN', *atatas* 'PN', *baba* 'PN', *iyungidas* '(patronymic)', *kaliya* 'PN', *kuliyas* 'PN', *mamutas* 'PN', *midas* 'PN', *tatas* 'PN', μας 'DN', μιτραφατα 'PN', πουντας 'Pontic'

The masculine *a*-stems are declined identically to the feminine *a*-stems, with the exception of the nominative singular, where they often have a sigmatic desinence *-as* (PhL 76-77; §III.2ff.). This addition of *-*s* to *a*-stems of a masculine gender is an innovation of Proto-Graeco-Phrygian. The genitive of the masculine *ā*-stems is not attested in Phrygian, but it likely adopted the pronominal ending *-*ho*, as was the case in Greek (i.e. -ᾱο < **ā-ho*) (García Ramón 2017: 658, §III.2.1.2).

In Phrygian, the attested masculine *a*-stems are primarily personal names of a non-native origin: *Atas, Atatas, Midas, Mamutas, Tatas*.

In some cases, masculine *a*-stem names do not show the expected desinence *-as,* as is the case in *Baba,* Μιτραφατα (loaned from Iranian), and *Kuliya* (PhL 76-77). Indeed, one personal name appears in the corpus in isolation as both *Ata* and *Atas.*

Πουντας is used as an epithet of the deity Bas and, due to the preservation of the *nt*-cluster, cannot be native. The lexical stem *pont-* is presumably ultimately borrowed from Greek πόντος 'sea (or specifically Black Sea')

[233] Dat. sg. μεκα in particular can just as easily be a reflex of **mekăi* or of **mekāi*, since both could have developed into NPh. μεκα; see §II.3.3.1. Note that the variant with *ă,* i.e. **mekăi*, can be directly compared to Skt. *mahé* < **meg-h₂-ei*.

or a derivation of it, with Πουντας Βας meaning 'Pontic Bas, Bas of the Pontus' (LL 1822).

Iyungidas is a patronymic appearing in °B-07 in the onomastic sequence *Manes Iyungidas Manitos* 'Manes, son of *Iyung*-, of Manit'. Synchronically, it is quite clearly a masculine *a*-stem in the nominative singular case. The similarity of the suffix *-idas* to Greek -ίδης/-ίδᾱς can hardly be a coincidence, but both cannot be derived from a single Proto-Graeco-Phrygian suffix. This leaves us with two options: 1) the suffix *-idas* is ultimately of Greek origin, but became productive in Phrygian, presumably by being extracted from loaned patronyms;[234] 2) the entire patronym *Iyungidas* is an adaptation of an ultimately Greek form. The latter option seems preferable in light of the fact that no other *idas*-type patronyms are attested in Phrygian. On the other hand, the appearance of such a patronym in an inscription written in the era when Phrygia was under the control of the Persian empire may suggest that Greek-styled patronyms may have been more common than the rest of the corpus suggests.[235]

A masculine *a*-stem with what appears to be a more transparent derivational history is *umnota*-, likewise appearing in inscription °B-07. It appears as part of the nominal phrase *devun umnotan* in the accusative singular case, where *devo*- is well known to be a masculine *o*-stem meaning

[234] Dardano (2011: 54-59ff.) has proposed that the Greek patronymic suffix -ίδᾱς was an adaptation of the Lydian suffix *-(i)da-* used for forming relational adjectives. If that is the case, the same could hold for Phrygian. Against this proposal, Obrador-Cursach (2021a: 61-63) notes that Mycenaean names in -ίδᾱς, such as *ti-wi-so-ni-ta-se* Διϝισωνίδας, are attested centuries earlier than the Lydian language and that the Lydian suffix *-(i)da-* is not known to form patronyms.

[235] The issue with interpreting *Iyungidas* as being loaned from Greek is that the element *iyung*-, which would have been a part of the father's name, looks wholly un-Greek in its structure. One could perhaps speculate that the father was referred to, in a Phrygian speaking environment governed by Persians, as Ἰωνικός *vel sim.* 'the Ionian/Greek' and that *Iyungidas* is an adaptation of Ἰωνικίδης with syncope of the second *i*-vowel.

'god' (cf. Gr. θεός), meaning that *umnotan* must be of the masculine gender as well. *umnota-* is then either the name or the description of some deity. Since *umn-* is known to be a derivational base,[236] *-ota-* is best analysed as a suffix and, in comparative terms, is best directly compared to the Greek agentive suffix -ό-της < *-*o-teh₂-s* (Risch 1974: 31-38). This suffix, then, must be of Proto-Graeco-Phrygian age already and was likely one of the forms from which the masculine *a*-stem category originated. For further analysis of *umnota-* and the associated verbal form *umnise-*, see §III.3.10.1.2 and §V.3.5 below.[237]

III.3.1.11 Non-native thematic stems

Phrygian, like any other language, adopted a number of loanwords into its vocabulary. With few exceptions, these tended to be adopted into the language by being assigned to the most common declensional type, i.e. the thematic declension. For the most part, these tended to take the gender that

[236] Compare the clearly related verbal stem *umnise-*/ομνισι-.

[237] One could argue that *umnota-* is the name or the epithet of a deity and that the *a*-stem declension is secondary, only being adopted at a late stage on the basis of other *a*-stem masculines being used for the same purpose. In that case, the sequence *-ota-* would not have been directly inherited from Proto-Graeco-Phrygian. Such an analysis has the issue that one would then need to propose what the form was before the adoption of the *a*-stem declension, but no option is satisfying in that case: an original *t*-stem, i.e. *umnot-,* would be wholly bizarre in derivational terms, apparently being a secondary *t*-stem built to a previously thematic *umno-*, whereas a *to*-type *umno-to-* is incompatible due to the fact that no *-to-* > *-ta-* derivation is known in either Phrygian or Greek. Alternatively, if one adopted the view that *umnota-* shows some non-native derivational base, while no analysis is possible in terms of the lexical root itself, one would still need to account what would have needed to be a synchronic derivational relationship between *umnise-*/ομνισι- and *umnota-*, or rather between the verbal suffix *-sī-* and thematic nominal forms. Such a relationship can be established in a PGPh. framework and is analysed in §III.3.10.1.2. The assumption of a non-native origin for the entire form *umnota-*, rather than the lexical root alone, would need to ascribe such a relationship to chance resemblance.

would be expected from their phonetic make-up in synchronic Phrygian grammar.

Phrygian loaned the following terms from Greek: ακροδμα- from Greek *ἀκρόδμη 'high beam' (PhL 134), ανανκα- from Greek ἀναγκή 'necessity, force' (*ibid.*), αωρω from Greek ἀωρῷ 'untimely' (*ibid.*), ειλικρινη<ς> from Greek ἐλικρινής 'pure' (*ibid.*), ευκι- from Greek εὐχή 'vow' (Orel 1997: 329), ζως from Greek ζώς 'living' (PhL 134), καρπο- from Greek καρπός 'fruit' (Avram 2015: 211), κορου- from Greek χωρό- 'land, earth' (PhL 134), λατομειο- from Greek λατομεῖον 'grave' (*ibid.*), ουρανιο- from Greek οὐρανιός 'heavenly' (Orel 1997: 465), *panto-*/παντο- from Greek παντ- 'all, everything' (LL 1822), σορο- from Greek σόρος 'coffin' (PhL 134). Possibly loaned from Greek are *kraniya-* from Aeolic κραννα 'spring, fountain' (PhL 134) and *stala-* from Aeolic στάλλα 'stele' (PhL 133-134).

It has been proposed that NPh. σαυναμα- is a loan of Hittite *šam(a)na-* (Lubotsky 1993: 132).

Surgasto- is possibly a divine name (cf. Gr. Ζεῦς Συργαστής) (Orel 1997: 459) or simply a personal name (cf. Lyd. *śrkaśtus* 'PN') (PhL 350-351); whatever the donor language whence the Phrygian term was directly adopted was, it has been proposed to ultimately derive from Hittite *šarku/šargau-* 'eminent, illustrious, powerful' (Gusmani 1980-1981: 21-27 *apud* PhL 142).

σκελεδρια-/σκερεδρια- '?' is obviously a loanword, since there is no known Phrygian process that could result in an ρ/λ consonantal alternation; the inconsistent spelling must be an attempt at writing a foreign resonant that did not exactly match any Phrygian segment. It is unclear which language

this term was borrowed from; presumably, it was one of the Anatolian languages.

III.3.1.12 Thematic nominals not otherwise specified

In a language as sparsely attested and as poorly understood as Phrygian, a great number of seemingly nominal forms can only be tentatively assigned to certain broad categories and cannot be internally analysed any further. This sub-category of thematic nominals, then, is populated by those thematic-type nominal formations whose derivation is obscure, either because some of their constituent elements are otherwise unknown or because the derivation had become obscured through other processes.

III.3.2 *e*-stems

Relevant examples: *ates* 'PN'*, bateles* 'PN'*, manes* 'PN'*, (per)bastidages* 'PN[?]'*, polodrętes, tates* 'PN'*, voine(s)* 'PN'*,* ειλικρινη 'pure (APl[?])'*,* ευκι- 'vow'*,* ξευνε- 'PN'

The *e*-stem nominals are an innovation of the Phrygian language. Due to the fact that they end in a vowel, they may be understood as being para-thematic in a sense: the *e*-stems exhibit no ablaut alternations and have the same stem form throughout the paradigm.

Practically all of the *e*-stems that can be identified at this point are either personal names or loanwords (PhL 82-83). Since variants of these names appear in other Anatolian material as well, it is best to conclude that the entire category of *e*-stem nominals emerged after the Phrygian migration

into Anatolia and is, as such, exceedingly young (*ibid.*). The creation of the category would have been primarily fuelled by the adoption of non-native names ending in *-*e* or *-*es* (*ibid.*).[238]

Since the loaned names had an unchangeable stem and ended in a vowel, it is not surprising that the Phrygians would have analogically constructed the endings of what is in essence a third vocalic declension on the basis of the *o*- and the *a*-stems.

The endings are:

	ending	origin/analogy
nom. sg.	*-es*	*-e* + masc. nom. sg. *-s*
gen. sg.	*-evo*	NSg *-os* : GSg $^{+}$*-ovo* = *-ās* : $^{+}$*-āvo* = *-es* : X; X = *-evo*
dat. sg.	$^{+}$*-ey*	NSg. *-ās* : DSg *-āi* = *-es* : X; X = *ei*
acc. sg.	$^{+}$*-en*	NSg *-os* : ASg *-on* = *-ās* : *-ān* = *-es* : X; X = *-en*

Table #20: The *e*-stem endings of Phrygian (cf. PhL 83).

No plural forms of *e*-stems are attested, which is hardly surprising given the fact we are dealing with a category mostly restricted to personal names.

One example of an *e*-stem nominal that seems to have been created entirely within the Phrygian languages is the personal name *Bateles.* Obrador-Cursach (2022: 147) suggests that we are dealing with a derivation from

[238] Brixhe (CIPP2 77) has proposed that some of what are referred to here as *e*-stems emerged from nouns ending in an ablauting suffix *-h_1, where *e* is simply the vocalized zero-grade *-h_1. This assumption is unlikely in light of the fact that, at least at the earliest stages, we are dealing with a category restricted to onomastic material that has widespread comparanda throughout other local languages; there is no need to assume an Indo-European origin for a category that evidently emerged to accommodate non-native material.

the name of the deity Bas (stem *bat-*) with the first part of the suffix comparable to the known suffix *-elo-*: *bat-el-*. It seems reasonable to assume that an adjective $^{+}$*batelo-* 'pertaining to Bas' could have been remade into a personal name by being transferred into the *e*-stems, a category replete with onomastic material.

ειλικρινη is evidently a loan from Greek εἰλικρινής 'pure' (PhL 134), though the ending it uses is unexpected: the two nominal elements of the phrase καρπυς ειλικρινη 'fruits pure (dat. pl.)' (where -υς is a variant spelling of -οις, i.e. the dative plural *o*-stem ending) do not seem to syntactically agree. However one analyses this phrase,[239] what is clear is the fact that the Greek masculine η-stem (where Greek <η> had the phonetic value [ɛ̄] at the time) was adopted as an <η>-stem in New Phrygian, and, since Phrygian at the time would not have distinguished vowel length, it would have presumably been an *e*-stem.[240]

This example suggests that, by the New Phrygian era, Greek η-stems would have been loaned into Phrygian as *e*-stems. The other New Phrygian example of a loanword from a Greek η-stem noun is the accusative singular form ευκιν, loaned from Greek εὐχή 'vow' (cf. Orel 1997: 329). In that specific case, the noun was evidently borrowed as an *e*-stem ευκε-.[241]

[239] Either by taking ειλικρινη as an adverbial form of some kind or by assuming that /-eis/, the expected *e*-stem accusative plural form, which we would expect to have been written <εις> or <ης>, lost its final *-s* for some unknown reason.

[240] Note that /i/ would never have been rendered as <η> outside a pre-vocalic environment. On the other hand, /e/ or /ei/ could have been written as <η>.

[241] The spelling <ιν> for /en/, found in the accusative singular ending, is a common occurrence in New Phrygian.

III.3.3 *i*-stems

Relevant examples: *kelmi-* 'DN', *saragi-* '(the river) Saragis', διουνσι- 'Dionysos[?]', οινι- '?'

The attested *i*-stem nouns in Phrygian are generally poorly understood. The forms that do admit an analysis appear in either the nominative or the accusative singular cases (PhL 80-81, LL 1825). The remainder of the forms either display enigmatic endings or may not belong to this category at all.[242]

The attested endings of the *i*-stems are:

	ending
nom. sg.	*-i-s*
acc. sg.	*-i-n*

Table #21: The *i*-stem endings of Phrygian.

διουνσι- and *kelmi-* are probably not of native origin; the former is most likely the Phrygian adaptation of Greek Διόνυσος 'Dionysus' (PhL 213) and the latter is the name of one of the three Dactyls, known in Greek as Κελμίς (Neumann 1997: 22).[243]

[242] The accusative singular ending /in/ would have been spelt <in>/<ιν>, which could also be used to spell /en/. Determining whether a specific lexeme belongs to the *i-* or the *e-*stems, when its only attestation is in the accusative singular case, then, is contingent on other considerations.

[243] The actual etymological origin of Gr. Κελμίς and Phr. *kelmis* is unclear, but it is unlikely to have originated in either of those languages. **kelm-* cannot be an Indo-European root, and it is difficult to derive **kelmi-* from a PIE root **Kel-*. More likely, the naming and concept of *kelmis* was adopted from some Anatolian tradition, either into both languages and cultures or, more likely, into one of the two, presumably Phrygian, whence it was diffused into the other.

οινι- currently defies interpretation (PhL 315).[244]

saragi- is a river-name without a clear etymology. By virtue of the fact that it begins with *s-* followed by a back vowel, a Phrygian origin is less likely than an origin in some other language (for the loss of inherited initial **s*, see §II.3.1.2.5).[245]

III.3.3.1 *ti*-stems

Relevant examples: *toti-* 'gift'*, tuvati-* 'PN[?]', μροτι- 'death'

In PIE, the *ti*-suffix was used to form abstract nouns in the feminine gender. The original ablaut declensional pattern of *ti*-suffixed nouns was proterodynamic: strong stem **CeC-ti-* ~ weak stem **CC-tei-* (Meier-Brügger 2010: 342-343).

Greek is known to have levelled the root vocalism of the oblique cases, as evidenced by examples like NSg στάσις ~ GSg στάσεως (Risch 1974: 39).[246] The primary question that needs to be answered in respect to Graeco-Phrygian *ti*-abstracts is, then, whether the levelling of the oblique root vocalism took place in Proto-Graeco-Phrygian already.

The prime example of a *ti*-abstract in Phrygian is *toti-* 'gift', appearing in the accusative singular form *totin,* which has been identified by Ligorio (2018). Since the word is only attested in Old Phrygian, which does not

[244] Since only the nominative οινις is known, it is also entirely possible that we are dealing with a *t*-stem, i.e. **oinit-*. Indeed, this might be the preferable interpretation, since we have an attested form οινουν (presumably an *o*-stem in the accusative singular) and *iT*-type nouns were likely derivationally paired with *o*-stem nouns. See further in §V.3.5.

[245] The only source of initial *sa-* that is conceivable would have likely been early sequences **tja-* or **kja-*, but such a development is by no means secure. See §II.3.2.3.5.

[246] Many other Indo-European languages likewise show the levelling of oblique root vocalism in its *ti*-abstracts, e.g. Latin in NSg. *mors* < **mr̥-ti-s*.

graphically distinguish between *o* and *ō*, the word could theoretically continue both a levelled **dh₃-ti-* and an archaic **deh₃-ti-*, though Ligorio opts to interpret it as arising from the former based on a comparison with Greek *ti*-abstracts, thereby implicitly assuming that the levelling took place in Proto-Graeco-Phrygian already. The rest of the simple *ti*-suffixed nouns that we have attested in Phrygian are not understood well. Nevertheless, the word μροτις fortunately seems to provide us with enough information to come to a conclusion. The only sensible interpretation of the word is as a *ti*-noun: μρο- functions as the root element and -τι- is the suffix. Structurally, the element μρο- can really only be understood as a zero-grade of a root **mer-*: the inscription in which it appears post-dates the *ō* > *u* development (as evidenced by γλουρεος 'golden' < **glōrejos* < **glh₃-r-eio-*). In simple mechanical terms, other reasonable possibilities for what the root element might have been are effectively disproven by this fact: **mreh₃-ti-* > **μρουτι-, **mrh₃-ti-* > **μρουτι-. Unless one is willing to conceive of some variant of *ti*-derivation that would see the suffix appended to a thematic noun with an *o*-grade, the conclusion must be that the form μροτις can only have arisen from an earlier **mr̥-ti-*. This, then, effectively answers the question of which ablaut grade of the strong stem of *ti*-nouns was synchronically preserved in Phrygian: the zero grade. We may thus endorse Ligorio's assumption that the zero-grade of the root was levelled throughout the paradigm of *ti*-nouns in Proto-Graeco-Phrygian.

The rest of the *ti*-stems are not analysed as easily. They appear in contexts where their meaning is unclear, so our ability to interpret them is severely hampered.

III.3.3.2 *sti*-stems

The term *areyasti-* '(divine epithet)' appears as an epithet of Mother Kybele in the syntagm *materan areyastin* (PhL 181). At first glance, it appears to be a *ti*-stem noun in the feminine gender. The precise meaning of *areyasti-* is unknown, though one cannot but be struck by the similarity to Greek ἄριστος 'best'. It is indeed quite likely that both terms do indeed originate in the PIE root **h₂er-* (cf. LIV₂ 269-270), though their derivational histories must be quite different, since no single antecedent, even if part of an ablauting paradigm, can explain the co-occurrence of Greek short -ι- and Phrygian *-eja-*. Even a fully hypothetical transponate **h₂(e)r-ih₂-s/T- ~ *h2(e)r-e-ih₂-s/T-*or a Sievers doublet **h₂(e)r-ih₂-s/T- ~ *h₂(e)r-ijh₂-s/T-* simply cannot be reconciled with the short ι of Greek. For this reason, the two words, while likely ultimately stemming from the same PIE root, must have entirely separate derivational histories. Greek presumably formed an *isto*-type superlative adjective from the root: **h₂er-isto-*.

The derivational history of Phrygian *areyasti-* is apparently complex. The *-eja-* element obviously brings to mind the very common *eja*-feminines (for which see §III.3.1.4), but the presence of the cluster *-st-* is puzzling; since the form is not simply *areyati-*, which we would expect if a *ti*-noun were formed directly on the basis of an *ejo*-type *areya-*, such a derivation is impossible. Also unlikely to bear fruit is any explanation that would connect this *st* with the same cluster in the Greek adjectival suffix -ιστο-, which derives from the zero-grade of a comparative suffix **-is-* and the adjective forming suffix **-to-* (Risch 1974: 88-89): the Phrygian form is not ***areyaysti-*, so the disappearance of **i* is unmotivated, and, in

addition, the Phrygian form is not thematic. The suffixes Phr. *-sti-* and Gr. -ιστο-, then, can hardly be related.

Two Phrygian forms do seem to show the presence of the same suffix: the personal name Αγδιστις (PhL 181) and the Hesychian gloss ἄκριστιν . πέπτριαν. ἀλετρίδα. Φρύγες. 'female baker. female slave who grinds corn. Phrygian' (PhL 414-415).[247] *areyasti-*, Αγδιστις, and ακριστι- refer to female figures. Clearly, then, the suffix *-sti-* was used to create a form that refers to a female individual, possibly having an agentive function.[248]

The etymology of this suffix is currently a mystery, since too many possible antecedents could underlie it, especially if one takes into account the possibility of suffixal re-analysis and backformation. For the time being, we must content ourselves with having identified the suffix at all.

Obrador-Cursach (PhL 181), on the other hand, rather derives the term *areyasti-* from a local place name (likely related to Luwic **ariyatt(i)-* 'elevation') (as proposed by Berndt-Ersöz (2006: 84)), citing Αγδιστις as a derivation from *Agdus.* This is also an entirely valid possibility but it is conspicuous that three different feminine nominals end in *-sti-*.

[247] Obrador-Cursach (PhL 414-415) supposes that ακριστιν was in fact a local Greek word, where it would have been related to ἀχρησία 'disuse', ἀχρηστός 'useless', and ἀκρηστής 'useless' (all from *ἀ-χρησ-, with the second element derived from χράομαι 'to yearn, desire'), with the semantics having to do with slaves being called 'useless' in some dramatic sources. This is not the only possibility, however. If we take *-sti-* as a native Phrygian suffix, the similarity could be coincidental, and the Phrygian term could in principle derive from the word for field, Gk. ἀγρός, which would presumably surface in Phrygian beginning with *+akr-*. The meaning 'baker, someone who grinds corn' could have easily developed from 'someone who works the field': **akr-i-sti-*.

[248] Taking into account the previous footnote, even if ἄκριστιν is in fact loaned or not a Phrygian word at all, the existence of Αγδιστις and *areyasti-* is sufficient to postulate the existence of a Phrygian *-sti-* suffix.

III.3.3.3 "Unexpected" *i*-stems and *i*-stem endings

A number of forms that appear at first glance to belong to the *i*-stem declension seem to show a word-formation pattern that is generally unexpected for this category. They are characterised by the fact that they cannot have originated as *i*-stems that were formed directly from a lexical root and show the presence of unexpected suffixal elements or by exhibiting otherwise unattested endings.

The forms in question are: $^{+}$ακρι-, ματι, ματια, ζελκια 'greens, vegetables', τακρις, παρτιας, *to↑ia*, *kelmi-* 'Kelmis, one of the Dactyls', *klami-, derali-, telemi-*. To the best of our knowledge, none of these are personal names, with the possible exception of *to↑ia*.

Let us first consider the clusters of a resonant followed by *i*: in $^{+}$ακρι-, τακρι-, *kelmi-*, *klami-, derali-,* and *telemi-*, we find a nominal form that seems to behave like an *i*-stem and where the preceding sequence cannot directly derive from an inherited lexical root, since PIE roots could not end with a sequence *-*CR*.[249] Thus, these seem to be either secondary or non-native *i*-stems at first glance.

kelmis presumably declines like a normal feminine *i*-stem, but the term is obviously loaned from some other local language: it refers to one of the Idaean dactyls, so it is a divine name (Neumann 1997: 22, PhL 269). This name is derivationally unlikely to be Phrygian since it includes a suffix *-mi-*, which is not known to underlie a Phrygian derivational pattern. We may note that both *kelmis* and *klami(v)* seem to share both the first two consonants *k-l* and the derivationally suspect element *-mi-*. This is quite a

[249] The *i*-less stem *deral-* does not end in a -CR sequence, but is nevertheless treated here, since there is no way to segment this word in a manner that would be congruent with the *i*-stem being derived directly from a lexical root.

remarkable coincidence. While it is highly unlikely that the two could be related in terms of Phrygian word-formation processes, some ultimate relationship between *kelmi-* and *klami-*, presumably in the donor language, appears likely.[250]

The endings of *deraliv* and *klamiv* have not been explained satisfactorily so far. The desinence *-iv* is reminiscent of *tubetiv* found in the same inscription, though that form appears to be a verbal form with the ending *-ti*, with *-v* appearing as a written hiatus filler before a rounded vowel. The inscription in question does write a word-final vowel with an accompanying glide at least three times (e.g. *dedasitiy̲ t-, tubetiv̲ o-, ituv̲##)*; this glide would have presumably been the result of a dialectal phonetic breaking of a word-final vowel (*i* > *ij*, *u* > *uv*) and would assimilate in terms of labiality to a following segment.[251] While the inscription is unreadable immediately following *klamiv*, *deraliv* appears immediately before *mekas*, explaining the presence of *v* through /derali/ > dialectal [deraliį̆] > [deraliu̯] / _C[+labial]. We may reasonably suppose that the final glide of *klamiv* can be explained in the same manner as well. There is little reason to suppose that an actual ending *-iv* existed (*contra* LL 1819), since it is not found anywhere else. *derali* and *klami*, then, show a simple desinence *-i*. There can be no other option but to interpret them as synchronic *i*-stem neuters in the NASg case form.

We must similarly interpret *telemi-*. The form appears immediately following an nom./acc. sg. neuter indefinite pronoun *kin* (PhL 355),

[250] Both were apparently easily taken over into Phrygian as *i*-stems (as was the case for Κελμίς in Greek). The pattern *kel-mi- ~ klV-mi-* has a notably Indo-European feel to it, i.e. it appears as if the two variants could derive quite easily from PIE **kel-m- ~ *kl̥-m-*. The donor language may well have been Indo-European.

[251] For another example of an assimilation of a word-final glide, consider also *apeley̲ porniyoy* °B-07 < dat. sg. **apeley*, though the glide was phonemically and etymologically present in this case.

presumably with indefinite nominal semantics: *kin telemi* 'some *telemi*'. While the meaning of *telemi* cannot be ascertained at this point, interpreting the form as a nom./acc. sg. (*ibid.*) of an *i*-stem neuter works well in the immediate syntactic context, where a nominal phrase in the accusative seems to be linked to another nominal phrase in the accusative through the conjunction *ayni* 'or': *yos tivo ta* (acc. pl.) *spereta* (acc. pl.) *ayni kin* (acc. sg.) *telemi* (acc. sg.) 'whosoever *tivo* these *spereta* or some *telemi*'.

Another attested form that may have ended in *-i* is ματι, though this is ultimately unlikely: Brixhe has proposed previously that a *-nm-* sequence was disallowed in Phrygian, simplifying into *-m(:)-*, possibly even across word boundaries (CIPP2 18).[252] ματι appears immediately before μακραν, where the second element is most likely the accusative singular of the feminine adjective *makra-* 'big, great'. If ματι- declined as a feminine *i*-stem (NSg. $^{+}$ματις), its expected accusative singular form would have been ματιν; indeed, the form ματιν appears in the same inscription. The phrase $^{+}$ματιν μακραν > ματι μακραν would then be syntactically perfectly correlated (PhL 294-295), meaning something like 'the big *mati*'. Since the inscription in question is poorly understood, one may argue that no final -ν was present on the phonemic level and that ματι does represent an ι-final form (*ibid.*); nevertheless, the assumption of an -ν lost through assimilation is more elegant.

Four other forms that need to be discussed together are ματια, ζελκια, παρτιας, and *to↑ia*. What these forms share is the presence of an *i*-formant

[252] Consider also Vine (2010), who argued that *imen-* is ultimately derived from **en-men-*, suggesting the same development. The form *inmeney* would have been a graphical or an etymological restoration of the original constituent parts.

that obviously cannot belong to the lexical root, but does not show any of the otherwise attested *i*-stem declensional endings either. All of these forms show the addition of the vowel *-a* after the *i*-formant, which is a curious state of affairs; in a masculine/feminine *i*-stem paradigm, there is no case form that includes *-a-*. One other option must be considered in these examples: we know that in New Phrygian, the vowels /i/ <ι> and /e/ <ε> merge when immediately preceding the vowel /a/ <α> (and presumably other vowels as well) and are written interchangeably (cf. the pair τεαμας ~ τιαμας). Presumably, such a graphical sequence of a non-low front vowel and /a/ included a glide [j], which could but need not be phonological, between the two vocalic elements: <εα>/<ια> [e̯ja]. In the examples ματια, ζελκια, and παρτιας, the written <ι> may then just as well represent the phonological vowel /e/, meaning that the forms in question need not be in any way related to *i*-stems.

The Hesychian glosses are usually given in the accusative case, so we may note that ζελκια is translated with a Greek form showing the NAPl neuter ending -α*,* i.e. Gr. λάχανα 'vegetables'. ζελκια, at least, then, must show the NAPl. neuter declensional ending *-a.* For this form, there are, in principle, three possibilities: 1) ζελκι- is a neuter *i*-stem (NASg. $^{+}$ζελκι), 2) the actual neuter stem was thematic ζελκιο- (NASg. $^{+}$ζελκιον), 3) the neuter stem was a thematic *ejo*-formation ζελκε/ιο- /zelkejo-/ (NASg. $^{+}$ζελκε/ιον). ζελκια, insofar as it can be trusted as a gloss, is likely to have as its underlying lexical root a reflex of PIE **ǵʰelh₃-*. The manner in which this root element developed so as to result in the form found in ζελκια must have been quite convoluted, but the semantic match and the regular development of the PIE initial **ǵʰel-* into Phr. ζελ- are too congruent for one to dismiss the etymological equation (PhL 419). The creation of a stem

ζελκ- requires one to explain the lack of *h_3 > ο and the addition of κ, for both of which there exist a number of possibilities.[253],[254]

Let us now consider whether ματια and *to↑ia* need to be analysed as *i*-stems. In the case of ματια, the clearly related ματι discussed above seems to decline like a regular feminine *i*-stem.[255] We may suppose that ματια did decline as a neuter *i*-stem, which would explain its ending -α from PIE *-*i*-h_2. In that case, however, if we wished to claim that ματι and ματια must be case forms of the same word, as opposed to being merely derivationally related, since the ending -α of ματια cannot be a part of the feminine *i*-stem paradigm, we would have to assume that ματι is of the neuter gender as well. As we have noted above, while this cannot be excluded, the perfect syntactic convergence of a feminine +ματιν and a feminine μακραν would need to be abandoned. Note that both ματι and ματια appear as the penultimate words in their respective verses. A parallel situation is found

[253] For the apparent lack of *h_3 > *o*, Orsat Ligorio (p.c.) has suggested to me that the root ζελ- was extracted from a thematic formation *$ǵ^{h}elh_3$-*o*- > **dzel-o*-, with the element **o* reinterpreted as belonging to the thematic stem.

[254] The -κ- likely belonged to a derivational suffix. One possibility is that Phrygian created a *-ko*- nominal derivative: **dzel-ko*- (as assumed by Obrador-Cursach (PhL 419)).

[255] Note that the unwritten word boundary in the sequence ματια οινουν, which ends a verse, is assumed on the basis of οινις, seemingly somehow related to οινουν, appearing as the final word of its verse. A segmentation ματι αοινουν would then suggest that the two are wholly unrelated, which seems questionable, especially in light of the repetition of ματι and ματια as the penultimate words in their respective verses. Also note that αοινουν cannot reasonably write a Phrygian word: a word initial [aoi] would be wholly unprecedented, whereas αοι cannot spell [au̯i], since this inscription consistently writes [u̯] as <υ> before high vowels (cf. κιυιν and κισυις) and as <ο> before low vowels (cf. κοροαν and κοροος). If one rejected the form ματια outright, the only other reasonable solution would be to segment the sequence as ματι α οινουν, with α acting as a preposition to οινουν. This runs into unsurmountable difficulties as well. There is no preposition α in Phrygian at all, there is only evidence for αδ and ας. ας is known to attach to a noun in the accusative case: no matter the phonetic realisation of οινουν, a final -ς of ας would not be lost before it (cf. the preserved word-internal [su̯] of κισυις). If αδ were nevertheless used with the accusative case, we would expect such a sequence to be written **αδ οινουν, which is also evidently not the case.

with οινουν and οινος appearing as the final word in their respective verses. The latter two are evidently derivationally related in some manner, but cannot be case forms of the same word. The poetic figure underlying this parallelism is the polyptoton, the poetic repetition of two or more synchronically clearly related non-identical derivations. There is no reason to assume that ματι and ματια cannot have also been used in the same manner. Following this line of reasoning, the lexemes underlying ματι and ματια would not have been the same. Assuming that ματι- was a feminine *i*-stem, it is questionable to propose that a neuter *i*-stem ματι- (whose NAPl case form would have been ματια) could have also existed. Rather, it is far simpler to assume that the neuter stem underlying ματια was ματιο- (NSg $^{+}$ματιον). Derivationally, such a ματιο- can be either: a) a thematic derivative of some kind from the feminine *i*-stem ματι-, either with the direct addition of -o- or by the addition of the suffix *-ijo-,* i.e. *mati-* + *-o-* >> ματιο- [matijo-] (with automatic insertion of the glide) or *mati-* + *-jo-* >> ματιο- /matijo-/; b) a thematic derivative in *-ijo-* (the Sievers variant of the suffix *-jo-*) to a root or stem ματ-, i.e. *mat-* + *-ijo-* >> ματιο- /matijo/; c) a thematic derivative in *ejo* to an already existing nominal stem ματ-, i.e. *mat-* + *-ejo-* >> ματιο- /matejo-/.[256]

Ultimately, the matter hinges on whether the lexical root underlying ματι and ματια was $^{+}$*ma-* or $^{+}$*mat-*; if the former, ματια must be derived from a *ti*-stem ματι- (i.e., options a) or b)); if the latter, ματια may just as well be an *ejo*-adjective (i.e. option c), in addition to options a) and b)).

[256] Since we have now abandoned the idea that ματια must be a case form of an *i*-stem, if we are dealing with a thematic derivative, we no longer need to assume that the ending -α must necessarily encode the neuter NAPl ending. This final -α may just as well be the nominative singular of the *a*-stems. Since the syntactic function of ματια is currently unknown, no secure verdict is possible.

The form *to↑ia* is, in some ways, more problematic. This word is actually spelt as *toTia*. Since <T> is also used to write Greek *sampi*, we cannot be absolutely certain what the phonetic value of this sign was. It is most likely to have been a local variant of <↑>, and it will be treated as such here. The inscription in which *to↑ia* appears reads: *de*Ψ*etito↑iatiei*. We may clearly delineate word boundaries for *de*Ψ*eti* and for *tiei*, the former being the verbal form (cf. PhL 159) and the latter being the indirect object in the dative singular ('to Ti-') (PhL 358). We will follow the assumption that the verbal root underlying *de*Ψ*eti* is PIE **d*^{h}*eg*^{h}- 'to burn' (§II.1.1.4 and §V.3.9.3); the meaning of the verb is largely irrelevant for the syntax, so alternative meanings may be substituted if one were to disagree with this proposal of the meaning of the verb.

It is disputed whether the sequence *to↑ia* represents a single word. Obrador-Cursach (PhL 368) claims that *to↑i* must be an *i*-stem personal name in the nominative singular without the usual ending -*s*, functioning as the only possible agent of the sentence, where *a* must then be a preposition governing the indirect object (i.e. presumably $^{+}$*ad* with its final stop assimilating to a following consonant, as is the case in New Phrygian). This need not necessarily be the case, however. Since the verbal agent is marked in the verbal ending, the subject of the sentence may also have been unexpressed if it were understood from the context. While Phrygian does sometimes drop the word-final -*s* of masculine *a*- and *e*-stem names, no such dropping of the nominative ending is found in *i*-stem personal names (though, admittedly, the examples of *i*-stem personal names in the nominative singular are few in number). Furthermore, the use of a preposition like *ad* before a dative case form that encodes the indirect object, i.e. the generic beneficiary of a verbal action, is actually far rarer than its absence for this specific function. It seems more likely that *to↑ia*

must be taken as a single word, again showing the desinence *-ia.* We then have two options on how to analyse this form: 1) following Obrador-Cursach's reasoning that this clause must, or is at least likely to, include a named agent, *to↑ia* is a masculine *a*-stem name appearing without its word-final *-s* or, alternatively, a feminine *a*-stem name; or 2) the desinence of *to↑ia* is either the desinence of the NAPl of a neuter *i*-stem *to↑i-,* the neuter NAPl or feminine *a*-stem NSg of a thematised *i*-stem *to↑i-(j)o-,* or the neuter NAPl or feminine *a*-stem NSg of a thematic *ijo*-derivation to a stem *to↑-*, i.e. *to↑-ijo-*.[257] If the former analysis of *to↑ia* as a personal name is correct, it would function as the agent and no further commentary is necessary; the sentence would translate as *'To↑ia(s)* ought-to-burn to/for-Ti-'. If the latter is correct, however, *to↑ia* can be interpreted both as possibly representing the verbal agent or not. If *to↑ia* was not a personal name, but nevertheless represented the verbal agent, *-ia* can only be the NSg of a feminine or masculine *a*-stem. If *to↑ia* is not the verbal agent, however, *-ia* can only reasonably represent a NAPl neuter ending, either from a neuter *to↑i-* or from a neuter *to↑i(j)o-* (NASg $^{+}$*to↑ion*), with the form being the direct object. In that case, *de*Ψ*eti to↑ia tiei* would translate as '(s)he-ought-to-burn the *to↑i(o)s* to/for-Ti-'. None of the given options appear inherently superior to the others; if some reasonable etymology for *to↑i(o)-*, or, alternatively, some attestation of an Anatolian name that could have surfaced as $^{+}$*to↑i(a)* in Phrygian could be found, the matter may yet be resolved.

[257] Note that, in contrast to ζελκια and ματια, the *-ia* is unlikely to represent a phonological sequence /eja/. The merger of the front non-low vowels before another vowel is a feature of New Phrygian. While such a merger may have already been somewhat productive in some variants of Old Phrygian, Old Phrygian seems to distinguish etymological sequences of /eja/ and /ija/ well, as is suggested by *niptiya* < **-ija* ~ *tiveya* < **-eja*.

Finally, we may examine the form παρτιας, which we cannot do without also taking into account the forms παρτης, παρταν, and παρτυς (PhL 327). Even if none of the forms have a good explanation at this point, it ought to be clear that they all ultimately derive from a stem παρτ-. Whether παρτ- is itself is a lexical root or already a secondarily derived stem from some earlier παρ- is irrelevant for the purposes of analysing παρτιας. At least in this case, the origin of the desinence is unambiguous: no *i*-stem nominal could have ever appeared with the desinence -ιας. In this case, we are explicitly dealing with a thematic case form of an *a*-stem, almost certainly the genitive singular. The derivational history of παρτια- does remain obscure, however. We may equally suppose that: 1) an *i*-stem noun **parti*- became thematised (with an addition of -*o*- or -*jo*-); 2) an early stem/root **part*- was extended with the thematic suffix *-*ije/o*-; 3) an early stem/root **part*- formed an *-*ih₂* feminine noun, with the suffix being in the Sievers variant *-*iy̯a*-, 4) a nominal stem **part*- or **parto*- formed a nominal *ejo*-derivative **partejo*-. The forms we have attested give some minor clues on how they themselves and how παρτιας ought to be analysed. παρταν and παρτυς obviously cannot derive from *i*-stems; it may be appealing to consider them case forms of a thematic nominal παρτο-, with παρταν showing the acc. sg. feminine *a*-stem desinence, and παρτυς being an adverbial form in -*ōs* derived from a nominal stem (cf. the pair adjective *meka*- 'big, great' >> adverb *mekōs* 'greatly', as well as Greek adverbs in -ως),[258] though deriving them both from a consonant stem παρτ- is just as reasonable, with -αν being the consonant stem acc. sg. ending, and the adverbial formant -*ōs* quite clearly not being limited to thematic stems. The only form that can be theoretically analysed as an *i*-stem in addition to

[258] See §VI.4.

παρτιας, and this is speculative, is παρτης, whose syntactic function cannot be clearly determined. It could theoretically derive from a nom. pl. *i*-stem **part-ej-es,* a dat. pl. *i*-stem **part-ej-eis*, but, more likely, from the nom. pl. or dat. pl. of a consonant stem **part-* (cf. the nom. pl. form πατερης of the consonant stem πατερ- and the dat. pl. consonant stem ending *-eis* in γουμεις °130^{NW}). Assuming a dative plural could have a locative meaning, as would not be unexpected, the form παρτης may well have functioned in an adverbial fashion, which would at least explain its clear use as an adjunct in inscription °118^{W}: τετι(ο)κμενος ειτου διως κε ζεμελως κε παρτης 'condemned may-he-become among both gods and men *partης*'.

Thus, when comparing παρτιας to the other form showing a stem παρτ-, the simplest solution that accounts for all the forms is to assume the existence of a *t*-stem παρτ-, of which παρταν and παρτης would be case forms, παρτυς a derived adverb, and παρτια- a derived thematic *-ejo-* or *-ijo-* or an athematic *-ija* < **-ih₂* nominal formation. Other analyses are possible, of course, but they all require a greater number of derivational differentiations between the attested forms. For the time being, then, it is most parsimonious to assume that the stem παρτ- did not form a derived *i*-stem.[259]

[259] We may note that it is difficult to imagine a PIE lexical root that would surface as παρτ- in Phrygian. The vocalism is especially problematic: it cannot originate from a zero-grade formation like **pr̥t/d-*, since a vocalic **r* next to a labial apparently developed into *-ro-* in Phrygian (cf. μροτι- < **mr̥-ti-*; see further in §II.3.2.2.2). The *a*, if inherited, could only have originated from the presence of **h₁/₂* or from a long grade **ē*. Neither option seems particularly appealing: if the former, the lexical root would need to be of the shape **peh₁/₂rt/d-* or **ph₂ert/d-*, both of which are mere transponates, as no such root is known; if the latter, the lengthened grade needs to be explained in some way. Even assuming a lexical root that would surface as Phrygian *par-*, from which παρτ- would be a derived *t*-stem, has some issues. In terms of a laryngeal explanation for Phrygian *-a-*, there is no comparative evidence that would suggest a PIE root **peh₁/₂r-* ever existed. For any derivation of *part-,* the lengthened grade of a lexical root would need to be explained.

The forms we have not analysed yet are $^{+}$*akri*- and τακρι-. Ultimately, whatever the derivational sequence is, τακρις is likely to be in the nominative singular case (PhL 352, CIPP2 19): it appears in the syntactic phrase βλασκον κε τακρις κε, a clearly coordinated nominal phrase, where it is difficult to conceive of some analysis where the two elements would not be syntactically coordinated, with the NASg neuter ending -ον corresponding to a NSg ending -ις. τακρις, then, may be a synchronic feminine *i*-stem. Derivationally, however, interpreting τακρις as such is extremely suspect in Indo-European terms: the reflex of the lexical root would need to be **tak*-, to which two separate derivational formants, first **r* and then **i*, would need to be added. Since only the nominative singular case form of τακρι- is known, a derivational analysis that does have precedent within Phrygian is possible. A lexical root **tak*- would first be extended with a thematic adjective-forming suffix *-*ro*-, giving **takro*-. Thematic forms were apparently the base from which **iT*-abstract nouns were formed, thus **takro*- 'pertaining to *tak*-' >> **takrit*- '*tak*-ness'.[260] The nominative singular case of the *iT*-abstracts in Phrygian would regularly surface as -*s*, which would then explain τακρις.

As far as $^{+}$*akri*- is concerned, the form is hypothetical, since we have extracted it from ακριστι-, a *sti*-derivation from, presumably, a nominal formation. Formally, the same analysis as for τακρις applies.[261]

[260] For the *it*-stems in Phrygian, see §III.3.10.1.2. One such pair of a thematic formation associated with an *it*-abstract is $^{+}$*umno*- (extended into an agent noun *umnotā*-) ~ $^{+}$*umnit*- (in a denominal aorist stem *umnis*- < **umnit-s*-). Another such pair may be οινο- (of acc. sg. οινουν) ~ οινις (nom. sg.). This derivational association is also known in Greek, cf. πύξιδ- ~ πύξο- 'box'.

[261] An interpretation of $^{+}$ακρι- as actually being an *it*-stem $^{+}$ακριτ- is likewise possible; $^{+}$*akrit*- + -*sti*- would certainly also surface as ακριστι-.

III.3.4 *u*-stems

Relevant examples: *alus* 'PN', *nidus* 'PN[?]', *ti(v)-*/τι- 'Ti-', *vasu-* 'PN', μδυ- 'part of the grave'

The attested *u*-stems of Phrygian appear to have generally shown the same stem throughout the paradigm, with the exception of the PN *vasu-* (PhL 80-82).

The attested endings of the *u*-stems are:

	ending
nom. sg.	*-u-s*
gen. sg.	*-os*
acc. sg.	*-u-n*
dat. pl.	*-u-ei[s]*

Table #22: The *u*-stem endings of Phrygian.

alus is likely a personal name appearing three times, always alongside the apparently verbal form *si↑eto.*
The meaning of *nidus*, presumably in the nom. sg. case, is not known (PhL 310).
μδυ- is a term that refers to some part of a grave complex (Haas 1966: 78). It appears as an addition to the curse formula: ιος νι σεμουν κνουμανι κακον αββερετορ αινι σας μδυει[°73[W]. The use of αινι and a nominal form in the dative case after the verb usually introduces a second part of the grave that ought not to be damaged. In the case of μδυει[, the -ει- suggests that the form is dative, but since the inscription is broken off immediately afterwards, we cannot be certain whether the form was actually dat. sg.

μδυει or the expected dat. pl. μδυει[ς]. The preceding demonstrative pronoun σας is best analysed as being in the dative plural case of the feminine gender (*+sāis*) (§IV.3.3),[262] which then suggests that the same holds for the following word, meaning that μδυ- was a noun of the feminine gender (as also assumed by Obrador-Cursach (PhL 296)).

The initial cluster of μδυ- has long been noted as likely being of a non-native origin. Haas (1966: 78) was the first to propose that μδυ- is the Phrygian adaptation of Lydian *mruwa-/murwa-* 'stele' or some other closely related Anatolian lexeme; cf. the apparently related Lyd. *mλola-, mλwẽnda- mλwẽsi-*, which refer to some part of the grave complex (Melchert 1994: 373). Since μδυ- seemingly appears in the plural, it is unlikely that it would have meant 'stele'. As such, it is unlikely that Phrygians borrowed Lyd. *mruwa-* with its original meaning intact. Either the term underwent some slight semantic shift, or the original term underlying Phrygian μδυ- was one of the other candidates mentioned above or some other related variant.[263]

The personal name *vasu-* appears three times in the corpus, in the forms *vasus, vasos,* and *vasous* (PhL 238). In all three instances, it appears close to the term *kanutievan-,* an *-evan*-type noun that is used to form either a

[262] It is true that we cannot entirely discount the possibility that σας is in the genitive singular case of the feminine gender and that its use next to the apparently dative μδυει[ς?] is due to case syncretism, though actual examples of similar conflation are few and far between (cf. ιος σαν κακουν [...] μανκαι °60^{E}, though in that case, the unexpected use of the accusative singular form of the pronoun is likely the result of the unexpected word order where σα- is not immediately followed by the noun it refers to). Since a reading μδυει[ς] is not counterindicated in any way, proposing that we are dealing with an instance of case syncretism is wholly unnecessary.

[263] The adaptation of a non-native /mr/ as a Phrygian μδ makes the most sense if one assumes that the non-native /r/ was a tap or a flap in this environment, whereas the native Phrygian /r/ would have been a trill, meaning that the speakers found [d] to be a closer approximation of the non-native rhotic.

title or a patronymic. The appearance of *vasu-* in °P-02 is comparatively easy to understand: *sest bugnos vasos kanutievanos*. Since *kanutievanos* is in the genitive singular case, the same is likely to hold for *vasos.* The inscription then translates as 'this [is] Bugnos [son of] Vasus *kanutievais*'. The fact that *vasos* seems to show no evidence of *-v-* has led Brixhe (1990: 70-71 *apud* PhL 238) to suppose that *v* was lost before *o,* which is indeed very likely; gen. sg. **vasvos* > *vasos* (LL 1822, PhL 238).[264]

The forms *vasous* °P-03 and *vasus* °P-05 are likely to be the forms of the nominative singular (LL 1825). In °P-03, all other nouns are in the nominative singular forms: *vasous iman mekas kanutievais devos ke mekas* '*Vasous, Iman* (PN) great, *kanutievais* and the god great' (PhL 238). For *vasus,* which appears as part of a broken off initial sequence *vasus kanutie[*, Obrador-Cursach (*ibid.*) assumes it to be in the nominative singular on the basis of the ending *-us*, which can indeed hardly be anything else in the context of a *u*-stem. The spelling *vasous*, he suggests, shows hesitation between *o* and *u*, and may even be an attempt at a correction during engraving.[265] In his reckoning, the name *vasus* was /vasus/ in phonological terms.

Brixhe (1990: 70), on the other hand, has suggested that the spelling vacillation between *u* and *ou* rather suggests an attempt at spelling some vowel other than /u/, presumably [ọ̄], which would have developed from earlier **ōu*. The name would then have originally had the nominative singular form *vasōus* (LL 1820, 1825).

Orel (1997: 292, 466) has proposed that the name *vas(o)u-* derives from some reflex of Proto-Anatolian **u̯aššu-* 'good'. Similar sounding names

[264] Such a development will also serve to explain the declension of *tiv-* further below in this section.

[265] For a similar hesitation between *o* and *u*, he compares the fragment]*eivanous*[°G-250, which can hardly be anything other than a spelling variant of gen. sg. *-evanos*.

can be found in the area: Οασις and Ουασσης (in Cilicia), Ουασασας (in Lycia); Obrador-Cursach (PhL 238) suggests that the Phrygian name is the hypocoristic of a Luwian personal name like *Wasurunti(ya)-* or *Wasusarma-*. Since the Phrygian name is of a non-native origin, it seems preferable to assume that the spellings *-ou-* and *-u-* were meant to represent /u/, rather than the reflex of **ōu*; the ablaut pattern nom. sg. **vasōus* ~ obl. **vasu-* would be quite unexpected in a personal name that was only loaned into the language after the Phrygians had already migrated into Anatolia.

The divine name *Tiv-* < PIE **diu-* needs to be analysed in light of the declensional pattern its PIE antecedent had.[266]
Originally, the PIE root **dei-* 'day, sky' formed a *u*-stem noun: nom. sg. **déi-u-* (EDG 498-499). Subsequently, this noun was re-analysed as a root noun that had the following declension: nom. sg. *diēu-s*, gen. sg. *diu-o/es*, dat. sg. *diu-ei*, acc. sg. **diēum* > **diēm* (via Stang's law).
The case forms of *tiv-* 'Ti-' attested in Phrygian are: gen. sg. NPh. τιος (LL 1825), dat. sg. OPh. *tiei*, NPh. τιε, τιη, τι (the latter before vowels) (LL 1825),[267] acc. sg. OPh. *tivan,* NPh. τιαν (LL 1825).
In the New Phrygian era, the stem of this lexeme in the oblique cases and the accusative was τι-. In the Old Phrygian era, the stem was likely to have been *tiv-*, directly reflecting PIE **diu-*. The loss of *-v-* in the stem was a comparatively late development, as is suggested by the etymology, the form *tivan*, and what appears to be the feminine derivative *tiveya* 'PN[?]'.

[266] This divine name is commonly translated as "Zeus" on the basis of the etymological connection to Greek Ζεύς. I follow those scholars who use the Phrygian stem *Ti-* as a translation, as the nominative is still unknown.
[267] Brixhe (2002: 7) gives that possibility that Old Phrygian *tiei* °NW-101 is the dative singular form of the divine name also attested in New Phrygian GSg τιος, DSg τιε, ASg τιαν. Should Brixhe be correct, the form would imply that the *-v-* was analogically lost in the dative in the Old Phrygian era already.

The loss of *-v-* in the stem by the New Phrygian era was analogical from the genitive singular case form: the original gen. sg. **tiv-os* would have regularly lost *v* before the vowel *o* (cf. **vasvos* > *vasos*), giving the attested gen. sg. *tios*/τιος (cf. LL 1822). This oblique stem would have then spread to the remainder of the paradigm.

The accusative singular case form OPh. *tivan*, NPh. τιαν presents an interesting conundrum.[268] In Old Phrygian, the *-v-* is apparently present in the accusative case, and, since the PIE acc. sg. form **d(i)iēm* did not preserve a **u̯*, we must conclude that the introduction of *v* into the accusative singular case was analogical.

In principle, there are two explanations for the form *tivan:*

1) *tivan* is an entirely innovative acc. sg. form, created from the oblique stem *tiv-* while it still showed *-v-* and the acc. sg. consonant stem ending *-an* (cf. Greek acc. sg. Δία);[269]
2) the original PIE acc. sg. form **di̯ēm* developed regularly into PPh. **tijān*, and then had its stem analogically levelled into *tiv-* on the basis of the oblique cases, while preserving the original ending: **tijān* >> *tivān*.

The subsequent loss of *-v-* in NPh. τιαν, if directly descended from OPh. *tivan*, is likely to be analogical, as was the case in dat. sg. τιε.[270]

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[268] The sequence *tiv[| n* in °B-07 where there is enough room for one letter can hardly be read as anything other than *tivan*; the missing letter must certainly be a vowel, and no other vowel seems a likely substitution. Syntactically, the form in question must be an accusative singular, as it is part of a coordinated nominal sequence *tiv[.]n ke devu[.] ke umnotan*. Semantically, the reference to the divine name *tiv-* is extremely fitting; the following element of the sequence is *devuṇ* 'god (acc. sg.)'. The whole phrase *tivan ke devun ke umnotan* means 'both *Tiv-* and the god *umnotan*', with all its elements in the accusative singular case.

[269] Greek Δία was created in the same manner (oblique stem *δι(F)- + acc. sg. consonant stem ending -α) and replaced earlier Ζῆν < **di̯ēm* (Chantraine 1999: 399).

[270] Obrador-Cursach (PhL 359) assumes NPh. τιαν to be a direct reflex of PIE **di̯ēm* (or, rather, its Sievers variant **di̯ēm*): PIE **di̯ēm* > PPh. *tijān* > OPh. *⁺tian* > NPh. τιαν. Such a development cannot explain the OPh. form *tiv[a]n*, however, which Obrador-Cursach

The developments of the divine name *Tiv*-/Τι- were then:

	gen. sg.	dat. sg.	acc. sg.
PIE/PGPh.	**diuos*	**diuei*	**d(i)iēm*
PPh. I	**tivos*	**tivei*	**tijān*
PPh. II	**tivos*	**tivei*	**tiv̲ān* / **tiv̲an*
OPh.	**ti.os*	**tivei* / *ti.̲ei*	*tivān* / *tivan* = <tivan>
NPh.	*ti(j)os* = <τιος>	*ti(j̲)ej* = <τιη>	*ti(j̲)an* = <τιαν>

Table #23: The development of the case forms of the PIE noun **diēus*. The underlined elements in the forms are analogical. Otherwise, regular phonetic developments are assumed.

III.3.4.1 The masculine personal suffix *-avos*

A nominal with the apparently thematic suffix *-avo-* always appears as a designation for some individual or as part of a sequence including a personal name (PhL 86-88):

adoikavoi 'to Adoikavos (dat. sg.)' °G-02, *ates arkiaevais akenanogavos* (nom. sg.) °M-01, *bonok akenanogavos* (nom. sg.) °W-01a, *akinanovagan tiyes modrovanak* °M-04, *olgiavos asakas* °G-150, *baba memevais proitavos kΦiyanaveyos* °M-01b, *bba memeveis protaitavo[s] k↑ianaveyos* °M-02.

Such nominals must have been used for designating some individual. It seems unlikely these would have been proper personal names; rather, the

considers an "unclear sequence". The only other possibility is that NPh. τιαν does directly reflect PIE **diy̯ēm* and that OPh. *tivan* is a dialectal form that had the intervening *-v-* introduced analogically and which was not a direct antecedent of τιαν. Postulating the existence of a dialectal form seems unnecessary to me, however, since it needlessly complicates the scenario for no additional explanatory benefit, especially in light of the fact that we know that *-v-* was in fact lost in the oblique case forms of this lexeme by the New Phrygian era.

context suggests that these were either additions to personal names (such as, for instance, patronyms) or titles of some kind.

Most likely, *akenanogavos* was a religious title of some sort.
First of all, that *akenanogavos* is a title is already explicitly clear from the fact that the term appears alongside two different personal names: *ates arkiaevais akenanogavos* °M-01a, *bonok akenanogavos* °W-01a (PhL 170).
Inscription °M-01a reads: *ates arkiaevais akenanogavos midai lavagtaei vanaktei edaes*. In this sentence, *ates* (personal name) *arkiaevais* (addition to personal name) *akenanogavos* (title) is the subject of the sentence and the indirect object (i.e. beneficiary of the verbal action) is Midas, given in the dat. sg. case: *midai lavagtaei vanaktei* 'to Midas, commander and king'. The whole sentence ultimately translates as 'Ates [...] to Midas [...] placed'. The object being placed is not directly expressed, but it is clear from the context that it refers to the monument on which the inscription appears (cf. CIPP 8-9).
°M-09 is fragmentary and entirely uninformative:]*ake-ano*[.
We may attempt to analyse inscription °W-01a: *bonok akenanogavos materan areyastin vrekun tedatoy*; *yostutut---a-m-noy akenanogavos aey* 'Bonok, the *akenanogavos*, had the sculpture (of) Mother Areyastis made. Whosoever *tutut---a-m-noy*, *akenanogavos* may-he-be.' (cf. CIPP 36-39, Lubotsky 1988) In the first segment of this inscription, we learn that Bonok, who is *akenanogavos*, commissioned a monument for the Great Mother. The latter segment seems to be a conditional sentence of some sort. The actual conditional relative clause is unfortunately too poorly attested to be read and analysed, beyond noting that it begins with the pronoun *yos* typical for this type of syntactic constructions. Our analysis proceeds from the

assumption that *akenanogavos aey* is the resulative clause that lays out the consequence of the condition being fulfilled, in this case, 'may-he-be *akenanogavos*', with *aey* being the 3sg perfect subj. form of the verb 'to be' with a jussive meaning.[271] Following such a syntactic framework, the meaning of the sentence is clearly not imprecative. We may interpret this segment of the monumental inscriptions as a set of instructions on how to become *akenanogavos* or how to properly emulate the qualities of *akenanogavos:* 'Bonok, who is *akenanogavos*, did this. Whosoever [does X], may they (also) be *akenanogavos*.'. In this case, 'doing X' would presumably mean doing something similar or identical to Bonok.

Such an interpretation does hinge on how we approach reading the monument as a whole, however. Lubotsky (1988) has previously analysed the form *aey* as a 3sg indicative perfect of the verb **hɪes*- 'to be'. While this is ultimately unlikely, his reading of the inscriptions on the monument as a whole is certainly a viable possibility; we need only substitute his interpretation of *aey* as an indicative perfect form for a subjunctive perfect. Lubotsky took the whole sequence *yostutut [...] aey* to be a single relative conditional clause meaning 'whosoever [afterwards] is *akenanogavos*'.[272] This clause would be followed by another relative conditional clause found

[271] No analysis of *aey* as a nominal form seems viable. Lubotsky (1988) has previously interpreted *aey* as a 3sg perfect form of the verb '*to be'* (< **hɪe-hɪs-e* + *-i*), but the addition of a primary *-i* to an indicative perfect form is an unlikely development. An analysis of the form as a subjunctive **hɪehɪs-e-i* > PPh. **āei* with the regular athematic subjunctive ending *-ei* (>> *aey*) is more probable. See further in §V.2.5.

[272] With there being only two examples of the subjunctive known in Phrygian, *aey* and *podaskai*, the actual functions of the subjunctive in Phrygian, beyond it being an *irrealis* mood, are not known. Thus, while we know from *podaskai* that a subjunctive has a jussive meaning in a main clause, we cannot say anything about its function in a dependent clause, which may well have been simply conditional. The same situation is found in the *sigmatic optatives*, which encode potentiality in relative conditional clauses and jussivity in main (resultative) clauses. See further in §V.1.2.

on the same monument: *yosesait materey eveteksetey ovevin onoman da*Ψ*et* ‘whosoever to this Mother *eveteksis* [his own?] name puts’. The consequence is laid out in the third clause: *lakedokey venavtun avtay materey* ‘may he himself be seized by Mother herself’. In this interpretation, Bonok, who is *akenanogavos*, is warning the following *akenanogavos* to refrain from putting their own name on the monument that he commissioned: ‘Bonok, the *akenanogavos*, had this monument made for Mother *Areyastis.* Whoever should be *akenanogavos* after me (and) should put their own name on the monument, may they be seized[?] by the Mother.’

The novel analysis given above and Lubotsky’s analysis ultimately differ in terms of which segments of the monument ought to be read as continuous.

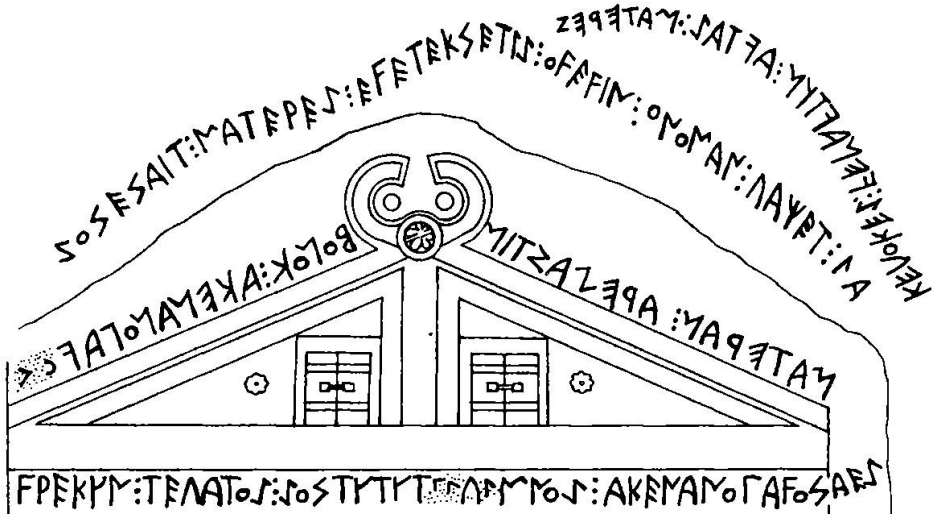

Image #4: A drawing of the *Areyastis* monument (Lubotsky 1988: 10).

The inscription(s) of the *Areyastis* monument are separated into the following segments by Brixhe-Lejeune (CIPP 36-41):

> W-01a-II [A] *materan areyastin*;
>
> W-01a-III [B] *bonok akenanogavos*;
>
> W-01a-I [C1] *vrekun tedatoy* [C2] *yostutut[--------] akenanogavos aey*;
>
> W-01b [D] *yosesait materey eveteksetey ovevin onoman da*Ψ*et, lakedokey venavtun avtay materey*.

The first sentence in any justifiable reading is clearly comprised of *A-B-C1*.[273] Lubotsky (1988) takes the approach that this is then immediately continued by *C2-D*, which forms an imprecative sentence of its own.
The approach taken in this work is that the *A-B-C* segments comprise a separate section of the inscription that is more concerned with the placement of the monument (*A-B-C1)* and the title *akenanogavos* (C2), with section *D* being a separate imprecative formula that applies generally with no direct relation to the other segments. At least to the author of this work, this seems more likely than Lubotsky's reading, where *C2* and *D* would constitute the same sentence, despite the physical distance between the end of *C2* (in the lower left corner of the monument) and the beginning of *D* (in the upper right part of the monument).

The meaning of *akenanogavos* as a title of some sort also seems to be confirmed by the syntax of °M-04: *akinanogavan tiyes modrovanak [*. Without delving on the ending *-an* too much at this point, we may note that the form is quite clearly in the accusative case, whereas the other elements

[273] In syntactic terms, it is entirely irrelevant whether the sequence is *A-B* or *B-A*. Whenever *A-B* is written, *B-A* is also a possibility with no change in meaning.

are most likely in the nominative singular. The beginning (and only readable part) of this inscriptions then has *tiyes modrovanak* (nom. sg.) 'Tiyes, the *Modro*-king' as the subject of the sentence, with *akinanogavan* being the direct object (CIPP 23).

Clearly, then, *akenanogavos* must be a title of some sort (PhL 170). The clear association of the title with Mother *Areyastis* in °W-01 and the contrast between $^{+}$*Midas lavagtas vanak*, who seems to hold no religious function, and *Ates Arkiaevais akenanogavos*, who placed the monument for the former's benefit, likely indicates that the secular and religious hierarchies were separate, with *akenanogavos* belonging to the latter.

The other two nouns in which the suffix *-avo-* appears are less informative. *proitavos* appears twice, but always in the same onomastic sequence: $^{+}$*baba memevais proitavos k↑ianaveyos* (CIPP 10, 257). In both cases, the entire sequence clearly refers to the same individual, *Baba*. There is very little we can say about this sequence, beyond noting that all the elements are masculine and in the nominative singular and that *avo*-stem follows the *evan*-stem which follows the personal name, as in *ates arkiaevais akenanogavos*. The precise function and meaning of *proitavos* remain ambiguous in this case, however. Whereas we have enough examples of *akenanogavos* to draw the conclusion we are dealing with a title of some sort, the same claim cannot be made for *proitavos* (cf. PhL 336-337).

The final instance of the suffix *-avo-*, in *olgiavos*, appearing in °G-150 *olgiavos asakas* (CIPP 135-137), gives no further clues, beyond suggesting that an *avo*-nominal can appear after what seems to be a personal name (in this case, *asakas* (PhL 184).

What we may clearly see from the examples that are available to us, the suffix *-avo-* was used in at least one religious title and in a possible element of the onomastic formulae. Based on this consideration and the sequence *av,* it has been suggested that *-avo-* ultimately derives from a masculine personal suffix **-eu-* (nom. sg. **-ēus*) (PhL 86-88).[274] In Greek, the reflex of this suffix formed the -εύς type nouns, which refer to masculine individuals, agents in some instances, but other types of masculine derived nouns with a reference to some specific individual in others (Risch 1974: 156-159). The inheritance of *-avo-* for a Proto-Graeco-Phrygian suffix with a strong stem **-ēu-* and a weak stem **-eu-* is both formally and semantically fitting.

This etymological identification now allows us to further analyse the Phrygian suffix *-avo-*. If the element *av* of the suffix originated in PGPh. **ēu*, there is nothing peculiar about the first stage of its development: as we already know, Phrygian did not undergo Osthoff's law. As such, **ēu* would develop regularly into **āu* > OPh. /āu/ <*av*>.

The attested nom. sg. form *-avos* suggests that this suffix was secondarily thematised before the advent of the Old Phrygian era (Lubotsky 1988: 12, PhL 86-87). This is, however, where we run into an issue. The nominative singular forms are all congruent with this explanation.

The form *akinanogavan*, with its unexpected ending, seems to appear as the direct object of the sentence with its final word poorly readable in inscription °M-04: *akinanogavan* (acc. sg.) *: tiyes* (nom. sg.) *: modrovanak* (nom. sg.) *: avara*[?]. Lubotsky (1988: 12) has proposed that the ending *-an* belongs to a feminine *a*-stem accusative singular. In this case, the stem

[274] Cf. Gr. ἱππεύς.

akinanogava- would be a feminine thematic counterpart to the masculine thematic *akenanogavo-* and would be a religious title used to refer to Mother Kybele herself. Since inscription °M-04 actually appears on the goddess's throne itself, this interpretation of the form is extremely fitting.

The suffix *-av(o)-* is also found in an onomastic element that is repeated twice: *k↑iyan-av-eyo-*, which is an *ejo*-derivative from a noun $^{+}$*k↑iyan-av(o)-*.[275] The meaning of this onomastic element or, rather, of $^{+}$*k↑iyan-* remains obscure (PhL 283). The cluster *k↑-* is only found in this one lexeme and it is difficult to ascertain what sound(s) it would have transcribed to begin with. Certainly, this would not have been a native sound or combination of sounds.[276] The entire term may well have been derived from a local title of some kind, though most authors prefer to derive it from a geographical term. A connection with the city name Tyana (Gr. Τύανα, Hitt. *Tuwanuwa*) has been proposed (Vassileva 2008: 167), but as Brixhe-Lejeune (CIPP 257) point out, it is difficult to connect the initial Phrygian consonant cluster with the Anatolian form. Obrador-Cursach (PhL 283) suggests a possible connection with the Bithynian city Κίος (also Κιανίς), but this also fails to properly explain the initial consonant cluster of Phrygian.

[275] The suffix *-ejo-* appears to have attached itself primarily onto both thematic and athematic nominals. The suffix has an identical shape for both, so if the underlying noun is not known, we cannot ascertain its thematic or athematic nature on the basis of an *ejo*-derivation. See also in §III.3.1.4.

[276] It is more or less impossible to imagine any inherited sequence of segments that would produce a result written with *k↑-*. The only possibility for this sequence to be in any way inherited would be to assume an earlier **kV↑-* that underwent syncope into *kə↑-* that was written without the schwa (noted as a possibility by Brixhe (1982: 233)). Otherwise, we would expect the resulting inherited cluster as a whole to undergo voicing assimilation into ***g↑-*. There is some marginal evidence that syncope could have produced a reduced vowel *ə* (§VI.2.4), but that process only appears to have been operational in the proclitic reduction of *-i* after the Old Phrygian era.

We may note that <↑> spelt either /dz/ or /z:/; at this point presumably still the former. From a purely graphical rendering, we should then read a preliminary /kdz/. Phrygian does not allow clusters of mixed voicing, so, more properly, we are dealing either with /gdz/ or /kts/. While assimilation of voice is usually anticipatory in Phrygian, if the cluster as a whole were actually voiced, there would have been no reason to write it with initial <*k*> instead of <*g*>. What we are dealing with, then, is a non-native sequence that would have been interpreted or at least thought to be best spelt as if being /kts/.[277] What non-native sound the Phrygians who used the term would have interpreted as /kts/ is difficult to guess at. There are a number of possibilities, from *bona fide* consonant clusters of [k] and an affricate or sibilant, to affricates such as [ts] or [tʃ],[278] sounds that would have sounded vaguely affricate-like to the Phrygians, like [tʲ] or [kʲ], or something else entirely. As a result, it is easy to project all kinds of possible local terms into $^{+}$*k*↑*iyan*-, with the only constraint being which phonetic characteristics one is willing to ascribe to the donor language and how the Phrygians would have interpreted those: e.g. even a slight secondary articulation of the initial dental in Tyana/Τύανα/Tuwanuwa, [tʷuana-] or [tʲyana-], could be argued to have been re-interpreted by the Phrygians as some sort of an affricate that they would have written with <*k*↑>,[279] or a slight fronting of

[277] Compare also <↑*s*>, the only other written consonant cluster that includes the arrow sign. In this case, <↑*s*> = */dzs/ can really only write [ts] or some other voiceless affricate, which would not have been a native phoneme or consonant cluster in Old Phrygian. *k*↑- would have been seen as sufficiently clear way to write a non-native otherwise unknown **kts*-, instead of needlessly complicating the spelling by using something like **<*k*↑*s*>.

[278] While <↑*s*> does almost certainly spell a voiceless affricate of some kind, a different strategy for spelling a voiceless affricate could have easily been adopted by the scribe(s) of this inscription if no such sound existed in Phrygian at all.

[279] Or a local alveolar value for [t] that would be seen as closer to an affricate, or a local slightly delayed release of a stop when compared to Phrygian, among many other theoretical possibilities.

the velar in Κιανίς could have had the Phrygian re-interpret [ḳiani-] as [kʲiani-] =~ [k^{dj}iani] with an affricated release.
As such, it is currently a fruitless endeavour to speculate on which exact local term could formally fit the spelling of $^{+}$*k↑iyan-*. Any possible candidates, while certain needing to phonetically broadly fit the Phrygian form, ought to be evaluated from a semantic and a locally contextually pertinent perspective first, as well as from the standpoint of what meaning an *-av(o)-eyo-* construction in Phrygian would have actually encoded. With this in mind, no final verdict on the origin of this term will be made here.

Returning to the matter of the *avo*-suffix, it was apparently used as a personal suffix used to specify some individual, by forming a title (*akenanogavos*), an individual designation (*adoikavos* 'PN or some means of designating a specific individual'), and perhaps other types that could be used to refer to individual actors.
The original suffix PPh. *-*āv-* was thematised (Lubotsky 1988: 12, PhL 86-87), with the *o*-stem variant *-avo-* used to refer to masculine and the *a*-stem variant *-ava-* used to refer to feminine entities.

III.3.5 *r*-stems

Relevant examples: *brater-*/βρατερ- 'brother', *daker-*/δακερ- 'monument *vel sim.*', *mater-*/ματερ- 'mother', αναρ 'husband', πατερ- 'father'

The *r*-stems are unique in Phrygian in that every known instance of an *r*-stem noun seems to faithfully reflect the change in vocalism of nouns belonging to this type in PIE: nom. sg. *-*ēr* ~ acc. sg. *-*er-m* (PhL 80-81, 85-86, LL 1820, 1825).

The attested endings of the *r*-stems are:

	ending
nom. sg.	*-r*
gen. sg.	*-r-os*
dat. sg.	*-r-ey*
acc. sg.	*-r-an*
nom. pl.	*-r-es*
acc. pl.	*-r-ais*

Table #24: The *r*-stem endings of Phrygian.

The two most transparent examples in perhaps the entire Phrygian corpus are NPl πατερ-ης < PIE **ph₂ter-es* ~ GSg πατρ-ος < PIE **ph₂tr-os* and NSg *matar* < PIE **meh₂tēr* ~ ASg *mater-an* < PIE **meh₂ter-m* both of which preserve the characteristic ablaut pattern of PIE (PhL 198, 294, 328).

What shape the oblique stem variants of non-familial *r*-stems would have taken is unclear. We may only speculate how well the ablaut alternations of *r*-final suffixes would have survived into the various periods of Phrygian; they may either have been levelled (giving obliques of the type **-er-*) or preserved (their shape being **-r-*).
The singular example of an oblique *r*-stem is the gen. sg. form πατρος 'of the father', which clearly shows that this particular word did preserve its ancient oblique stem variant. This also seems to be confirmed by the adjective *patriyo-* 'fatherly', which is a *jo*-adjective built to the oblique stem *patr-*. We would do well not to take this example as particularly informative for the situation of *r*-stems in general; as part of the most basic vocabulary, it may well have preserved a more archaic declension than

other members of its morphological category (as is, indeed, the case in Greek) (Chantraine 1999: 863-865).

NSg δακαρ ~ ASg *dakeran* 'monument *vel sim.*' is not of PIE age, but was created in either PGPh. or PPh. from the neo-root **dak*- 'to make' (cf. §V.3.9.2) and behaves like a typical hysterodynamic *r*-stem: transponate **dʰeh₁k-ēr*, acc. sg. **dʰeh₁k-er-m* (CIPP2 54, *contra* PhL 86, who assumes the form must have been **dʰeh₁-k-tĕr*-).

The noun ↑*ira*-/ζειρα- 'hand', which was historically an *r*-stem, has been transferred to the *a*-, i.e. the feminine thematic, declension (PhL 247). Its prehistory merits further consideration, since it provides evidence for two heretofore rarely acknowledged Phrygian phenomena.

The fact that ↑*ira*- and ζειρα- do mean 'hand' in Phrygian is difficult to dispute at this point. It was Neumann (1997: 25) who first proposed an association of OPh. ↑*ira*- to NPh. ζειρα-. Formally, associating both with PIE **ǵʰes-(ō)r* 'hand' (Hämmig 2013: 150-151) fits if one assumes: 1) a palatalization of PIE **ǵʰ* before a front vowel; 2) OPh. <↑> and NPh. <ζ> are used to write the same lineage of phonemes; 3) the vocalism of OPh. and NPh. forms can be reconciled; and 4) the semantics fit.

Probably the biggest breakthrough in terms of understanding the semantics was made once Kloekhorst (2015: 115) identified OPh. *petes* as having the meaning 'feet'. This suddenly thrust the poorly transcribed (and later lost) inscription °12^{S} in an entirely new light; the precative apodosis previously read as ζειρα κε οι πειες κε τιττετικμενα ατ τιε αδειννου *'zeira* and his *peies* condemned may-they-become' (cf. Haas 1966 and others) now suddenly made perfect sense once one emended πειες into πετες: ζειρα(ι) κε οι πετες 'hand(s) and his feet condemned may-become' (cf. PhL 331).

Following this interpretation, the protasis of °106[E] is also suddenly clear: ιος νι σεμουν κνουμανει κακουν αδοκετ ζειραι 'whosoever to-this grave a-bad-thing would-do by-hand' (Hämmig 2013: 150-151).

With regards to the vocalism, we have now managed to identify evidence that OPh. <e> and <i> are used to write a segment /ē̯/, which corresponds to NPh. <ει> or <ι>. The spelling difference in ↑*ira*- ~ ζειρα- then no longer poses a problem.

For the assumption that the initial segment represents the same phoneme lineage, we may note that the graphemes OPh. <↑> and NPh. <ζ> are extremely rare in the corpus. While no direct identity exists between ↑ and ζ beyond in the word for hand, it would be extremely unlikely for the two graphemes to encode wholly dissimilar sounds, considering hardly any other marginal grapheme could fit the same distribution, both in phonological environment or relative frequency (§II.3.2.3.4).

Finally, the palatalisation of inherited **ǵʰ* is supported by additional evidence. The Phrygian reflex of **ǵʰesr*- as ↑*ir*-/ζειρ- is one of the best examples in favour of Phrygian palatalization, i.e. PIE **ǵʰe* > PGPh. **gʰe* > PPh. **dze*, but the other evidence in favour of Phrygian palatalization is robust as well (§II.3.2.3.4).

As such, the etymology of ↑*ira*-/ζειρα- as originating in PIE **ǵʰes-r*- 'hand' is difficult to dispute in light of all the evidence. The one apparent issue, the development of **-sr*-, will be treated below.

The Proto-Indo-European antecedent of ↑*ira*- was the holokinetic *r*-stem noun **ǵʰesr*, with its three stem variants being nom.sg **ǵʰes-r* ~ acc. sg. **ǵʰs-er-m* ~ obl. **ǵʰs-r*- (Kloekhorst 2013: 111-115).[280]

[280] This account of the development of the words for hand in the various Indo-European languages is adopted from Kloekhorst (2013: 111-115 *et passim*), which in my view best

The Phrygian noun ↑*ira*- is best explained as deriving from the oblique stem of **ǵʰesr*- which also underlies all the attested forms of the Greek word for 'hand', Attic-Ionic χείρ, χειρός; Aeolic χήρ, χερρός. While there can be no doubt that the Proto-Graeco-Phrygian oblique stem was **gʰehr*-, what its nominative was can only be speculated upon. If the oblique stem had already been adopted to form the nominative at this point, the nominative form would need to be **gʰehr*, surfacing either as **gʰehr̥* or **gʰehr̥*. The former option seems suspect in light of the phonotactics of Proto-Graeco-Phrygian. The latter option is then preferable. In any case, this nominative form was replaced in both the daughter languages with a new form based on the oblique stems.[281],[282]

The transfer to the *a*-stems was possibly the result of the noun for 'hand' having acquired a feminine gender in PIE, or at least in PGPh., already (cf. Gr. fem. χείρ). We can speculate that the noun was absorbed into the characteristically feminine *a*-stems as a means of saliently marking its grammatical gender.[283]

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explains the Hittite reflexes NSg *keššar*, ASg *kiššeran*, GSg *kišraš*. This account is not universally accepted, however, with the most common alternative appearing in the literature being a reconstruction **ǵʰes-ōr*, **ǵʰ es-or-m*, **ǵʰes-r*-. Since Phrygian ↑*ir*- only requires the existence of the (neo-)oblique **ǵʰesr*- to be explained, both models are compatible with it, with Kloekhorst's account simply requiring the levelling of the vocalism of the strong stem **ǵʰes*- into the oblique cases, which likely happened in post-Anatolian PIE already in any case.

[281] The new nominative in the Greek dialects would need to have been independently created multiple times after the disintegration of Proto-Greek itself, i.e. after the resolution of **hr* clusters, which had different reflexes in the dialects, with all the neo-nominatives being extracted from the oblique forms specific to the individual dialects.

[282] Since the nominatives were in any case replaced entirely by a new form originating in the oblique cases, if one adheres to the **ǵʰesōr* scenario, that nominative would likewise have been entirely replaced. In other words, Greek and Phrygian shed no light on what the nominative singular in PIE, or even PGPh., would have been.

[283] The *r*-stems in PIE did not morphologically distinguish between the feminine and masculine genders, only between animate and inanimate. Once more Phrygian *r*-stems are known, it might be worth examining whether the category itself might not have pivoted in general towards a non-feminine grammatical gender (*matar* being the obvious exception

An important question in the case of ↑*ira*- is the nature of its vocalism, i.e. why *g^{h}*ehr*- + *-*ā* should surface as Old Phrygian ↑*ira*- and New Phrygian ζειρα-. Both of the spellings taken together seem to suggest that the vowel of the first syllable was *ę̄*.[284] This suggests that a PGPh. cluster **ehrV* developed into PPh. **ę̄rV*, with the reflex of this vowel then written as <i> in Old Phrygian (as in *dedasitiy* < *-*sī*-) and <ει> in New Phrygian (as in τοτοσσειτι < *-*sī*-). This would be a development practically identical to that observed in Attic-Ionic.[285]

III.3.6 *n*-stems

The *n*-stem nominals in the Phrygian corpus can currently be subdivided into three broad categories (PhL 80, 83-84): 1) neuter nouns with a suffix *-m(e)n;* 2) personal names with a suffix *-evan*; 3) *n*-stem nominals not otherwise specified.

One peculiarity of Phrygian *n*-stems is the fact that those *n*-stem nouns which receive a nominative singular ending *-s* will show a nominative singular ending *-is* rather than *-*ns*, in accordance with the usual development of this cluster in Phrygian (i.e. *-*an* + *-s* > *-ais*, *-*on* + *-s* > *-ois*, *-*en* + *-s* > $^{+}$*-eis*) (§II.3.2.3.8). In PIE terms, *n*-stems did not possess a sigmatic nominative, so this development is not expected to be found in

for semantic reasons), which would then explain why the word for 'hand' had to have been additionally characterised for feminine gender.

[284] At first glance, one would assume that the vocalism being reflected by these spellings was **ī*. We may be quite certain, however, that the reflex of PGPh. **ī* was OPh. *ę̄*, based on its spelling as either <*e*> or <*i*>. There is no reason to presume that Old or New Phrygian ever possessed a vowel *ī* that would have phonologically differed from *ę̄*.

[285] We may note that Phrygian does not seem to possess any clusters of the *-*sR*- type, suggesting that these were removed through the operation of sound laws.

strictly inherited material. It applies to the category of names in *-evan-*, which are synchronically declined as *n*-stems, but originated from a sequence **-e-u̯ant-*, declined originally as dental stems. As such, while unexpected in synchronic terms, the sigmatic nominative *-evais* of these names is diachronically entirely regular.

The attested endings of the *n*-stems are:

	ending	
	masc.	neut.
nom. sg.	*-n-Ø / -i-s*	*-n-Ø*
gen. sg.	*-n-os*	
dat. sg.	*-n-ey*	
acc. sg.	*-n-an*	*-n-Ø*

Table #25: The *n*-stem endings of Phrygian.

III.3.6.1 Neuter nouns with a suffix *-m(e)n*

Examples: *keneman* 'niche', *onoman* 'name', κνουμαν 'grave', κολταμαν- 'deathbed[?]', κορουμαν- 'graveplot[?]'

The PIE ablauting suffix *-m(e)n* in the neuter was primarily used to form action or resultative nouns from a verbal root (e.g. **genh₁-* 'to beget' >> **genh₁-mn̥* 'that which is begotten' > Skt. *jániman* 'generation', Lat. *genimen* 'fruit') (PhL 83).

In Phrygian, the suffix is used in much the same manner (PhL 83, LL 1825-1826):

keneman 'niche' < 'that which is dug' < PIE *$k^{w}(H)enh_1$-*mn* (PhL 269-270);

κνουμαν 'grave' < 'that which is scratched/scraped' < **knuH-mn* (PhL 274-275);

onoman 'name' < 'that which is named' < *h_3nh_3-*mn* (PhL 317).[286]

The suffix was apparently also productively used to form new nouns with a specialized meaning from other nouns into at least the post-Old Phrygian era. An example of this use is κορουμαν 'graveplot', which sees κορο-, a loan from Greek χώρο- 'land', extended with the suffix *-man* to form a new Phrygian noun with a more specific meaning (Avram 2016: 125; PhL 83, PhL 278).[287]

κολταμαν- apparently shows this suffix as well, but the preceding structure κολτα- appears to be nominal in origin (possibly *$g^{h}ol(H)$-teh_2-, though the initial consonant does not match) (PhL 83), suggesting that the suffix *-m(a)n-* was likewise used to form a new noun from an earlier $^{+}$*kolta-*.[288]

While the use of the suffix *-m(a)n-* is synchronically understood rather well, we ought to turn our attention towards the ablaut pattern seen in the forms and what they suggest more broadly. In PIE, the suffix *-*m(e)n* was

[286] I follow van Beek (2011: 52-53) and others who assume that the word for name is not derived from a root *h_1neh_3- or *neh_3-. As a rule, the nature of an initial laryngeal can only be ascertained by looking at Greek, Phrygian, Armenian, and Anatolian data, with Graeco-Phrygian being the only branch that faithfully preserves three different reflexes for the three laryngeals. The fact that both Greek and Phrygian agree in the nature of the first vowel proves beyond reproach that the initial vowel in the word for 'name' was **o* in at least in Proto-Graeco-Phrygian already. There is in any case no good evidence to suppose that the word for 'name' began with *h_1 in PIE (*ibid.*).

[287] The fact that κορουμαν- has its first vowel rendered as <o> dates the loan of χωρο- to a point after the *ō* > *u* change had taken place, which happened after the end of the Old Phrygian era, i.e. the 5th century BCE.

[288] For more on the possible meaning and etymology of κολτα-, see PhL 276. The most likely meaning of κολταμαν is 'deathbed'.

ablauting, following a proterodynamic pattern **CeC-mn* ~ **CC-men-* (PhL 83) (Meier-Brügger 2010: 344).

To tackle the issue of root vocalism first, we seem to have two witnesses that support the proposition that the root vocalism was levelled into the zero-grade on the basis of the oblique cases: κνουμαν < **knuH-mn, onoman* < **h₃nh₃-mn*.

The case of *keneman* is somewhat more complex. In principle, simply looking at the structure of the *kene-* element, the verbal root underlying this noun would need to be **Kʷenh₁-*, with the whole construction preserving a full grade: **Kʷenh₁-mn* > *keneman* (cf. Lubotsky 1988: 15). The usual connection made is that to Sanskrit *khan*^{i}- 'to dig', a root that must have prehistorically shown two laryngeals in Indo-Iranian: one to account for the aspiration in *kh* and another to justify its status as a *seṭ*-root (LIV$_2$ 344). Further, its initial velar could not have arisen from a palatovelar. An earlier form of *khan*^{i}- must then have been **k(ʷ)HenH-*. If we directly compare Phrygian *kene-* to this structure, we must identify the two laryngeals as being **h₁* and the initial velar as being a labio-velar. The final reconstruction of the root (or, rather, stem) in question is **kʷh₁enh₁-*, whose zero- and full-grade would both surface as Phrygian *kene-*;[289] since the two stem variants would have been identical in Proto-Graeco-Phrygian already, no levelling would be necessary at any point to produce the attested *keneman*.

Since two of the attested inherited *mn*-neuters show a levelling of the zero grade in the root (PhL 83), and the third could not, apparently, distinguish different ablaut grades, we may, for the time being, speculate that *mn-*

[289] The aspiration in Skt. *khan*^{i}- would need to have developed from **h₁*.

neuters as a class were formed with a generalized zero grade in the root in Proto-Phrygian.

The suffix *-*mn̥* was apparently levelled from its nominative-accusative singular variant -*man*; the oblique cases almost uniformly show -*man*- (as in, e.g. DSg κνου-μαν-ει) instead of a reflex of the original oblique variant *-*men*- (PhL 83). The form κνουμινος, however, has been interpreted as preserving a relic of an unlevelled *-*men*- in the genitive singular case (which is not attested for *mn*-neuters outside this specific example) (as argued by PhL 83, 275). It is difficult to imagine how this suffix could have remained unlevelled in only a single case form for such a long time. More likely, if the spelling is to be taken at face value at all, the unexpected vocalism is due to some kind of a vocalic reduction, though we must admit that no other case of *a* > *i* is known.[290]

[290] The stem κνουμαν- is written in an unexpected fashion in two other examples: κνουμμαν- and κνουνμαν-. We have interpreted these two spellings as showing an allophonic nasalization of the initial vowel between two nasals, [knũman-], in §II.2.3.1.3. In κνουμινος, the unexpected <ι> also appears between two nasals. Perhaps, then, the suffix -μαν- may have been realised as [-mãn-] at times. If this [ã] were reduced in some fashion, presumably due to not being accented, it could have been realised as [ə̃]. We know from other New Phrygian examples that <ιν> and <εν> could be used to render [ə̃]. This would then explain κνουμινος as representing a spoken [knu̇̃mə̃nos]. As such, the phonetic reduction in question would not be [a] > [i], but rather the far more natural [a] > [ə], with the use of <ι> being the result of there being no dedicated grapheme for this segment and the coalescence of /in/ and /en/ sequences into [ə̃].

III.3.6.2 *n*-stems originating from *nt*-stems

III.3.6.2.1 Personal names with the suffix -*evan*-

Relevant examples: *arkiaevais* 'PN'*, memevais* 'PN'*, kanutievan-* 'PN'

Nominal forms with the suffix -*evan*- appear either alone or next to a personal name, suggesting that we are dealing with either an addition to a name, like a patronymic, or a title of some kind (PhL 83-84).

The suffix -*evan*- had the ending -*s* in the nominative singular and the resulting form ending in *-*evans* underwent the characteristic Phrygian sound change *-*ns* > -*js* (PhL 83-84, LL 1820, 1825). The resulting nominative is attested as -*evais* a total of three times. Note that the nom. sg. ending -*s* would not have been used with an original *n*-stem; the fact that it appears here clearly shows that the suffix was originally declined as part of a non-resonant consonant stem.
The only other case form that we have attested is the genitive singular *kanutievanos,* which shows that the suffix -*evan*- was synchronically declined as an *n*-stem.

Etymologically, the suffix -*evan*- is most likely composed of the thematic vowel -*e*- and the PIE suffix of appurtenance *-*u̯(e)nt*- (as reconstructed on the basis of Sanskrit -*vant*) in the zero-grade: *-*e-u̯n̥t*- > *e-*vant*- (PhL 83-84, LL 1820, 1825). The loss of **t* would have been automatic in the

nominative singular in the Proto-Graeco-Phrygian era already: pre-PGPh. *-*e-u̯n̥t-s* > PGPh. *-*e-u̯n̥-s* > PPh. *-*e-van-s* > OPh. -*evais*.[291]

In the other cases, the expected development is *-*e-u̯n̥t-V* > PPh. *-*e-vann-V,* with a geminate nasal (PhL 84, Hämmig *apud* LL 1822). Since Old Phrygian does not distinguish geminates in spelling, the genitive singular spelling <-evanos> likely actually represents /-*evannos*/*,* which we would expect on the basis of known sound developments. On the other hand, the geminate *-*nn*- of the non-nominative-singular cases could just as well have been levelled into a single *-*n*- on the basis of the nominative singular *-*evan-s* without a geminate at some later point.[292] Both options remain possible until an oblique case form from the New Phrygian era is found, as New Phrygian does consistently distinguish <ν> < **n* and <νν> < **nt.*

III.3.6.2.2 Other *nt*-stem nominals

A Phrygian nominal that ultimately derives from an *nt*-stem is *kuryaneyon* 'commander, lord'. This is a loan from an unattested early Greek term **korjanejōn* whose cognate in epic Greek is κοιρανέων 'commander, lord' (LL 1820, 1825).

In Greek, the nominative singular form **korjanejōn* belongs to an *nt*-stem **korjanejont*-. The nominative singular form of this stem was not formed

[291] The spelling *memeuis* for expected *memevais* must represent some secondary development, if not due to scribal error. Obrador-Cursach has proposed that the development is due to areal influence, based on a Luwic contraction identified by Rieken (2001 *apud* PhL 84).

[292] This change would need to have happened before the **ns* > *js* development took place, since there would have been no forms with a single *-*n*- left remaining in the paradigm after it. Since the sound law in question very likely happened quite late in Phrygian pre-history, this poses little issue.

with an addition of *-*s*, but rather with the lengthening of the vowel, as we would generally expect in Greek for non-neuter *n*-stems.
Phrygian seems to have loaned the nominative singular form unchanged: the desinence *-on* of the Phrygian form is not raised to *-*un*, meaning that the vowel of the final syllable was long (Tamsü Polat et al. 2020: 51).

III.3.6.3 *n*-stem nominals not otherwise characterized

Relevant example: *iman* 'memorial'*,* ↑*emen*-, ορουεν- 'keeper, protector'

The noun *iman* 'memorial' has three attested case forms: nom. sg. *iman,* dat.sg. *inmeney,* and acc.sg. *imenan* (PhL 252-253). The fact that the nominative and accusative singular are not identical is evidence that the noun was non-neuter, and the agreement in the phrase *sint imenan,* with the demonstrative pronoun *si-* being in the masculine accusative singular, shows that the noun was of masculine gender. The lengthened vowel in the nominative singular is inherited and represents the same fundamental phenomenon that underlies the other resonant-final nouns with a pattern nom.sg. *-*ēR* ~ acc.sg. *-*eR-m̥.* The vocalism of the accusative case was apparently levelled into the oblique case forms, as evidenced by *inmeney*.[293]
Vine (2010) has proposed that *iman* developed from an original root noun *men- (nom. sg. *mēn,* acc.sg. *men-m̥)* from the PIE root *men- 'to remain' (cf. Gr. μένω 'I remain', Lat. *maneō* 'I stay', etc. (LIV$_2$ 437)). A root noun *mēn 'a remaining' would have been prefixed with *en 'in',

[293] For the unexpected -*n*- in the first syllable of DSg *inmeney*, see §II.1.2.3.

giving the meaning 'memorial' (Vine 2008), which seems semantically viable.

The nominal form ↑*emeney* appears in the dative case (Neumann 1997: 25, PhL 247). It is found in what appears to be a conditional clause: *yos isekosos* ↑*emeney pupratoy, veban ituv* °B-05. The meaning of ↑*emeney* is unclear; it seems to function as the indirect object of the verb *pupratoy*, but it may just as well have some adverbial meaning. The ending *-ey* is athematic. The structure suggests that the root element was **g^hem-*, presumably in full grade, extended with the suffix *-en-*. The suffix was likely ablauting, so one of the two full grades of the root and suffix has presumably been levelled from another form, suggesting that the original declensional pattern was proterodynamic; the fact that the initial consonant is palatalized, however, suggests that the levelling of the full-grade in the root-element must have taken place before the Phrygian palatalization took place.[294] The pattern of this declension in PPh. would then have been **zem-n- ~ *zem-en-*.

Alternatively, Lubotsky (p.c.) has proposed that the element ↑*e-* is a reflex of PIE **ǵ^{h}ei-* 'winter' (NIL 162-169); in that case, *-men-* would have been the suffix still remaining in its expected full-grade form in the oblique cases. However, the sequence ↑*e-* is spelt with <e>, which was never used to spell the reflex of an earlier **i*. At best, <e> could only spell the reflex of older **ey,* assuming that it was understood as *ę̄;* inscription °B-05 does also show the spelling of **ey* as <i> in *ituv* (PPh. **/eitō/*), while its rendering of *ę̄* is inconsistently both <e> and <i>, so suggesting that this

[294] Otherwise, the alternation of a palatalized and non-palatalized velar that would be expected from **g^hem-n- ~ *g^hm-en- > *↑em-n- ~ *gm-en-* would have likely been levelled in favour of the non-palatalized variant, resulting in ***gem-*. See also §II.3.2.3.4.

particular inscription shows a dialectal merger of /ei/ with /ē̯/ is not a problematic proposition. This would still mean, however, that the full grade in the root would need to have been levelled throughout the paradigm to produce the required ↑*e-* /zē̯-/ in the dative case. The fact that it was the full grade of the root that would be levelled in this scenario is incompatible with an interpretation of this noun as a *mn*-neuter, which apparently levelled the zero-grade of the root. Other **m(e)n*-type formations did exist in PIE and PGPh.,[295] however, so Phrygian ↑*emen-* may well belong to one of those, if an allowance is made for the merger of *ey* and *ē̯*.

Another Phrygian *n*-stem is ορουαν 'keeper, protector', an epithet of Ti-, nom. sg. ορουαν, gen. sg. ορουενος, acc. sg. ορουεναν (PhL 320-321), which Lubotsky (1997: 127-128) has etymologized as deriving from **sorm̥ēn* (cf. Gr. οὖρος 'watcher, guardian'). In this word we find the characteristic lengthened grade of the final syllable of the resonant stems in the nominative singular and the full grade in the accusative singular (LL 1820). The full grade of the suffix in the genitive case form ορουε̲νος must have been levelled from the accusative.

Some other attested words with an indeterminate meaning that could conceivably be analysed as *n*-stem nominal formations are: *murtan, aken-, asen-, ataniyen*.

[295] As evidenced by Greek nouns like λείμων < **lei-mōn* and λίμην < **li-mēn* (Chantraine 1999: 627).

III.3.7 *l*-stems

Relevant example: *apel* 'fruit[?]'

The Phrygian corpus is known to possess only a single *l*-stem noun: *apel*-, which appears in three case forms, nom. sg. *apel* °G-342, dat. sg. *apele*(*y*)[296] °130[NW] and acc.sg. *apelan* °M-05 (PhL 179).
The stem *apel*- can, in principle, be derived from either a root noun derived from the root **h₂p/bel*- or a noun with an ablauting *l*-suffix added to a root **h₂ep/b*-. Since the meaning of this noun is not established, deciding between the two options must proceed on purely formal grounds.[297]

If we assume that we are dealing with a noun with an ablauting *l*-suffix, we must consider the place of *l*-stems in other Indo-European languages. The only two existing *l*-stems in PIE, **h₂eb-l*- 'apple' and **seh₂-l*- 'salt', follow the hysterodynamic inflectional type.[298] It seems quite natural to assume,

[296] The form is actually spelt *apelev* °B-07, but the final -*v* is likely due to anticipatory assimilation to following *p*-.
[297] Obrador-Cursach (PhL 179) supposes that we are dealing with a personal name, but while this is possible, it is suspect. Especially in °B-07, it is difficult to see how *apelev* could have functioned as a personal name, since the person who commissioned the grave and is interred in it is already mentioned in the same clause (*Manes [...] apelev porniyoy estaes* 'Manes [...] for/to-*apel* for/to-*porniyos* erected', Manes also being the person buried.) The form *apelan* formally also seems far more likely to be in the accusative singular case, belonging together with a nominative *apel*, rather than itself being a nominative singular form of a personal name.
[298] The two *l*-stems in question have, admittedly, been the subject of much debate. In the case of **seh₂l*- 'salt', scholars who assume the existence of a vowel **a* in PIE tend to reconstruct it as an ablauting root noun **sāl*- ~ **sal*-. The word for 'apple', **h₂eb-ōl*, is usually considered problematic for one of two reasons: 1) the initial vowel is uniformly reflected as **a* in the languages having this lexeme, leading many to reconstruct the its PIE antecedent as showing the vowel **a*; 2) the stop that needs to be reconstructed is **b*, a notoriously rare segment in PIE (though some have attempted to explain the presence of **b* as arising from a cluster **ph₃*, giving a reconstruction **h₂eph₃-l-/aph₃-l*-) (e.g. Matasović 2009: 23). On the basis of these two extraordinary correspondences, it has been

then, that the attested Phrygian forms must have been in some way derived from an original hysterodynamic (CIEL 195) or amphikinetic (cf. Meier-Brügger 2010: 351-352) declension.

The only known *l*-stem noun in Greek, assuming that its *-l-* was suffixal, is ἅλς 'salt', which shows no synchronic ablaut, suggesting it was entirely levelled. In the declensional model proposed by Lubotsky (1989c: 59-61), in PIE itself, this noun would have shown nom.sg. **seh₂-l-(s)* ~ acc.sg. **sh₂-el-m̥* ~ obl. **sh₂l-´*. Since its vowel in Greek was short, the vocalism could only have been levelled from the accusative singular or the oblique cases. Taking into account *apel*, if it was indeed a noun formed by adding a suffix **-l-*, it would appear that Proto-Graeco-Phrygian *l*-stems, few as they were, levelled the vocalism of the accusative singular.

Our best approach now is to attempt to discern whether an etymological connection can be found. Since *l*-final nouns are so rare in PIE, we can immediately note a striking similarity of *apel* with the reconstructed PIE word for 'apple', NSg **h₂eb-ōl* ~ ASg **h₂b-el-m* ~ GSg **h₂b-l-ós*, whose accusative would have regularly developed without any morphological alterations as *apelan*, precisely the form we find in Phrygian. On the basis of such a strong formal identity, also bolstered by the observation that the vocalism of the Greek *l*-stem ἅλς was likewise adopted from the accusative singular case throughout the paradigm, I propose that *apel* is indeed the continuation of the PIE word for 'apple'.

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proposed that the word for 'apple' is not properly PIE at all and was loaned into it at a comparatively late time from some substrate source. This objection, however, in no way changes the fact that this noun shows an ablauting *l*-suffix and is declined in accordance with the pattern observed in the hysterodynamic type 3 (CIEL 190, 195) or amphikinetic (as given in Fortson 2004: 109) declensional types, with the *l*-suffix alternating between strong **-ōl/*-el-* and weak **-l-´*.

It is a matter of debate how well a meaning ‘apple’, or perhaps some semantic development from it, e.g. ‘fruit, product *vel sim.*’, fits the contexts where *apel-* appears. *apelan* is found in an unclear context, *apelan* (vac.) *mekas tevano*[°M-05, and making any judgement is currently difficult. *apel* is the only word in °G-342 and whether a meaning related to ‘fruit’ is suitable depends greatly on the semantic latitude one is willing to admit the word and the functions one is willing to ascribe to this particular inscription. The function of *apelev* in °B-07 is hard to ascertain and it is difficult to see how a meaning ‘apple’ or ‘fruit’ could apply in that context: *Manes […] apelev porniyoy estaes*. One may, however, note the existence of the phrase καρπυς ειλικρινη in inscription °130^{NW} as part of a benediction formula. The two words are loans from Greek καρπός ‘fruit’ and εἰλικρνής ‘pure’. There is, then, at least one example of the term for ‘fruit’ appearing in a funerary inscription, though seemingly in a different immediate context.

The attested endings of the *l*-stems, based on *apel*, are:

	ending
nom. sg.	*-l*
dat. sg.	*-l-ey*
acc. sg.	*-l-an*

Table #26: The *l*-stem endings of Phrygian.

III.3.8 *m*-stems

Relevant examples: δουμ- ‘religious community’, γουμ- ‘ground’

The Phrygian corpus currently includes two *m*-stem nouns.

The attested endings of the *m*-stems are:

	ending
dat. sg.	*-m-ey*
acc. sg.	*-m-an*
dat. pl.	*-m-eis*

Table #27: The *m*-stem endings of Phrygian.

The dative plural γουμεις appears twice in inscription °130^{NW}, in the protasis of two funerary formulae, one maledictive and one benedictive, both types as part of a sequence κορουμανη αινι σως κε γουμεις ‘in the grave-plot or in these γουμ-’. κορουμαν- is likely to mean ‘grave-plot’ and is in the dative singular case; likewise, γουμεις appears in the dative case, though in the plural number.[299] The object of the verb, ουεβαν, some part of the grave, appears in the accusative singular case (Avram 2015: 208). Syntactically, in funerary formulae, the object subjected to the verbal action is traditionally in the dative case, while what is being performed appears in the accusative case (cf. σεμουν κνουμανει κακουν αδδακετ ‘to-this grave (dat.sg.) something-bad (acc.sg.) would-do’). Such an analysis does not seem possible for inscription °130^{NW}; the accusative ουεβαν refers to a

[299] The identification of the form as a dative plural is firmly supported by preceding σως ‘these’, the expected dative plural form of the demonstrative pronoun *si-*.

material object. The datives κορουμαν- and γουμ- can thus hardly refer to a beneficiary of the action; rather, since the meaning of κορουμαν- 'grave-plot' is likely (Avram 2016: 125) and refers to a location, the dative appears to be used in a locative sense: *in/on/at the* κορουμαν=*grave-plot*, *in/on/at these* γουμ-. γουμ- can morphologically only be understood as an *e*- or an *m*-stem; if the former, we would most likely be dealing with a loanword, though no local comparanda are forthcoming. Alternatively, if we interpret γουμ- as an *m*-stem, the attractive possibility emerges that we are dealing with a Phrygian cognate of Greek χθών. In PIE, the word for 'earth' was **dʰeǵʰōm,* a rare example of an *m*-stem; the full-grade of the root was lost after the Anatolian split, giving a post-Anatolian PIE form of **dʰgʰōm* (giving rise to Skt. *kṣā́m,* and Greek χθών (cf. Kloekhorst 2008: 991-996; EDG 1632-1633)). It is extremely conspicuous that a possible *m*-stem in Phrygian corresponds to one of the only *m*-stems found in PIE in both semantics and its basic basic phonetic make-up. The descent of γουμ- from **dʰǵʰom-* is not absolutely beyond reproach, but the assumptions required to account for the Phrygian form are extremely trivial. First of all, initial **dʰǵʰ-* would need to surface as Phrygian γ-. This is not problematic; one simply needs to assume that an initial cluster **dʰǵʰ- > *dg-* simplified into **g-* in Proto-Phrygian (see §II.3.1.2.2). Comparatively, such an independent development is well-supported, cf. Latin *humus* < **gʰom-* < **dʰǵʰom-* (de Vaan 2008: 292) and PSl. **zem-* < **ǵʰem-* < **dʰǵʰem-* (Derksen 2008: 541). Phrygian ζεμελο-, a derivation from the root **dʰeǵʰ-*, would presumably likewise have arisen from a form with a simplified cluster, i.e. **gʰem-elo-* < **dʰǵʰem-elo-*.[300]

[300] We should note here that the pre-historic phonetic result of a palatalized **gʰ-* in Phrygian is unknown. If it was originally **dz*, as seems likely, and the cluster **dʰgʰ- > *dg-* were preserved up to the point of palatalization, the development would be **dʰǵʰe- > *dge- > *ddze-*, which would presumably develop into **dze-*, making it indistinguishable

The use of the vocalism of the nominative **$d^h\acute{g}^h\bar{o}m$* in the oblique stem γουμ- < **$g\bar{o}m$-* would need to have been the result of levelling. This is hardly a problematic proposition; indeed, in Greek, we find the levelling of nominative consonantism -ν throughout the paradigm (χθών ~ χθον-, as opposed to **χθομ-). As such, any argument that levelling of stem forms must always have been in favour of the oblique stem is on shaky grounds. The stem final *-m* of γουμ- is apparently directly descended from the PGPh. oblique stem **d^hg^hom-*, indicating that the levelling of Greek -ν must be posterior to Proto-Graeco-Phrygian. The nominative singular form of the word in Proto-Graeco-Phrygian was likely to have been **$d^hg^h\bar{o}n$*, in accordance with the proposed PGPh. development **-m* > **-n.* The nominative singular form of γουμ- in Phrygian would then be expected to be $^+$γουν.[301]

δουμ- is most likely being a loanword from some other language spoken in Anatolia (*contra* PhL 215, where Greek θωμός 'heap' and Gothic *doms*

from the reflex of a simple **g^he- > **ge- > **dze-*. For this reason, ζεμελο- is actually uninformative in this regard. Rather, it is γουμ- that informs the likely development of ζεμελο-.

[301] There is an interesting alternative possibility. Assuming that Phrygian was averse to consonantal alternations like the **-n ~ *-m* assumed for $^+$γουν ~ γουμ- and taking into account that it is the *m*-stem that is preserved, the only way for Proto-Phrygian to preserve a nominative singular with **m* would have been to assign it to a vocalic stem class. Since the form γουμεις cannot belong to the *o*- or the *a*-stems, the noun might have been assigned to the innovative *e*-stem class, giving a neo-nominative singular $^+$*gōm-e-s*. In that case, the datives would have been the fulcrum of this transfer: *e*-stem dat.sg. *-ei* : *e*-stem nom.sg. *-es* = *m*-stem dat.sg. *-ey* : *m*-stem nom.sg. X, X = *-es.* Since the dative apparently also had a locative function, it is not unlikely that a noun meaning 'earth' would have been re-shaped on the basis of a synchronically locative form. On the other hand, δουμ- is synchronically an *m*-stem that has not been absorbed into the *e*-stem declension, as evidenced by its acc. sg. form *duman*, suggesting that the *m*-stems as a category were not ousted from the language. Since its nominative singular form is unknown, we may only speculate whether it was $^+$δουν, reshaped into $^+$δουμε(ς), or perhaps simply $^+$δουμ, if the *-m* > *-n* sound law was no longer operational.

'judgement' are adduced as comparanda).[302] This lexeme appears throughout Anatolia, but its origin remains obscure. If it is a borrowing into Phrygian, it must have taken place at an early date, since the vast majority of loans into Phrygian do not preserve a consonantal declension.[303]

III.3.9 *s*-stems

Relevant forms: *bevdos* 'statue', *+kenos?*, *+vetos?*, βεκος 'bread'

The Phrygian *s*-stems are characterized by the addition of a suffix *-(V)s-* to a nominal or verbal root. As in PIE and Greek, the *s*-stems in Phrygian are neuters.[304]

In Core PIE, the *s*-stems are proterokinetic; i.e. the strong and weak stem variants are: **CéC-os-* ~ **CeC-és-* (CIEL 204-205). The only remnants of the presumed older pattern without levelled root vocalism, **CéC-(o)s* ~ **CC-és-*, are known from the Anatolian branch of Indo-European, but even there the type is generally the same as in late Core-PIE, with only a handful of forms still preserving the original ablaut pattern (most notably Hitt. nom. sg. *aiš* ~ obl. *išša-* 'mouth') (Kloekhorst 2008: 200-202). As such, there can be very little doubt that the *e*-grade vocalism of the root was present in every case form of the *s*-stem paradigm in the stage of PIE immediately

[302] The proposal that it is a development from PIE **dōm* 'home', as appealing as it may seem, is no longer tenable in light of the *Lautverschiebung.* At best, Phrygian may have borrowed the word from another IE language that does go back to PIE **dōm*, but unless this is confirmed by additional evidence, we are dealing with pure speculation.
[303] For the derivative *dumeya-*, see §III.3.1.4.
[304] The nominative/accusative singular ending of PIE, Phrygian, and Greek *s*-stems appears identical to the nominative singular ending of the *o*-stems, **-os*, *-os*, -ος, respectively, but the two types are not to be equated.

preceding the split of Proto-Graeco-Phrygian and that the same holds for PGPh. as well.

In Greek, a clear example of an *s*-stem is γένος 'offspring', which declines as following:

nom. sg. γένος < **gen-os-Ø* < **ǵenh₁-os-Ø* (> Skt. *jánas*)

gen. sg. γένους < **gen-eh-os* < **ǵenh₁-es-e/os* (> Skt. *jánasas*)

dat. sg. γένει < dat. sg. **gen-eh-i* < loc. sg. **ǵenh₁-es-i* (> Skt. *jánasi*)

acc. sg. γένος < **gen-os-Ø* < **ǵenh₁-os-Ø* (> Skt. *jánas*)

In Phrygian, the *s*-stems are only attested in the nominative/accusative case singular and plural, as far as we are able to tell. We must operate under the assumption that the type of declension would have been fundamentally identical to the PIE and Greek prototypes, at least at first.

The attested endings of the *s*-stems are:

	ending
nom./acc. sg.	*-os*
dat. sg.	*-ey*[?]
nom./acc. pl.	*-a*

Table #28: The *s*-stem endings of Phrygian.

An example of an *s*-stem that matches the PIE prototype perfectly is *bevdos*, which Lubotsky (2008) has identified as meaning 'statue, visage (< image)', from the PIE root **bʰeudʰ*- 'to be aware of'. Phrygian *bevdos* was loaned into Greek as nom. sg. βεῦδος (an *s*-stem neuter) 'a woman's dress'. The nominative/accusative singular case form is entirely transparent: **bʰeudʰ-os-Ø* 'image (< what one sees < what one is aware of)'. This Phrygian noun is certainly of the neuter gender, since it is preceded

by the demonstrative pronoun form *si* in *si bevdos* °B-01, which is known to be used alongside a neuter noun on the basis of the phrase *si keneman* (where *keneman* is a **-mn̥* type neuter noun).

The rest of the known *s*-stems in Phrygian are more difficult to analyse, however.

One possible example of an *s*-stem is the nom./acc. pl. form κενα. The ending -α is not overly problematic if we assume a simple contraction; in an *s*-stem declension, the sequence of developments would be the following: PIE **-es-h₂* > PGPh. **-eh-a* > PPh. **-e-a* > PPh. **-a* > OPh. ⁺*-a* > NPh. -α.

On the basis of the clause (ας ανανκαι) οι παντα κενα ιννου °35[E] '(to mischief)[?] his all *kena* ought-to-(be)come', we can be certain that the form is plural, meaning it can also only be of the neuter gender, since no other plural ending -α exists besides the nom./acc. pl. ending.

More problematic is the root element. Usually, the form is taken to mean 'offspring (pl.)' and is derived from the PIE *s*-stem noun *ǵenh₁-os* from the root **ǵenh₁-* 'to beget' (Lubotsky 2004: 233); in that case, ⁺κενος would be a perfect cognate of Greek γένος. Such a development would be in conflict with the Phrygian palatalization law: PIE **ǵenh₁-os* > PGPh. **gen-os* > PPh. ***senos*. Since we can also be reasonably sure that the root *e*-vocalism of the *s*-stems was present in every case form of the paradigm, we cannot invoke intra-paradigmatic levelling as an explanation for the persistence of κ-. This derivation is, then, untenable.[305]

[305] If a direct descent of ⁺κενος from **ǵenh₁-os* is assumed, this would be the only viable counterexample to the Phrygian palatalization. It is true that there are no examples of PGPh. **g* undergoing palatalization in Phrygian, while examples exist for PGPh. **k* and **gʰ*, so it is in principle possible that **g* was exempted from palatalization. Nevertheless,

We are left with two possibilities: 1) the form κενα is ultimately entirely unrelated to the PIE root **ǵenh₁-*; or 2) the initial κ- was levelled from some other related nominal or verbal stem deriving from **ǵenh₁-* that did not undergo palatalization by appearing consistently in the zero or *o*-grade. Certainly, the meaning 'offspring (pl.), progeny' for κενα fits the context of a malediction formula: οι παντα κενα ιννου '(to mischief) his all progeny may-come'. But other meanings and syntactic analyses may fit the context just as well.[306] Also note that κενα need not necessarily be an *s*-stem at all: the ending -α would just as well fit a neuter *o*-stem *κενον, or even an *n*-stem *κεν (< **Ken-h₂*).

Thus, deciding between the two possibilities is difficult. Perhaps it is better to err on the side of caution; since the only reason κενα is assumed to reflect an *s*-stem is the fact that **ǵenh₁-* formed an *s*-stem with a meaning that is plausible in context, among many other possibilities, and which would formally fit under an outdated understanding of Phrygian phonetic developments, it is ultimately best to take it out of consideration in an analysis of the *s*-stems and declare the meaning and the morphological characterisation of the form as uncertain.

One noun that unambiguously declines as an *s*-stem is the famous Phrygian word βεκος 'bread' (PhL 196). Its status as an *s*-stem neuter is unimpeachable; when functioning as a direct object in the accusative case, the form still ends in *-s*: με κε οι τοτσσειτι βας βεκος 'may Bas give away his bread' °99^{NW}, βας ιοι βεκος μεβερετ 'may Bas bring away his

it is more likely that the palatalization was systemic and affected all the three pure velar stops, **k,* **g,* and **g^{h}*. For the time being, then, it is better to operate under the assumption that PGPh. **g* was palatalized before front vowels in Phrygian. See also §II.3.2.3.4.

[306] For which see the final paragraphs of §II.3.2.3.4.

bread' °86^{W}, °111^{NW}. The meaning 'bread' is well known from Herodotus (2.2) and the Hesychian gloss βεκος . ἄρτος. Φρύγες 'bread. Phrygians'. Obrador-Cursach (PhL 196) made a brief note of an appealing possibility regarding the origin of this word, but did not explore it much further. He suggested that βεκος 'bread' could potentially derive from a PIE root *$b^{h}eǵ$- 'to break' (cf. Arm. *bekanem* 'to break', Ved. *bhanákti* 'to break', Lith. *bengiù* 'to break up'). Semantically, the development of 'to break' >> 'a broken piece' > '(a piece of) bread' is actually paralleled in full in Proto-Slavic *$kruš$-*i*- (*$krous$-*eje*-) 'to break' >> PSl. *$kruxъ$ 'a broken off piece' > CSl. $kruxъ$ 'broken piece, crumb', dial. Russian *krúx* 'end piece of bread, lump', Croatian *kruh* 'bread', Slovenian *kruh* 'bread' (Snoj 2009: 331). Yet another semantic parallel can be found in Modern Greek ψωμί 'bread' << Gr. ψωμός 'a piece, bite' (*ibid.*).

More commonly, the noun βεκος is assumed to be derived from the PIE root *$b^{h}eHǵ$- 'to bake'; cf. Gr. φώγω 'to bake' < *$b^{h}e/oHǵ$-*e/o*-; English *bake* < Old English *bacan* 'bake' < *$b^{h}Hǵ$-*e/o*-; perhaps Russ. *bažù, bažit'* 'to wish, desire' < causative *$b^{h}oHǵ$-*eje*- (LIV$_2$ 70)) (PhL 196). On the basis of these cognates, we cannot ascertain the nature of the laryngeal; LIV$_2$ assumes *h_3 due to Greek, with φώγω being a reflex of *$b^{h}eh_3ǵ$-*e/o*-, where an *e*-grade would be generally expected in PIE terms. Thus, the non-Phrygian languages do seem to suggest that the laryngeal of the root was *h_3. Such an assumption does decouple *$b^{h}eHǵ$- from the root *$b^{h}eh_1$- 'to warm' (only reconstructed on the basis of Old High German), from which it could have reasonably arisen by the addition of a root enlargement (PhL 196, LIV$_2$ 70). If Phrygian βεκος is added to the list as a derivation from the root *$b^{h}eHǵ$-, however, reconstructing any laryngeal other than *h_1 in

the root would be absolutely untenable, since the vowel appearing in any synchronic form would not have been *e*.[307]

Any derivation of an *s*-stem βεκος from the root **b^{h}eHǵ-*, however, immediately runs into a major issue. Since the slot of the vowel is known, as is the ablaut pattern of the *s*-stems, which always shows root *e*-vocalism, no possible development of **b^{h}eHǵ-os* could produce the attested form βεκος; the sequence of **e* and a laryngeal would develop into a long vowel that could not have the same quality as ε, i.e. **eh$_1$* > *ā > NPh. α, **eh$_2$* > **ā* > NPh. α, **eh$_3$* > **ō* > NPh. ου. The usual approach found in the literature was to assume an *s*-stem pre-form **b^{h}h$_1$ǵ-os* with a zero grade (Lubotsky 2004: 233), but no explanation is ever provided for why an *s*-stem nominal would have a zero grade in its root syllable; as we have seen, zero grades in the root syllable of *s*-stems are already extremely marginal and only appear in the oblique cases in the Anatolian languages, which presumably split from the rest of the Indo-European family first (Fortson 2004: 155). To posit that a type of archaic *s*-stems that preserved a zero grade in the root persisted until the ultimate disintegration of PIE, is not preserved in any other of the post-Anatolian languages, and just happens to be attested in one of the three or four identifiable Phrygian *s*-stems, would be remarkable. If Phrygian βεκος does derive from **b^{h}eh$_1$ǵ-*, the vocalism of the first syllable must be secondary.

In light of clear semantic parallels and the formal issues underlying a derivation of βεκος from **b^{h}eHǵ-*, the optimal solution is to derive the Phrygian term for 'bread' from a PIE lexical root 'to break', **b^{h}eǵ-*. Such a derivation provides no semantic or formal issues: PIE **b^{h}eǵ-* 'to break'

[307] And if the root was **b^{h}eh$_1$ǵ-*, Greek φώγω would need to ultimately derive from **b^{h}oh$_1$ǵ-e/o-*. The Old English reflex remains entirely ambiguous in terms of the laryngeal.

>> PIE *$b^heǵ$-*os* 'that which is broken /a broken piece' > PGPh. *b^heg-*os* 'id.' > PPh. **bek-os* 'bread' > NPh. βεκος 'bread'.
Having now decoupled Phrygian βεκος from Greek φώγω and Old English *bacan*, the nature of the laryngeal in the PIE root *$b^heHǵ$- 'to bake' continues to remain uncertain.

Another example of a likely *s*-stem noun in Phrygian is found in the sequence ακκαλος/ακαλα. Considering the sequence ακκαλος first, it appears in the following phrase, repeated twice: ακκε οι βεκος ακκαλος τιδρε(γ)ρουν ειτου °33^E, °76^E 'and to-him bread *akkalos* inedible may-become'. What is immediately clear is that βεκος and ακκαλος are ultimately nominally coordinated; they match τιδρε(γ)ρουν in the sense of being neuter nouns in the nom./acc. sg. case form. Thus, ακκαλος must be an *s*-stem.
The form ακαλα, presumably in the neuter nom./acc pl. form (*-*es*-h_2 > *-*es*-*a* > -α), appears as part of a clause appearing in a maledictive inscription: υκε ακαλα οουιτετου ουα °2^W. υκε likely stands for (ι)οι κε, οουιτετου is almost certainly a verbal form with the 3sg imp. ending, and ουα and ακαλα appear to be nominally coordinated, with ουα being a form of the possessive adjective *vo*- 'his'.[308] That ακαλα ουα is in the plural number, whereas the verb is conjugated in the singular is hardly problematic: it is a well-known feature of ancient Indo-European languages that plural neuter subjects appear with a verb conjugated in the singular number (Fortson 2004: 118). Most likely, then, we may translate the clause as 'and to/for-him his-own *akala* may-*ovite*'. Quite clearly, οουιτ(ε)- refers to something

[308] For which see §IV.11.

unpleasant, but the only syntactic conclusion we may draw is that οουιτ(ε)- is likely a non-transitive (i.e., intransitive or stative) verbal stem.

Since we already know βεκος to be an *s*-stem noun meaning 'bread', what, then, are ακκαλος and ακαλα? Obrador-Cursach (PhL 171-172) has listed a handful of earlier proposals (see therein for a list), but, as he rightly notes, none are particularly likely. Finally, he cites Brixhe and Neumann (1985: 176) and Lubotsky (2004: 236) who saw ακκαλος as a noun in an adposition to βεκος; i.e. an ακκαλος-type bread (cf. a *naan* bread, a baguette bread). Obrador-Cursach (*ibid.*) ultimately proposes that Phrygian ακ(κ)αλο/α- is a borrowing from Assyrian *akalu* 'bread', with the syntagm βεκος ακκαλος meaning '*akalu* bread (i.e., a specific type of bread)', whereas the use of ακαλα °2^{W} would see the term $^{+}$*ak(k)alos* used as a generic term for bread.

As Obrador-Cursach (PhL 172) rightly notes, this account leaves the geminate spelling of ακκαλος unexplained. There is a clear solution to this issue, however. We may assume that the Akkadian noun *akalu* 'bread' or some closely related Semitic nominal derivation from the Proto-Semitic root **ʔkl* 'to nourish', none of which show a geminate consonant, would not pass into Phrygian directly. Phrygian was not spoken adjacent to the Semitic languages in any case; as such, any potential Semitic terms would have presumably been adopted into Phrygian through an intermediary language. Since the Anatolian languages, which were spoken to the east of the Phrygian-speaking area, generally distinguished between fortis (long) and lenis (short) stops (Melchert 1994: 62 *et passim*), it may well be that the geminate originated in some intermediary Anatolian language.

One other possible example of an *s*-stem is known: dat. sg. *vetei*, appearing in the enigmatic sequence *otuvoi<u>vetei</u>etlnaie* °P-04a. No other case forms

other than *vetei* are attested and the entire sequence currently defies interpretation. It has been suggested that *vet-* is the same element as that found in PIE **uet-* 'year' (Woudhuizen 1993: 13), in which case the attested form *vetei* may well have actually been an *s*-stem: nom.sg **vet-os* ~ dat.sg. **vet-es-ei* > **vet-eh-ei* >> *vet-ei*,[309] or a locative **vet-es-i* > **vet-eh-i* > *vet-ei*. On the other hand, *vet-* may well simply be a *t*-stem in synchronic Phrygian. Its analysis as an *s*-stem is only one, though admittedly attractive, possibility until the context in which *vetei* appears becomes better understood or until another case form of this noun is found.

III.3.10 Stop-final stems

III.3.10.1 Dental stems

All Phrygian nouns whose stem ends in a dental are here subsumed under the heading "dental stems". This is due to the fact that the language itself precludes us from distinguishing between earlier PGPh. **-t* and **-d,* while there is no evidence in the language for the existence of **d*-stems (from earlier **d*^{h}-stems, which was never a productive category in PIE or PGPh.). The dental stems are declined with the same set of endings as the other athematic stems, with the exception of nominative singular form that had a sigmatic nominative, where the final dental of the stem and the **-s* ending

[309] With the sequence **-eh-ei* contracting into **-ḗi* after the loss of **h*, and this **ḗi* diphthong developing into **ei* due to the lack of a phonemic **-ḗi* diphthong. Since there appears to have never been a proper phonemic distinction between **ḗ* and **ei* in word-final position, this would have either happened through a simple shortening **ḗi* > *ei* or through **ḗi* > **ḗ*, with a subsequent merger of **-ḗ* into *-ei*.

produced an illicit cluster *-*ts,* which was simplified into simply -*s* (e.g. nom. sg. *Bas* derives from an earlier **bat-s*) (LL 1821, 1825).

The attested endings of the *t*-stems are:

	ending
nom. sg.	-*s* < *-*t-s*
dat. sg.	-*t-ey*
acc. sg.	-*t-an*
nom. pl.	-*t-es*
acc. pl.	-*t-ais*

Table #29: The *t*-stem endings of Phrygian.

III.3.10.1.1 Simple dental stems and dental stems without further characterization

Relevant examples: *bat-*/βατ- 'DN'*, artimit-* 'DN, Artemis', *pet-*/πετ- 'foot', *vanakt-*/ουανακτ-'king', (θαλαμειδ- 'sepuchral chamber')

This category includes primary *t*-derivatives (i.e. *Bat-* < *b^heh_2-t-*) and root nouns endings in a dental (i.e. *pet-* < **ped-*).

pet- is the Phrygian word for 'foot', which appears twice, both times in the nominative plural form *petes*/πετες. It is a root-noun directly descended from the PIE root noun **po/ed-*. Since it is only attested in a single case form, we cannot be certain whether it exhibited synchronic ablaut alternations. The PIE root noun is infamous for showing all possible ablaut grades in the various languages (i.e. **ped-* > Skt. *pád-*, **pod-* > Gr. ποδ-, **pēd-* > Lat. *pēs*, **pōd-* > PGrm. **fōt-*). Most commonly, the noun is

interpreted as an acrostatic root noun, appearing as **pod-s* in the nominative singular and as **ped-* in the oblique cases (Schindler 1975: 4; cf. Meier-Brügger 2010: 350-351).[310]

We may use Greek and Phrygian data to arrive at a Proto-Graeco-Phrygian paradigm:

	Greek	Phrygian
strong stem	*-o-*	?
oblique stem	*-o-*	*-e-*

Table #30: The distribution of the ablaut grades in the Greek and Phrygian words for 'foot'.

Since the two languages disagree in vocalism, we must first conclude that the original Proto-Graeco-Phrygian paradigm must have been alternating, i.e. showing the vowel **o* in some case forms, and the vowel **e* in others. This is also supported by related terms in Greek, e.g. πέδη, πέζα, πεζός, etc. (Chantraine 1999: 933) The *o*-vocalism must then have been levelled throughout the paradigm in Greek. The issue with the Phrygian *e*-vocalism is that the nominative plural can be more closely associated with the strong or the oblique cases, depending on one's approach towards the reconstruction of ablaut-accent paradigms, meaning that determining whether *e*-vocalism in the nominative plural is an archaism or a levelling from the oblique cases hinges on this point as well. There are no other acrostatic nouns with this type of ablaut known to us in Phrygian, whereas Greek remains thoroughly uninformative, consistently showing levelled *o*-vocalism in all nouns that may be conceivably analysed as having shown

[310] Though the matter is far from resolved; cf. Kloekhorst (2013: 111).

o/e-ablaut in the past. It is up to the reader, then, to form their own opinion on the matter: if *o/e*-ablauting nouns showed *o*-vocalism in the nominative plural, the Phrygian form must be innovative, with its vocalism levelled from the oblique cases, suggesting that the Phrygian nominative singular would have presumably received this vocalism and surfaced as $^{+}$*pes*; conversely, if these types of nouns showed *e*-vocalism in the nominative plural, the attested form is archaic, and we can make no judgement as to whether the nominative singular vocalism was likewise levelled (giving $^{+}$*pes*) or remained preserved as *o* (giving $^{+}$*pos*).

The divine name Bat- is attested in two case forms: nom. sg. *Bas* and acc. sg. *Batan*. The nominative singular form shows the expected reduction of word-final *-*ts* > -*s*.

Obrador-Cursach (Obrador-Cursach 2017: 311-313) has recently convincingly suggested that this divine name is derived from the PIE root meaning 'to shine', *$b^{h}eh_2$-, and may be compared to the Greek *t*-stem nom. sg. φώς 'man, hero', gen. sg. φωτός < *$b^{h}oh_2$-*t*- (*ibid.*). Derivationally, Phrygian *bat*- was formed with the addition of a noun forming *t*-suffix that was attached to the stem in the *e*-grade: *$b^{h}eh_2$-*t*-. Whether the noun exhibited any synchronic ablaut is impossible to determine: a proterodynamic *$b^{h}eh_2$-*t*- ~ *$b^{h}h_2$-*et*- alternation of the stem would have seen the two stem variants spelt identically in both Old and New Phrygian.[311]

[311] Through *$b^{h}eh_2$-*t*- ~ *$b^{h}h_2$-*et*- > *$b\bar{a}t$ ~ **bat*-, both spelt <*bat*>/<βατ> due to the writing system not distinguishing vowel length.

vanakt- 'king', is most likely a loanword from Mycenaean *wa-na-ka* (Attic ἄναξ ~ ἄνακτος) (PhL 133). It is used once to explicitly refer to Midas, next to *lavagta-*, another Mycenaean loanword, which corroborates this idea.[312] Synchronically, the declension of *vanakt-* is irregular in the nominative singular, though the situation makes perfect sense in diachronic terms: the declension of the terms was apparently borrowed from Greek initially, giving NSg **vanaks*, oblique *vanakt-*.[313] The specifically Phrygian simplification of final consonant clusters was what eventually resulted in the somewhat irregular nominative singular: **vanaks* regularly developed into the attested nominative singular *vanak*. Since this development only took place in word-final position, the oblique stem remained unchanged, as evidenced by dat.sg. *vanaktei* and acc.sg. ουανακταν.

artimit- is the Phrygian term for the Greek goddess Artemis (Ἄρτεμις, -ιδος). Both Lydian *artimu-* and Mycenaean DSg *a-ti-mi-te* show the same *i*-vocalism that is found in the Phrygian term (EDG 142; PhL 183). This divine name was most likely borrowed after the Phrygians had settled in Anatolia from some local source with *i* in the second syllable.

θαλαμειδ- 'sepuchral chamber' was loaned from Greek θαλαμίς, -ίδος.

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[312] Since the etymological origin of ἄναξ is not understood well, it is possible that both the Greek and Phrygian terms derive from a Proto-Graeco-Phrygian **u̯anakt-*. The primary reason for assuming that *vanakt-* is a loan from Mycenaean is the fact that it appears alongside the obviously loaned term *lavagta-*: *midai vanaktei lavagtaei* 'to Midas, king and leader'. *lavagta-* must be loaned from Greek, since it does not show the effects of the Phrygian *Lautverschiebung.*

[313] Proto-Phrygian at that point would have still synchronically allowed a word final cluster **-ks*. There would have also been an implicit understanding that a nominative ending in *-s*, without *-t-*, could pair with an oblique stem ending in *-t-*. The declension of *vanakt-* would, then, not have been borrowed as such; rather, the speakers at the time would have had no trouble understanding that the underlying stem was **u̯anakt-* throughout, since at the time both Greek and Phrygian would have dealt with a *-kt*-stem in the same manner.

III.3.10.1.2 *iT*-stems

-it: evetekset-, +*tekit-,* +*umnit-/*+ομνιτ-, +γαριτ- 'charity?'

In Phrygian, we find the suffix *-it-*, which can be a regular reflex of earlier **-it* or **-id.*
Greek nominals with the suffix -ιδ- are numerous (Meier 1975; cf. Risch 1974: 141ff.). Other than χάρις (gen. sg. χάριτος) 'grace', on the other hand, which is most likely a secondary *t*-stem build to an original *i*-stem (Chantraine 1999: 1247-1248), there is no evidence for an -ιτ- suffix in Greek.
As such, the best course of action is to assume that the Phrygian suffix is a reflex of Proto-Graeco-Phrygian **-id-*.

The Proto-Graeco-Phrygian suffix **-id-* was associated with the feminine gender and was athematic (cf. Risch 1974: 141ff.). In Greek, it was primarily used to derive nouns and adjectives of belonging to the referent (*ibid.*). One peculiar characteristic that will become relevant later in this analysis is the fact a few of the Greek nouns in -ιδ- had associated thematic counterparts, with the two either exhibiting no semantic difference or with the former functioning as an abstract noun of some sort.[314]

How prevalent this category of nouns was in Phrygian remains an open question: of the four examples we have, three are only known from denominal verbs.

[314] Cf. Gr. πύξις 'box' ~ πύξος 'id.', ὕπνις 'sleep' ~ ὕπνος 'id.'.

The only example of an *it*-derivation appearing as a noun is *eveteksetey*. It appears as part of a nominal phrase *materey eveteksetey* 'to Mother *eveteksis*', obviously functioning as some kind of an epithet to the Mother (i.e. Kybele). The element *ev-* is traditionally assumed to originate from PIE **hɪsu* 'good' (cf. Gr. εὐ-, Skt. *su-*, etc.); the length of the word does suggest the word is composed of more than one element and 'good' fits the context well in semantic terms. No good suggestion exists for what the middle element *teks-* might mean; there have been attempts to link it to the PIE root **tek-* 'to beget' as a secondary *t*-stem **tek-t-* (cf. Woudhuizen 2008-2009: 185, PhL 223), but this is incongruent with our analysis of the treatment of dental-velar clusters in Phrygian.[315] The term appears in the dative singular case and is syntactically bound to *materey*, but the scholarship so far has mostly glossed over the puzzling fact that *evetekset-* is synchronically quite clearly a *t*-stem. If we proceed from this fact, we may broadly segment the word as *ev(e)-tekse-t-*, which then begs the question how *-tekse-*, with what appear to be two full grades, could have emerged. The possibilities available to us are *tek-se-t-*, *tek-s-et-*, or *teks-et-*. Quite clearly, *tek-* or *teks-* must be the actual lexical root, with *-(s)et-* being one or two suffixes. Based on our knowledge of PIE ablaut, we may dismiss *tek-se-t-* as a possibility: no ablauting suffix in the full grade would have had its vowel appear after a consonant. In that case, whatever the segmentation of *teks-*, the *-et-* element as a whole functions as a single suffix. Such a suffix may perhaps be compared to the -ητ- suffix of Greek γυμνητ- (NSg γυμνής) 'lightly armed warrior' (Chantraine 1999: 241), [316] or of κουρητ- (NPl κούρητες) 'young warrior' (Chantraine 1999: 567). It is noteworthy that *evetekset-*, γυμνητ-, and κουρητ- are all used to

[315] For which see §II.3.1.2.2.
[316] I would like to thank Daniel Kölligan for drawing my attention to this example.

refer to a person, suggesting a similar semantic function of the suffix. Though the two suffixes, Phr. *-et-* and Greek -ητ-, do not match in the length of the vowel, that could conceivably be due to Greek and Phrygian levelling different ablaut grades of an original PGPh. ablauting suffix *-*ēt-* ~ *-*et-*, with Greek generalizing the former and Phrygian generalizing the latter.

Another possibility is to make an emendation to the form and interpret it as underlyingly being *eveteksitey*, i.e. *eve=teks-it-*, a noun with an *it*-suffix. Of course, the reading of the penultimate *e* in *eveteksetey* is secure, which means we need to posit either scribal error or some specific phonetic realisation of the segment that was heard by the scribe as closer to [e] than [i]. One may rightly regard this proposal as *ad hoc*, and it must be conceded that the solution is not elegant.[317]

The clearest of the three nominal stems with an *it*-suffix that appears in a denominal verb is undoubtedly the copiously attested γαριτ-, which appears in the middle perfect participle γεγαριτμενο-. This non-finite verbal form

[317] One highly speculative explanation may be proposed. As we have noted above, the *-s-* of *(e)teks-* remains unexplained. Recalling that the suffix *-sti-* way apparently used to form feminine nouns that denoted a female individual, perhaps even having an agentive function, we may hit two birds with one stone, so to speak, if we assumed the following chain of nominal derivation: **tek-* '(lexical root)' >> **tek-* + *-sti-* > **teksi-* 'she who does *tek*' (with simplification of a tri-consonant cluster **kst* > **ks*) >> **teksi-* + *-it-* > **teksīt-* = **teksi̯ēt-* 'the property of one who does *tek*'. In this manner, the segment *-s-* is derivationally explained, as well as the spelling <*ks*> instead of <Ψ>, as it would now originate in a **kst*-cluster and not undergo the same shift that characterised original intervocalic **ks* > <Ψ>. More crucially, however, the unexpected spelling <e> is also explained: we know from other examples that <*e*> could be used to spell Old Phrygian /ē̯/ < **ī*. Assuming that **tek-* is actually a reflex of PIE **teḱ-* 'to beget', the *t*-stem *teksi̯ēt-* would basically mean 'the property of she who begets', perhaps 'fertility'. Using an abstract noun for the title of a divinity is not as odd as it seems: consider divine names like Gr. Ὑγιεία 'Health', Lat. Fortuna 'Good Fortune', etc. Kybele having an epithet meaning literally 'fertility' would be nothing out of the ordinary, *mater- evetekset-* simply meaning 'Mother Fertility'.

has a perfect cognate in Laconian Greek κεχαριτμένος.[318] The two forms evidently originate in PGPh. *g^he-g^harit-*meno*-. *g^he-g^harit- is a reduplicated perfect stem belonging to a denominal verb with a present stem *g^harit-*je/o*- >> Gr. χαρίζω and an aorist stem *g^harit-*s*- > Gr. ἐχάρισα. The original Proto-Graeco-Phrygian noun was *g^har-*it*- 'charity *vel sim*.', itself a secondary *t*-stem to an original *i*-stem noun belonging to the PIE root *$ǵ^herH$-: *$ǵ^hrH$-*i*-*t*- (Chantraine 1999: 1247-1248; EDG 1606-1607).

The nature of the dental element in the suffix *-*iT*- is somewhat difficult to ascertain in this word. The Phrygian evidence provides no clues, since PGPh. **t* and **d* merged into PPh. **t*. In Greek, there is an incongruence between the verb χαρίζω, which ostensibly derives from *g^har-*id*-*je/o*-, and the noun χάρις ~ χαριτός, which indicates an original **t*. Since the thematic suffix -ίζω was productive in Greek, however, and could easily be analogically introduced on the basis of the aorist stem χαρισ-, and the fact that Laconic κεχαριτμενο- seems to suggest an original **t*, we may conclude that the suffix in this specific noun was in fact originally *-*i*-*t*-; the Proto-Graeco-Phrygian noun in question was then *g^harit-.

The remaining two nominal stems with a suffix -*it*- that appear in Phrygian denominal verbs, i.e. $^+$*umnit*- and $^+$*tekit*-, are more contentious. The existence of both is suggested by an internal analysis of the sigmatic optative verbal stems *umnise-*/ομνισι- and *tekise*- and not independent attestation.[319]

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[318] Attic κεχαρισμένος apparently saw the stem modelled after the aorist stem χαρισ- < *χαριτ-σ-.

[319] For why $^+$*umni(t)*- and $^+$*teki(t)*- need to be analysed as *it*-nouns underlying the denominal verbal stems *umnise-*/ομνισι- and *tekise*-, see §V.3.5.

A nominal form $^{+}$*umnit-* must clearly be compared to *umnotan*, an *a*-stem noun in the accusative singular. It appears that the underlying derivational base for both was **umn-*, with the former adding the nominal suffix **-id-* and the latter adding **-o-tā-*. **umn-*, however, cannot be an original PIE root.[320] Thus, **umn-* must either be a non-native derivational base or **umn-* is itself already a derived stem. The best explanation, bearing in mind that thematic nouns could form abstracts through the replacement of the thematic vowel with the PGPh. suffix **-id-* > Phr. *-it-*, is that an original thematic noun **um-no-* formed an abstract noun **um-n-it-* and an agent-noun **um-n-o-tā-*.[321] The abstract noun **umnit-* was the basis for the creation of a denominal verb **umnit-je/o-* (aor. **umnit-s-*).[322]

Obrador-Cursach (2021b) interprets the form in an entirely different way. Comparing inscription °B-07, where *umnotan* appears, to Aramaic inscription °KAI 318, he reads the sequence *tivan ke devun ke umnotan* °B-07 as basically a translation of the Aramaic model: *hwmytk bl wnbw* 'I

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[320] Both **uemn-* and **umen-* are not permissible in the phonotactic patterning of PIE roots.

[321] The fact that *umnota-* is itself an agent noun formed with the suffix *-o-tā-* is well supported. It appears in a nominal phrase *devun umnotan* 'god *umn*-er', where *devo-* is well known to be a noun of the masculine gender, which necessitates *umnota-* being of the same grammatical gender as well. Masculine *a*-stems are comparatively rare and appear in only a handful of formations. The suffix *-o-tā-* certainly cannot be some derivation from a *to*-adjective; these never appear with a masculine *a*-stem declension (Brixhe (CIPP2: 84) argues that *umnotan* is a *to*-adjective in the ASg of the feminine gender, but this is not syntactically viable). Any analysis that would see *umnotan* as being a *t*-stem, i.e. *umnotan* < **-o-t-m* (the nominative then being **umnos* < **umn-o-t-s*), must be considered invalid: a secondary athematic dental stem built on top of a thematic noun is a derivational sequence that would need extraordinary evidence to justify.

[322] Attempting to ascertain which PIE root underlies Phrygian **um-* is, naturally, difficult. Ola Wikander (p.c.) and I speculate that Phrygian *umno-* can be directly compared to PIE **sup-no-* 'sleep' (> Gr. ὕπνος) with assimilation of the sequence **-pn-* to **-mn-* (cf. Latin *somnus*, where the exact same process takes place). The deity *devos umnotas* would then be 'the sleeping god', perhaps referring to the deceased. This identification has the benefit of providing some directly comparable Greek data: the Greek noun ὕπνος 'sleep' forms the basis of a dialectal ίζω-verb υπνίζω 'to cause to sleep', derivationally identical to Phrygian **umnit-je/o-*. While the contexts where *umniset*/ομνισιτους appear are not well understood, there is no inherent semantic objection one can make against them meaning 'will/ought to cause to sleep', especially if one assumes some semantic shift.

adjure you by Bel and Nabu'. He directly compares Bel and Nabu to *Ti-* and *Devo-* (*ibid*.: 52-53), which is quite reasonable, and concludes that the equivalent of *hwmytk* 'I adjure you' should be sought in *umnotan*, which he suggests originates in PIE **h₃emh₃-* 'to swear' (*ibid.*: 53), with *umno* being the 1sg thematic verbal form and *tan* being the 2nd person pronoun (otherwise unattested). This is problematic, since there is no source given for the *-n-* found in *umnotan*, *umniset*, and ομνισιτ(ους). A direct comparison of *umn-* with Greek ὄμνυμι 'to swear, affirm with an oath, take a vow' from the same PIE root (*ibid.*) cannot be upheld, since that is a verb with the suffix -νῡ- and there is no trace of *u* in any of the Phrygian forms; even if we disregard the lack of *-ū-*, it would be extremely unexpected for such a verb to be transferred to the thematic conjugation and simultaneously keep an element of the athematic suffix **-nū-*.[323]

The analysis of *umniset*/ομνισιτους as originating in a denominal **umnit-je/o-* (aor. **umnit-s-*) can further serve as a basis for analysing the form *tekiseton*, a sigmatic optative with a 3pl imperative active ending, 'may

[323] A direct comparison with the Aramaic model is also not borne out by the syntax: *tivan* and *devun* are in the accusative case in Phrygian, which is an unexpected choice to render the "by" of Aramaic. Furthermore, the Phrygian sentence begins with *yos* 'whoever', as is common for Phrygian, and then continues with *ordoineten*, meaning that the clause *tivan ke devun ke umnotan* would need to be embedded within another clause, i.e. "Whoever, I adjure you by Ti- and Devo-, would do X, …" In Aramaic °KAI 318, the clauses are successive: *hwmytk bl wnbw zy ʔrḥʔ znh yhwh* "I adjure you by Bel and Nabu, [you] who would pass the road, …" It is unclear why such a strategy would be adopted in what is presumed to be a more or less faithful translation of an existing model; especially in light of the fact that a hypothetical *umnotan yos* "I adjure you, who …" would actually use *yos* with the function of a relative pronoun, directly comparable to Aramaic *zy*, rather than with an indefinite function, which *yos* has at the beginning of conditional protases. These syntactic mismatches are especially problematic since Obrador-Cursach (2021b: 51ff., 54) argues that the entire final clause *mekos anivaΨeti smanin*, which he translates as "let nobody do harm" (Aramaic °KAI 318 *ʔyš ʔl yʕml* "let no one do harm") is a calque, so influenced by the Aramaic original that the wholly unexpected indefinite pronoun *ko-* is used instead of the expected anaphoric pronoun *to-*. See also §VI.4.

they *teki-*'. As in *umnise-*, *tekise-* is a denominal verb built to an *it*-abstract *tekit-*: pres. **tek-it-je-* ~ aor. **tek-it-s-* > *tekis-*. What the noun +*tekit-* actually meant cannot currently be ascertained. Any attempts at an etymological connection are fraught with difficulty: the voicedness of both stops is unknown and the uncertain quality of the velar poses an additional problem.[324] As such, the number of possible antecedents for **tek-* is simply too great to allow any fruitful speculation at this time.

One additional issue with the analysis of the *it*-nouns is an unavoidable consequence of the fact that three of them are only directly attested as parts of apparently denominal verbal stems. While the comparison of Greek χάρις to Phrygian +γαριτ- does suggest that the latter did exist as a noun either synchronically or at some point in Phrygian pre-history, this need not necessarily have been the case for +*umnit-* and +*tekit-*. We may observe in Greek that the verbal suffix -ίζω, while initially originating in denominal verbs, later became a productive verbal suffix that no longer required the existence of an associated noun ending in -ιδ- (Risch 1974: 296). The same may hold for Phrygian; the verbal suffix **-id-je/o-* (which would develop into **-it-je/o-* in Phrygian) might have become productive in PGPh. already, or it might have become such independently in Phrygian as well. Thus, the existence of +*umnit-* and +*tekit-* in Phrygian is inherently speculative; either could potentially be a mirage forged by the productivity of an **-id-je/o-* denominal verbal pattern. However, the existence of this pattern in and of itself confirms that verbalization of *id*-abstracts was a

[324] Since the derivational history of the verb can only be speculated on, the velar could have originally been either a palato- or a labiovelar. While a palatovelar in an old formation **tek-it-* would have been palatalized, giving **tes-it-*, if the formation of the *it*-abstract was more recent or synchronically seen as sufficiently closely associated with some other nominal form, perhaps **tek-o-*, the velar could have remained unpalatalized or been restored.

productive process at some point in Phrygian pre-history, even if the two examples we have actually reflect a later expansion of this derivational type.

III.3.10.2 Velar stems

Only three velar-final stems can be more or less securely identified in the corpus, αδιθρερακ 'PN'*,* *bonok* 'PN'*,* and *knaik*- 'woman, wife'.

αδιθρερακ and *bonok* are personal names and appear to be in the masculine nominative singular case. The ending *-k*/-κ is the regular development of what would have been an older nominative singular ending **-k-s*; since Phrygian began to prohibit final clusters at some point after the disintegration of Proto-Graeco-Phrygian, the desinence was simplified in favour of the stop (LL 1821, 1825).[325],[326]

The noun *knays* 'wife, woman' deserves special consideration.

	ending
nom. sg.	*knays*
gen. sg.	*knayko*[?]
acc. sg.	κναικαν
nom. pl.	*knaykes*

Table #31: Attested forms of the noun *knays* 'wife, woman'.

[325] Contrast the development of a nominative singular in dental stems: **-t-s* > **-s*. See further §III.3.10.1.

[326] More commonly, the spelling of αδιθρερακ with final -κ is taken to be due to assimilation with the following particle κε. The nominative singular of the name would, according to such a reading, then actually be *αδιθρεραϛ, making it either a masculine *a*- or dental stem. For the proposed assimilation **-s# k-* > **-k# k-* see §II.2.3.2.1. There is no good reason to outright reject the reading of this personal name as a velar stem.

It has been recognized for quite some time that this word is somehow derived from the PIE word for woman, *$g^{w}enh_2$ (cf. Greek γυνή 'woman'; PhL 273). The peculiar stem-final addition of *-aik-* in the oblique cases can be directly compared to the Greek oblique stem γυναικ-, and on this basis we can certainly reconstruct a PGPh. oblique stem that ended in *-*aik*-.
It appears that the Phrygian nominative stem of the word for woman was simply *knay*-, with the addition of the characteristic nominative singular athematic ending -*s*. In this case, one may directly compare the nominative stem more directly to the Armenian oblique stem *kanay*- 'woman', apparently an *i*-extension of the PIE term: *$g^{h}(e)n(e)h_2$-*i*-. If the two are comparable, this would be highly relevant data in light of the Greco-Armenian hypothesis, suggesting that a Proto-Armeno-Graeco-Phrygian language first innovated a stem in -*i*. The addition of -*k* to this stem would then be a subsequent development of Proto-Graeco-Phrygian. In Greek, there may be some evidence of a previous existence of an *i*-extended stem, namely the Homeric adjective gen. pl. γυναίων (belonging to nom. sg. $^{+}$γύναιος) and Mycenaean *ku-na-ja*, if from *$g^{w}Vnaj$-*jo*- (cf. Opfermann 2017: 62ff.), which cannot originate in a simple *$g^{w}Vna$-*jo*- due to loss of intervocalic **j*.[327],[328]

If the Greek and Phrygian words for 'woman' are directly compared, the vocalism of the two needs to be reconciled somehow. The origin of the first

[327] One may also wonder whether the nominative singular γυνή itself may be a reflex of earlier *$g^{w}Vnāj$, with loss of final **j* after a long vowel. Compare the οι-stems: NSg πειθώ (oblique stem πειθοι-), NSg ἠχώ stem (oblique ἠχοι-), etc., which are likewise accented on the final syllable in the nominative and are of the feminine gender.
[328] Szemerényi (1960 *apud* EDG 291-292) has suggested that the Greek -ικ- extension is a result of de-thematization of the *-*iko*- adjectival suffix. A more appealing possibility to explain the addition of *-*k*- in the oblique stem is to suggest it is the result of the feminine *-h_2 undergoing "laryngeal hardening" of the type suggested by Olsen (2009) or Kortlandt (2018) (cf. Opfermann 2017: 67ff., though the details may differ).

vowel of Greek γυν- is a vexed question; Opfermann (2017: 62ff.) suggests an origin in the *o*-grade (i.e. γυν- < *$g^{w}on$-) against the possibility of an origin in the zero-grade (for which cf. EDG 292, where the zero-grade is suggested throughout, though the difficulty in vocalism is acknowledged, or Vine 1999: 560-562), but the Boetic NSg βανά in any case suggests the existence of a zero-grade nominative singular form in the paradigm (Opfermann 2017: 60), namely *$g^{w}nh_2$-. For Phrygian, an *o*-grade is clearly impossible, since there is no vowel between the first two consonants at all; the only possibility for the onset *kn*- is an origin in the zero-grade. Thus, even if the -υ- of Greek did originate in the *o*-grade, zero-grade forms must have existed in the Proto-Graeco-Phrygian paradigm or in some closely related form. The mismatch between Boetic Greek βαν- and Phrygian *kn*- can be explained as a result of the different reflexes of an older *CRH-sequence appearing in an ablauting paradigm: the former vocalism would originate in those forms where the sequence was followed by a vowel (*CRh_2V- > *$CəRV$-), and the latter in those where the sequence was followed by a consonant (*CRh_2C- > *$CR\bar{a}C$-).

To end up with the attested paradigms we need to assume considerable analogical remodelling in both Greek and Phrygian.

IV The Pronominal System

The pronominal forms which are attested in Old and New Phrygian are best analysed as belonging to the following basic pronoun types: a demonstrative pronoun *si-/so-*, a demonstrative pronoun *i-*, an anaphoric pronoun *to-*, a relative pronoun *yo-*, an indefinite pronoun *ko-*, an interrogative/indefinite pronoun *ki-*, reflexive pronouns *avto-, ve-,* and *ibe-*, the possessive pronoun *vo-*, and an enclitic pronoun *(y)o-*.[329]

IV.1 The types of pronominal endings in Phrygian

Phrygian distinguishes between three basic types of pronominal endings: the *i*-type, the thematic type, and the *e*-type. Each Phrygian pronoun is characterized by taking its inflectional endings from one of these three types (*contra* PhL 88, who assumes a different system).

The pronouns that take *i*-type pronominal endings are: *si-* (masc. and neut.), *ki-*, *i-*.

The pronouns that take the thematic type of pronominal endings are: *sa-* (fem.), σο- (New Phrygian only), *to-, avto-, jo-, ko-, vo-*.

The pronouns that take *e*-type pronominal endings are: *ve-, ibe-*.

[329] These descriptions of the functions of the pronouns should not be taken as absolute. Especially by the New Phrygian era, there is significant functional overlap between some of these pronouns.

Every attested pronominal form will be independently analysed, but for convenience, the attested pronominal endings of Phrygian are given here.

i-type endings					**e-type endings**	
	masculine		neuter		masculine/feminine	
	OPh	NPh			OPh	NPh
nom. sg.	*-is*	-ις	*-i*		*-is*	-ις
gen. sg.						
dat. sg.		-εμουν			*-ey, -imun*	-ε
acc. sg.	*-in*	-ιν, -εμουν			*-en*	-ιν

Table #32: The *i*- and *e*-type pronominal endings in Phrygian.

Thematic type endings						
	masculine		neuter		feminine	
	OPh	NPh	OPh	NPh	OPh	NPh
nom. sg.	*-os*	-ος		-ο, -εμουν	*-a*	-α
gen. sg.	*-ovo*	-ου				-ας[?]
dat. sg.	*-oi*	-εμουν			*-ai*	-α(ι)
acc. sg.	*-on*	-ον, -εμουν		-ο, -εμουν	*-an*	-αν
nom. pl.			*-a*			
dat. pl.		-ως				-ας
acc. pl.			*-a*			

Table #33: The thematic type pronominal endings in Phrygian.

IV.1.1 The PIE anaphoric pronoun *h₁i-/h₁e- and the *i*-type pronominal endings

I reconstruct the inflection of the Proto-Indo-European anaphoric pronoun *h_1i-/*h_1e- as follows: [330]

	masculine		feminine	
	singular	plural	singular	plural
nom.	*h_1is	*h_1ei	*h_1ih_2	*h_1ih_2es
gen.	*h_1eso	*h_1esom	*h_1eseh_2s	
dat,	*$h_1esmōi$	*h_1eimus	*h_1eseh_2ei	
acc.	*h_1im	*h_1ins	*h_1ih_2m	*h_1ih_2ns
loc.	*h_1esmi	*h_1eisu	*h_1eseh_2i	
inst.	*h_1ei	*h_1eib^hi		
abl.	*$h_1esmōd$	*h_1eios		

Table #34: The declension of the PIE anaphoric pronoun *h_1i-/h_1e- (adapted from CIEL 225-9).

Alternative reconstructions for the most part differ only in the reconstruction of the nominatives, accusatives and genitives (cf. Szemerényi 1996: 206-7; Sihler 1995: 391-3; Meiser 1998: 159-61). The

[330] I reconstruct the strong stem of the pronoun as *h_1i- instead of the *i- found in CIEL (229), which is reflected in the table. I base the reconstruction with *h_1 on the likely origin of the relative pronoun *h_1io- as a thematization of the anaphoric pronoun (CIEL 231) and the Greek conjunction ἵνα (for which see here below in the same section). The rough breathing in both is regular if we assume the development proposed by Bozzone (2013), ie. *h_1i- > *h^ji- > Gr. ἱ- and *h_1jV- > *h^jV- > Gr. ῾-. The other Greek forms cited below which ultimately derive from *h_1i- are only known from psylotic dialects, where the lack of rough breathing is expected.

masculine nominative singular is reconstructed as **is* in all these sources; Beekes and de Vaan disagree (CIEL 227) on the basis of Indic data and propose to reconstruct **h₁e*.

The declension of this pronoun is characterized by *i*-vocalism in the strong cases (i.e. NSg and ASg) and *e*-vocalism in the weak cases. This type of pronominal declension exists in other PIE pronouns as well (cf. CIEL 230).

In Phrygian, this type of pronominal declension is present in some inherited pronouns (i.e. *ki-*/κι- < PIE **kʷi-*, *i/e-* < PIE **h₁i/e-*, *si-* < PGPh. **ḱi/e-*).
It is unclear how the feminine forms of the pronoun were treated in Proto-Phrygian and beyond. By attested Phrygian, *si-,* the only *i*-type pronoun that has attested forms in the feminine gender, had already shifted the declension of its feminine to the thematic type endings.

IV.1.2 The thematic type endings

For the most part, the thematic type endings are declined identically to the thematic nominals, i.e. masculines and neuters decline as *o*-stems and feminines decline as *a*-stems. The only major difference is that neuter nominative-accusative singular has the ending -o < **-od*, as opposed to its *o*-stem counterpart -*on* < **-om*.

One peculiarity is the development of the demonstrative pronoun between Old and New Phrygian. As the originally *i*-type pronoun *si-* began to shift into the thematic type, the masculine dative singular stem ⁺*sem-* < **sesm-* was preserved and extended to the accusative singular, with both eventually surfacing as the attested σεμουν (cf. PhL 88). This development is

described more fully in §IV.3.2. The rest of the pronouns with thematic type endings do not show any such variance in the stem.

IV.1.3 The e-type endings

The *e*-type endings are an innovative type of Proto-Phrygian used for the newly-minted pronouns *ve-* and *ibe-*, no doubt under the influence of the likewise innovative nominal *e*-stems, with whom they seem to share the endings.

The primary characteristic of this type is the pervasive vocalism *e* throughout the paradigm, though it appears the nominative and accusative singular were beginning to shift into the *i*-type by the Middle Phrygian period.[331]

IV.2 The pronoun *i/e-* in Phrygian

The nominative singular of the pronoun *i/e-* was likely preserved in °116^{W} as ις twice, though the immediate contexts cannot currently be satisfactorily analysed.[332]

If the word *isyos* (°B-07) can be taken at face value, it is likely to represent a bound pronoun or a pronominal chain *is=yos* (with the second part being

[331] Previous scholarship did not acknowledge the existence of distinct *e*-type endings and paid little attention to the unexpected *e*-vocalism of certain accusative singular pronominal forms, specifically *ven* and *iben*. See further below in §IV.10.

[332] The context in which they appear is ις αργμενα οε αυται οπαρικο ις κε εν τοισνιοι ... For a rudimentary analysis of the first clause, see §IV.5.

the nominative singular masculine of the relative pronoun *yo*-).[333] It is possible that the element *is* was the nominative singular of the reflex of the PIE anaphoric pronoun **hₗi/e*-. If *isyos* represents a pronominal chain, it must be analysed as a simple sequence of two pronouns, *i*- and *yo*-, the former of which would have a demonstrative function. If the sequence *isyos* is to be read as a bound pronoun, it is better understood as an emphatic variant of the indefinite pronoun (otherwise simply *yo*-) introducing an indefinite conditional relative clause, functionally similar to the use of *yosyos*.[334]

The common interpretation of the sequence *isyos*, on the other hand, is that *is* resulted from the syncopation of the *o* in reduplicated *yosyos* (which is attested as such in °B-03) (CIPP2: 82).[335],[336],[337] In this case, *isyos* < **yosyos* would have introduced an indefinite conditional relative clause. While it is true that the relative pronominal form ιος appears in a syncopated or spelling variant ις several times in New Phrygian, this is

[333] A bound pronoun is a single pronoun composed of multiple pronominal elements; a pronominal chain is a sequence of pronouns. For a more detailed explanation, see §IV.13 below.

[334] For a syntactic analysis of the sentence including *isyos*, see §IV.6.

[335] New Phrygian ιος did have a syncopated or spelling variant ις in °4b^{W}, °5^{W}, °120^{W}, °121^{W}. This is usually explained by drawing a parallel to the -ιο- > -ι- development found in Greek inscriptions from Roman Phrygia (Brixhe 1987: 50-51 *apud* PhL 95). The form *isyos* is several centuries earlier than this development, however. If *isyos* did originate from *yosyos*, its syncopation of *o* would need to have been an independent phenomenon of an apparently sporadic nature.

[336] PhL (95) suggests that NPh. ισος °37^{SW} (in the place of expected ιος) could likewise find its origin in a reduplicated $^{+}$ιοςιος, with ιο > ι in the first syllable and a simplification *sy* > σ. We may propose another possibility: if *isyos* °B-07 was indeed a bound pronoun, ισος °37^{SW} may well be its New Phrygian continuation (once again with *sy* > σ, either graphic or phonetic). Of course, neither of these options can be confirmed as correct, since the form may simply be the result of scribal error (as already tacitly assumed by Haas (1966: 119)).

[337] Contrast Obrador-Cursach (2021b: 51), who argues that *is* belongs to the previous clause *meros ke manes*. Inscription °B-07 marks word boundaries, however, so it is not clear why there would be no boundary between *is* and *yos* if they belonged to different clauses.

likely the result of a late areal development, whereas Old Phrygian spelling is considerably more stable, with vowel syncope being exceedingly rare. For this reason, an unmodified reading of *isyos*, i.e. with *is* genuinely representing the nominative singular of the pronoun *i/e-*, is preferred here, though it is by no means guaranteed.

Attested Greek appears to have eventually entirely lost the PGPh. *i/e-* pronoun in its original function. Certain Greek forms do ultimately derive from it: Cyprian ἴν derives from the accusative **h₁im* (Chantraine: 464), the pronoun ἰός of psylotic dialects is a thematization **h₁i-o-* (Chantraine 466), the conjunction ἵνα is derived from the form **h₁i-na* (*ibid.* 464),[338] and, finally, the conjunctions εἰ 'if' and αἰ 'id.' (the latter also found in Phrygian as *ay* 'if, when') both likely derive from the locative singular of the masculine and the feminine, **h₁e-i* and **h₁eh₂-i*, respectively (*ibid.* 316).

Outside of fossilized forms in Greek and Phrygian, the Phrygian enclitic anaphoric pronoun *io-/o-*,[339] and the possible Phrygian forms *is*/ις, one other known remnant of the PIE anaphoric pronoun **h₁i/e-* in the Graeco-Phrygian branch can be found in the PGPh. proclitic element **e* appended to the beginning of the demonstrative pronoun **ki/e-* (Greek ἐ-κεῖ, ἐ-κεῖνος and Phrygian *e-s-* (as found in *esai* °W-01b)).

While the synchronic status of this pronoun in Phrygian remains uncertain, the forms we have listed in Greek and Phrygian do suggest that the reflex of the PIE anaphoric pronoun **h₁i/e-* still existed in Proto-Graeco-Phrygian

[338] With the **-na* element presumably originally being some kind of an adverbial suffix.
[339] For which see below in §IV.9.

as a synchronically productive pronoun **i/e-*, albeit with its meaning shifted to a demonstrative function.

IV.3 Demonstrative pronoun *si-/so-*

The attested forms of the demonstrative pronoun *si-/so-* are:

	masculine		feminine		neuter	
nom. sg.	*ses*[?]				*si*	
gen. sg.				σας[?]		
dat. sg.		σεμουν	[+]*sai*	σαι		
acc. sg.	*sin*	σεμουν		σαν	*si*	σεμουν
nom. pl.						
gen. pl.						
dat. pl.		σως		σας[?]		
acc. pl.						

Table #35: The attested forms of the demonstrative pronoun *si-/so-* in Phrygian.

IV.3.1 Development of the stem

The origin of the initial element *s-* in the demonstrative pronoun has long been a matter of debate. On the one hand, it has been proposed to derive from the nominative singular masculine form of the PIE demonstrative pronoun, i.e. **so*, that subsequently spread throughout the paradigm (Haas 1966: 75; endorsed by Lejeune 1969b: 296). Since it is now clear that a PIE

**s-* in initial prevocalic position is lost in Phrygian (see §II.3.1.2.5 above and LL 1823; PhL 69), this explanation is not tenable.

Another proposal (as given in Pokorny 1959: 609-10) was based on the assumption that Phrygian was a *satəm* language and thus derived the initial *s-* from the particle **ḱe/*ḱi* 'here' (also reflected in, e.g. Greek κεῖνος and Proto-Slavic **sь*), which would have undergone a regular development **ḱe/i > se/i*. While the assumption that Phrygian was a *satəm* language and thus underwent an unconditioned palatalization of PIE **ḱ* is incorrect, the identification of the form where the *s-* originated is in essence correct if we uphold the Phrygian palatalization law (PhL 88).[340]

Ligorio & Lubotsky (LL 1826) argue that the initial *s-* of the pronoun derives from the addition of the anaphoric pronominal stem **i/e-* to a pronominal stem **ḱi-*, whose reflexes they identify in Gothic *hi-*, Lith. *ši-*, and Greek σ-/τ- < **ḱi̯-*V- (as in σήμερον 'today' < **kj-āmeron*).[341] A compounding of the reflexes of PGPh. pronouns **ki/e-* and **i/e-* in Proto-Phrygian would have most likely produced the attested Phrygian forms; Proto-Phrygian **ki-* + **i/e-* > PPh. **kji/e-* > Old Phrygian *si/e-*. The assumption that such a pronominal compound was created in Proto-Phrygian is, however, unnecessary, if one upholds the Phrygian

[340] See further in §II.3.2.3.4 above.

[341] Ligorio and Lubotsky assume the existence of a Proto-Indo-European pronominal stem **ḱi/e-*, as opposed to the Balto-Slavic, Germanic, Anatolian, and Graeco-Phrygian pronouns derived from **ḱi/e* all being separate developments (as is argued in Kortlandt 1983), which is the position cautiously assumed by this work. While the question is relevant from a broader Indo-European perspective, it has little bearing on the immediate pre-history of the Phrygian forms: as we will see, whether inherited or innovated, we should assume that a pronoun **ki/e-* did exist in Proto-Graeco-Phrygian. Greek σήμερον 'today' cited by Ligorio and Lubotsky has the same explanation in both frameworks, i.e. being a regular phonetic development of Proto-Greek **ki̯=āmeron 'this=day'*.

palatalization law, in which case OPh. *si/e-* would simply be the regular phonetic development of PGPh. **ki/e-*.[342]

Thus, the likeliest conclusion is that the stem of the Phrygian demonstrative pronoun *si/e-* is the regular reflex of the stem of an older demonstrative pronoun **ki/e-* and that initial *s-* is the result of the effects of the Phrygian palatalization law.[343]

The Greek pronoun (ἐ)κεῖνος 'that (one)' provides crucial evidence that the pronoun **ki/e-* must have existed in Proto-Graeco-Phrygian. For the origin of this pronoun, different analyses have been proposed. An older view is that of Pokorny (1959: 609-610), who holds that (ἐ)κεῖνος is composed of the PGr. pronoun *ἐνο- prefixed by the reflex of the PIE adverb **ḱe* 'here' > PGr. *κε, yielding PGr. *(ἐ)-κε-ενο- from which the associated adverb ἐκεῖ 'there' was back-formed on the basis of adverbs like πεῖ 'where'. Nowadays, it is more commonly assumed that (ἐ)κεῖ in fact represents an old locative or instrumental PGr. *(ἐ-)κε-ι of the pronoun *(ἐ-)κι/ε- < PGPh. **(e-)ki/e-* (Chantraine 1999: 329, EDG 397).[344]

The progression of the developments is clear: the oblique stem *κε- of an original PGPh. demonstrative pronoun **ki/e-* or a fossilized locative form *κει of the same pronoun were extended with the suffix *-(ε)νο-, thereby

[342] The reason Ligorio and Lubotsky proposed that the antecedent of OPh. **si/e-* must have been a pronominal compound PPh. **ki-* + **i/e-* in the first place is due to the fact that they did not assume a conditional palatalization of the type assumed in this work (and elaborated on in §II.3.2.3.4) ever affected Phrygian, but rather assumed that the initial *s-* of the pronoun was the result of iotation **ḳ̑i-* > *s-*. Ligorio (p.c.) has since cautiously endorsed the proposal of a Phrygian palatalization.

[343] *s-* is the regular reflex of PGPh. **k* before a front vowel. See §II.3.2.3.4.

[344] Also note that the conjunction εἰ 'if' was originally a case form of the anaphoric pronoun **hₗi/e-*, PGPh. LSg **hₗei* '*at that > *when > if' (cf. Chantraine 1999: 316), which confirms the existence of a PGPh. pronominal desinence *-*ei*.

producing a new PGr. pronoun *(ἐ-)κε(ι)-(ε)νο- > Gr. (ἐ)κεῖνος.[345] Regardless of which scenario one upholds, both require the previous existence of a pronoun **ki/e-* to explain either the existence of the oblique stem *κε- or the existence of a locative form *κει.[346]

Thus, since we find evidence for the existence of **ki/e-* in the prehistories of both Greek and Phrygian, it is clear that the pronoun **ki/e-* must have existed at the Proto-Graeco-Phrygian stage already. Its subsequent development in Greek and Phrygian is also mostly clear.[347] Whether the Proto-Graeco-Phrygian pronoun **ki/e-* could have been inherited from PIE

[345] The existence of this pronoun in Proto-Greek is supported by its existence in all the dialects of Greek.

[346] Assuming that Greek never possesed a pronoun **ki/e-* in its pre-history severely complicates matters with little explanatory benefit. In that case, (ἐ)κεῖνος would need to be a late adjectivization of **ḱe* (as in the scenario suggested by Pokorny), σήμερον/τήμερον would need to be a nominal phrase composed of an adverb **ki* (which would need to have co-existed in parallel to **ke* until Proto-Greek) and a noun (with the semantic development being 'here day' > 'today', which is syntactically suspect), ἐκεῖ would need to be an adverbial back-formation, and the Phrygian pronoun *si-* would need to be an independent innovation of Proto-Phrygian. In addition, the parallel between Gr. ἐκε-/κε- and Phr. *esi-/si-* would either need to be accidental or the result of an earlier co-existence of adverbial variants with two different onsets, **ek-* and **k-* (which would obviously be the likelier option). Since we would already need to reconstruct two variants of the adverb meaning 'here' on the basis of Greek, i.e. **ke* and **ki*, the two onsets now multiply the number of forms. To explain all the forms in Greek and Phrygian, we would now need a total of four variants of the same adverb meaning the same thing, 'here', at the Proto-Graeco-Phrygian stage: **ki, *ke, *eki, *eke.* It is difficult to see how such a scenario could be reasonably entertained.

[347] If one rejects the palatalization law in Phrygian, however, the scenario becomes considerably murkier. The likeliest explanation for Phrygian *s-* would then see it derived from **kjV-* < **ki* + **i/e-* (as argued for in LL 1826). There are in principle two options in this case. The first is that both the **ki/e-* and **kji/e-*pronouns would need to have existed in parallel in Proto-Graeco-Phrygian. The second option is that the **kj-*pronoun was an innovation of Proto-Phrygian. In either case, it is puzzling why an agglutination of the **ki/e-* and **i/e-* pronouns would have adopted the strong stem **ki-* for the first element: the first element in a compounded pronoun tends to adopt the oblique stem (cf. PGPh. **e=* < **hₗe-*). Still, even if one were to ignore this discrepancy, both options require the assumption of an additional morphological innovation, while none is needed in the framework where the Phrygian *s-* originated simply due to the effects of the Phrygian palatalization before front vowels.

is a matter of debate. Similar looking pronouns or traces of it are found in a number of other IE languages: OCS *sь*, Lithuanian *šìs*, Gothic acc. *hina*, Hittite *kās* 'this' (CIEL 226), Latin *cis* (Fortson 2004: 130). Whether these are independent creations (as assumed by, e.g., Beekes (CIEL 226)) or inherited from a PIE pronoun **ḱi-* (as assumed by, e.g., Fortson (2004: 129-130)) is contentious.

If we assume that the PGPh. pronoun **ki/e-* was newly created, the adverb **ḱi/e* 'there' must have only supplied the initial consonant **ḱ-* to the pronoun and not its full form.[348] Such a development in Proto-Graeco-Phrygian would have a clear parallel in Proto-Slavic, where the demonstrative pronoun **sь* emerged as the result of the deictic particle **ḱi/e* being extended by the inflectional forms of the anaphoric pronoun **h₁i/h₁e-* (Kortlandt 1983: 314-315). As we would need to assume for PGPh, the deictic particle must have likewise only provided the initial consonant in Proto-Slavic and not its full form **ḱi/e*; otherwise, one would expect different vocalism in the attested nominative singular of the newly created pronoun. The creation of the pronoun **sь* was apparently an independent Proto-Slavic development that took place after the period of Balto-Slavic unity (*ibid.*). The Slavic comparison can then serve to illustrate the non-exceptional character of such a development in Proto-Graeco-Phrygian.

One striking similarity between the descendants of the PGPh. pronoun **ki/e-* in Greek and Phrygian is the apparent co-existence of two forms, one

[348] The pronoun could not have been built by an agglutination of pronominal endings to the full adverb **ḱi* or **ḱe*, since Gr, (ἐ)κεῖ would have then surfaced as **(ἐ)σει < **ki* + **ei* or **(ἐ)κῃ < ***ḱe* + **ei*.

with an added initial **e-*, and one without: Greek ἐκεῖνος and κεῖνος, Phrygian *esai* (dat. sg. fem., °W-01b) and σαι (*id.*, °35^{E}) (LL 1826, PhL 91, 90). The Phrygian form with *e-* is isolated and it is uncertain whether it represents the retention of a PGPh. **e-ki-* pronoun variant or is a later creation.[349] Etymologically, the Greek ἐ- and Phrygian *e-* are most likely to be reflexes of the oblique stem of the PIE anaphoric pronoun, PIE **h₁e-* > PGPh. **e-* > Phr. *e-*, Gr. ἐ- (PhL 91).[350]

IV.3.2 Masculine and neuter forms

The *o*-stem endings of the pronoun appear to be limited to the New Phrygian period (LL 1826), whereas the Old Phrygian forms clearly do not belong to this type. This indicates that the Old Phrygian inflection, following the *i*-type, was supplanted by that of the *o*-stems sometime before the beginning of the New Phrygian era. This was likely due to a number of

[349] Neumann's (1986: 81) suggestion that New Phrygian ειαν is to be understood as deriving from **e-san* cannot be correct (*contra* LL 1826 and PhL 91 who still admit the possibility), since loss of intervocalic **s* in Proto-Phrygian affects only original **s* inherited from PIE and not those that arose later from other sources. There are no grounds for assuming a second loss of intervocalic *s* between Old and New Phrygian. While it is possible that the ε in ειαν is genuine (ie. represents an etymological ε, presumably the same as in OPhr. *e-sa-* and Gr. ἐ-κεῖνος) and this is thus another example of a compounded pronoun (though not one related to **ki/ke*), the possible existence of a spelling ειος for ιος (in °12^{S}) and the other spelling substitutions of ει for ι found in New Phrygian texts seem to indicate rather clearly that this is simply a spelling variant of ιαν.

[350] The Phrygian forms with an initial *e-* may serve as an additional argument against a reconstruction of the *s-* of the pronoun as deriving from a sequence **kj-*. It now appears likely that a Proto-Phrygian unaccented **e* was raised to **i* when followed by two consonants (for which see §II.3.4 and §IV.10); an initial pronominal **e-* was likely to have been unaccented, as suggested by *ibe-* and *ivi-* (*ibid.*). In this light, we would expect an earlier sequence **e*$_{[-accent]}$*=kji/e/ă-* to surface as Old Phrygian ***isi/e/a-*, which is evidently not the case. On the other hand, it is by no means certain that such a pre-form, if it would have ever existed, would not have been remodelled in some way to preclude this development from taking place; e.g. by replacing the long reflex of **kj* with **s* taken from word-initial position.

other pronouns inflecting thematically. The feminines inflected as *a*-stems in Old Phrygian already, and the associated masculines and neuters to feminine *a*-stems in nominal formations were *o*-stems, which, in addition to providing additional pressure, may serve to explain why *si-* was replaced by *so-,* whereas κι- < *ki-* < PIE **k*^{w}*i-*, which did not have a separate feminine in PGPh., managed to resist this transfer.[351]

Nominative singular masculine: *ses* °P-02

The form *ses* is somewhat anomalous. The context does suggest its reading as a nom. sg. form of the demonstrative pronoun: *ses=t bugnos vasos* (gen. sg.) *kanutiievanos* (gen. sg.) 'this is Bugnos of-Vasus of-son-of-Kanuti' = 'this is Bugnos, son of Vasus, grandson of Kanuti' (PhL 90-91). The element *=t* would then be the emphatic particle commonly found after the demonstrative pronoun (cf. *sin t(i)* B-05, σεμουν τV common).

The problem with the form *ses* is its vocalism: for the nominative singular case, we would expect this form to show the *i*-vocalism that is expected of pronouns following the *i*-declension (cf. nom. sg. *si* B-01, M-01b, κις W-11, υις W-11, *is* B-07?, ις °116^{W}). Nevertheless, inscription °P-02 is syntactically clearly best understood if we assume that the syntagm *ses=t bugnos* is in the nominative singular. Obrador-Cursach (PhL 91) is then most likely correct in suggesting a "hesitation between *e* and *i*".

Most of the spelling inconsistencies between a mid-high and a high vowel in Phrygian are not random, however, but betray some underlying phonetic reality.[352] A vacillation in spelling between <*e*> and <*i*> usually suggests

[351] This may then suggest that οε- < PPh. **ve-* likewise never had a feminine separate from the masculine.

[352] By far the most common are variations before final nasals, which is evidently not the case here. Another cause of such variation is the presence of an accent before a resonant or lack of an accent before a sequence of two consonants, which likewise does not apply here.

that the actual vowel being written is /ẹ̄/.[353] While there is no explicit vacillation in spelling between a <*ses*> and +<*sis*>, the spelling <*ses*> for what we would expect to be [sis] (if directly descended from **kis*) is anomalous in the system of pronominal declension types, both from a synchronic and a diachronic perspective. As such, <*ses*> is exceedingly unlikely to spell [sis]. We may explain the spelt *e*-vocalism in one of two ways, then: 1) the vocalism was secondarily adopted from a case form that would have shown *e*-vocalism (most likely the genitive case); or 2) the spelling with <*e*> actually renders /ẹ̄/.

We may question the first option for the following reasons: a) other *i*-type declension pronouns all show the vocalism /i/ in the nominative singular; b) the accusative singular form of the *i*-type declension pronouns seems to consistently reflect an inherited **i* as /i/, *sin* °B-05 being a particularly notable example. Thus, if we wish to uphold the *e*-vocalism of <*ses*> as secondarily adopted from the oblique cases, the *si*- pronoun itself must have behaved somewhat differently from other *i*-type pronouns. This is not necessarily problematic, since we know that at least the accusative singular form *sin* was replaced by σεμουν, whereas nothing similar took place in the other *i*-type pronouns.

On the other hand, if we assumed that the *e*-vocalism of <*ses*> actually spells [sẹ̄s], we still need to explain the vocalism: there is no way that **ḱis* would have developed into **sẹ̄s*, meaning that the /ẹ̄/ vocalism would likewise need to have been adopted from some other source.

Thus, we seem to arrive at an impasse: the spelling <*ses*> suggests that the nominative singular of the demonstrative pronouns either adopted /e/-

[353] Cf. <-*si*> ~ <-*se*-> for /-sẹ̄/ < *-*sih₁*-. See further in §II.3.2.2.

vocalism (the *e*-adoption strategy) or /ē̯/-vocalism (the *ē̯*-adoption strategy) from some other form.

More likely is the *e*-adoption strategy: we have already suggested that the mostly consistent spelling of σεμουν with <ε>, even though we etymologically expect *ē̯*-vocalism in the first syllable, which is not spelt with <ε> in New Phrygian, is the result of a late adoption of *e*-vocalism into the dative/accusative singular from the genitive case (see §II.3.4). If *e*-vocalism was spreading through the paradigm, as suggested by this example, it may well have spread into the nominative singular in the Old Phrygian era already.

On the other hand, if we assume the *ē̯*-adoption strategy, this vocalism would have spread from the dative singular case (where **-e-sm-* > *-ē̯m-*, as still preserved and spelt with <*i*> in *ivimun* °B-05 and with <ι> in σιμουν °25^{SW}). In that case, the nominative singular may have escaped the later regularization of *e* in the oblique cases.

The accusative singular form *sin* °B-05 is compatible with both scenarios: if the underlying vowel were *e*, we are dealing with regular raising before a final nasal, and if the underlying vowel were *ē̯*, <*i*> is one of the two ways that phoneme could be spelt.

Dative singular masculine and neuter: σεμουν (very common) (LL 1826, PhL 89-90)

σεμ- developed from an earlier **sehm-* < EPPh. **kehm-* < **ḱe-sm-*; the element **-sm-* was added to some masculine/neuter oblique pronominal case forms in PIE already.

The attested forms are all from the New Phrygian period and show the reflex of the expected dative singular *o*-stem ending, PIE **-ōi* > OPh. $^{+}$*-ōi*

> ου, with the addition of an element -ν, which was taken from the accusative *o*-stem ending -ουν. This is the result of case syncretism between the dative and the accusative.[354],[355] The most likely dative singular masculine form of the pronoun *si-* in Proto-Graeco-Phrygian was **kehmōi*, which eventually developed into **sḛ̄mōi* within Proto-Phrygian. The spelling σιμουν °25[SW] likely confirms that the form still had *ḛ̄*-vocalism in the first syllable in at least part of the speech community by the New Phrygian era, but the far more common spelling σεμουν, noting that <ε> is not known to have been used to spell /ḛ̄/, suggests that *e*-vocalism was secondarily spread into this form for the majority of speakers, presumably from the genitive singular (PPh. **sevo* < **ke-so*).

Accusative singular masculine: *sin* °B-05:1,8, *śit=t* °G-12; ϙοϙν[?] °W-11:8; σεμουν (very common) (LL 1826)

The sequence *sin=t imenan* in °B-05:1, and repeated as *sin ti imenan* in °B-05:8, where the masculine noun *iman* is in the accusative form *imenan*, secures the interpretation of *sin* as the accusative masculine form of the pronoun in Old Phrygian (PhL 88). *t* and *ti* are forms of the emphatic particle.[356] In °G-12, the form appearing as *śit=t* is likely to also be the ASg

[354] As was proposed to me by Sasha Lubotsky (p.c.). PhL (89-90) suggests that **-n* was originally a postposition, citing a Sabellic parallel provided by Untermann 2000: 223-225), where the final nasal encodes a frozen ablative. Haas proposes (1966: 75-6) that we are dealing with movable-ν, but there is no other form in the corpus that would support its existence in Phrygian. Brixhe (2002: 264) assumes the addition of a parasitic nasal (ie. hypercorrection), but all other examples of hypercorrect final nasals he proposes are not tenable (Šorgo 2019).

[355] Do note that Obrador-Cursach (PhL 89) and Hämmig (2013: 149) are correct in identifying a dative singular ending akin to NPh. -εμουν in *ivimun* °B-05, even if we are in disagreement over the question of which pronoun the ending belongs to. This suggests that the dative singular of *i*-type pronominal endings was already extended with the element *-n* by the end of the Old Phrygian era in at least some part of the speech community (with inscription °B-05 dating to the 5th century BCE and originating in the northwestern area of Phrygia).

[356] For which see §VI.2.4.

masculine form of the demonstrative pronoun followed by the emphatic particle *t*, though with assimilation of final *-n* to the following *-t* (Oreshko 2023: 68-69).

The copiously attested New Phrygian form ASg σεμουν is identical to its dative counterpart: probably, the dative stem *semo-* replaced the accusative stem *si-* (as found in *sin*), producing the attested σεμουν. Since both acc. sg. *sin* and what is likely to be a dat. sg. *ivimun* (= **-mō(i)n)* appear in the same inscription, °B-05, the adoption of **-n* into the dative singular case form from the accusative singular must have preceded the replacement of the accusative stem and its transfer to the thematic declension.

The segmentation of lines 7 and 8 in Middle Phrygian inscription °W-11 (ιος κοροαν δετουν σουνομαστα ομνισιτους) is unclear, so one cannot be sure whether the correct reading is σουν ομαστα or σου νομαστα, where σουν would be the expected thematic accusative singular form of the pronoun *so-,* and σου would be the expected genitive. Brixhe (2004: 24) does suggest that, since the following word begins with ομ-, the preferable reading is σουν ομαστα, meaning the syntagm ομαστα ομνισιτους can be understood as poetic alliteration, which is the interpretation adopted here. Semantically, σουν would begin a new clause having the function of a direct object: [πεννιτι ιος κοροαν δετουν] [σουν ομαστα ομνισιτους] '[walks-by whoever girl placed] [him *omasta* ought-to-*omni*]' = '[whoever walks by the interred girl] [may the *omasta omni* him].

If the segmentation as σουν is the correct one and the form encodes an accusative singular of the demonstrative pronoun, this suggests that the replacement of the OPh. acc. sg. *sin* either: a) took place in two phases, i.e. *sin* >> σουν >> σεμουν; b) produced two innovative competing forms, σουν and σεμουν, of which the latter eventually won out.

Nominative-accusative singular neuter: *si* °M-01b, °B-01 (LL 1826)

The neuter pronoun *si* appears in the corpus twice, as part of the phrase *si keneman* 'this niche' in °B-01, and as part of the phrase *si bevdos* 'this statue' in °M-01b. Both the nouns it modifies are neuters (PhL 89) in the accusative case.[357], [358] The form is entirely expected: due to the loss of final stops in Proto-Graeco-Phrygian, the inherited Core PIE ending **-id* developed into PGPh. **-i* > PPh. **-i*, OPh. *-i.*

Dative plural masculine: σως °130^{NW} 2x

The ending is clearly identical to the dative plural ending of nominal *o*-stems (Avram 2015: 210), which is a regular reflex of the PIE DPl ending **-ōis* > OPh. *-ois* > NPh -ως. The pronoun in inscription °130^{NW} appears as part of the phrase σως ... γουμεις, where the nominal element is likewise in the dative plural.[359] The identification of this form is thus secure (*contra* PhL 91).

It is currently fruitless to speculate what the form of the pronoun was before its transfer to the *o*-stem declensional type.

[357] *keneman* is built with the nominal suffix **-mn̥*, which creates neuter nouns (see §III.3.6.1), while *bevdos* was loaned into Greek as the neuter βεῦδος 'woman's dress' (Lubotsky 2008: 96ff.), and can thus hardly be anything other than a neuter.

[358] PhL (89) suggests that this form of the demonstrative pronoun may also appear in the sequence *sit kraroy veao dis* °G-11, but notes an unclear agreement and the obscurity of the text. If the first word of the sequence is actually *si*, the form certainly could not have ended in a dental stop; rather, the sequence *sit* would then likely be composed of the demonstrative pronoun and the emphatic particle: *si=t(V)* (cf. *sin t(i)* B-05, σεμουν τV). In any case, the text is currently too poorly understood to permit a proper analysis.

[359] A nominal ending -εις can only be understood as a dative plural of the *e*-stems. See §III.2.2.7.

IV.3.3 Feminine forms

The feminine forms of the demonstrative pronoun had the stem *sa-* (PhL 89-90). The original nominative singular of the pronoun **ki-* in the feminine was presumably **k-ih₂* (i.e. Proto-Graeco-Phrygian **kja*), which would have regularly developed into *⁺să*. The original Proto-Phrygian accusative must have likewise had a yod or **i* following the initial **k-*, which would have thus likewise developed into initial **s-*.[360]

The development of the oblique cases is less clear: parallel to the element **-sm-* in the masculine/neuter pronominal declension, the feminine pronominal declension in PIE had an element **-si̯-* (CIEL 227). In contrast to the masculine **-sm-*, which was preserved in Phrygian, there are no traces of the element **-si̯-* in feminine pronouns anywhere in the Phrygian corpus. In attested Phrygian, the oblique cases simply decline identically to the *a*-stems (PhL 90), so **-si̯-* must have been lost at some point. Since Greek likewise shows no evidence for its preservation in any of its pronouns, it is possible that the feminine pronominal endings were re-modelled on the basis of the nominal *ā*-stems already in Proto-Graeco-Phrygian. In that case, the oblique cases of the feminine *ki*-pronoun in Proto-Phrygian would have originally had an initial **k-* (since pre-Proto-Phrygian **k-eh₂-* > **kā-*, not ***sā-*), which would then be replaced with **s-* on the basis of the nominative, accusative, and the masculine and neuter forms of the pronoun.

Alternatively, Proto-Phrygian might have initially preserved the **-si̯-* of the oblique cases, in which case the oblique stems would originally have the

[360] Depending on the form of the accusative singular in Proto-Graeco-Phrygian, which would have been either PGPh. **ki(j)an* (from the Sievers variant **kiih₂m* or from a vocalization **ki̯h₂m̥*) or **kjan* if the stem was simply taken from NSg **kja* < **ki̯h₂*.

stem **ke-sḭ-eh₂-* > **se-sḭ-ā-*, [361] which would subsequently become simplified into **sā-* on the basis of the nominative and accusative stem **să̄-*.

Since we have no attestation of a nominative singular and neither the Old nor the New Phrygian script distinguish vowel length, it is impossible to determine when, if ever, the original short *ă* of the nominative (and possibly the accusative) was replaced with its lengthened counterpart to produce a regular *ā*-stem declension found in the nominals. The length of *ā* in the oblique cases is fairly firmly established by the New Phrygian dative singular forms, which points to an earlier presence of the long diphthong *-āi,* which regularly developed into -α.

Genitive singular feminine: σας °W-11:1? (LL 1826)

In °W-11, the identification of the pronoun and its case depends on the segmentation and analysis of the sequence μανκα μεκας σας κιυιν. The first term, μανκα 'stele', is a known *a*-stem feminine noun in what appears to be the nominative singular case. μεκας 'great, big' is an adjective of the masculine/feminine gender. Most likely, it modifies the preceding noun, and is in the nominative singular case: μανκα μεκας 'big stele'. It is also possible that the form is that of the genitive singular and is indeterminate for gender. The pronominal form σας is unexpected. Obrador-Cursach (PhL 90) analyses it as a nominative singular feminine form of the demonstrative pronoun and translates the entire sequence μανκα μεκας σας as 'this big stele', and assumes that the final -ς is either the result of dittography or was authentic and the result of an adoption from the masculine pronominal system.

[361] The Phrygian reflex of an earlier sequence **-sḭ-* is not known.

Another possibility is that σας is a form encoding the genitive singular case form of the feminine pronoun. This seems to be the preferable solution for the following reasons: 1) the adoption of -ς into the nominative singular of a pronominal form which otherwise seems to behave as an *a*-stem is difficult to motivate, especially knowing that the pronoun *si-* would become an *o*-stem by the New Phrygian era; 2) σας is the expected feminine genitive singular form of the demonstrative pronoun (from pre-PGPh. **ḱeh₂s* with levelling of the first consonant from the masculine/neuter stems); 3) there is no syntactic reason to assume nominative over genitive – in fact, a demonstrative pronoun in grammatical agreement with some noun generally precedes that noun; 4) dittography should only be used as a solution of last resort.

Interpreting σας as a genitive singular form, we may translate the first three words of °W-11, μανκα μεκας σας, as 'stele big of-her' = 'her big stele' or, if we are dealing with a nominal sentence, 'The big stele is hers.'; in any case, the pronoun refers to a female figure. The penultimate clause suggests that the stele was in fact placed for the benefit of a girl: πεννιτι ιος κοροαν δετουν, ... 'walks-by whoever girl placed' = 'whoever walks by the interred girl, ...'

For the time being, then, σας being a feminine genitive singular form seems to be the analysis that best accounts for the facts.[362]

The ending -ας is the expected reflex of the PIE genitive singular ending *-*eh₂s* > PGPh. *-*ās*.

[362] Do note that not all options have been thoroughly exhausted. For example, one cannot entirely exclude the unlikely possibility that μεκας could be a genitive singular form as well, that μανκα μεκας is not actually the phonetic realization of an underlying μανκας μεκας in the genitive case (cf. ιο νι for usual ιος νι in °4b^{W}), that the forms μεκας and σας are not actually dative plural forms (i.e. */mekāis/* and */sāis/*; for the spelling compare σα for /sāi/ in the following line), etc. No such alternative or any of their possible combinations are compelling enough, in my opinion, to merit an in-depth discussion.

Dative singular feminine: *(e)sai* °W-01b; σα̣ °W-11:3; σαι °35^{E} °69^{SE}; σα °21^{C} °67^{SE} °82^{C} °115^{W} °124^{C}, °91$^{W?}$; [σ]α °94^{S}, °129^{W} (LL 1826)

Old Phrygian *(e)sai* is part of what appears to be a pronominal chain *yos=e(=)sai=t* and it is unclear whether *e-* is a separate pronominal element or a relic of the **eki/e-* variant of the Proto-Graeco-Phrygian pronoun **ki/e-* (cf. Gr. ἐκεῖ),[363] but the element *sai* is clearly in the dative singular (PhL 90) and is correlated with the feminine dative singular *materey*. The rest of the attested forms are likewise correlated with feminine nouns in the dative singular case. The exceptions are in inscription °69^{SE}, where σαι correlates with the accusative μανκαν, suggesting case syncretism, inscription °91^{W}, where the nominal element is not known due to damage to the inscription, and inscription °115^{W}, where σα correlates with τεαμας (which always unexpectedly appears with this ending).

Since the expected outcome of Old Phrygian *-āi* in New Phrygian is simply -α (PhL 90), the two spellings with σαι are puzzling. Both, however, appear in inscriptions where the dative singular of *ā*-stem nouns is likewise spelt with -αι instead of the usual -α. Since all New Phrygian inscriptions that have a spelling -αι for *ā*-stem nouns in the dative singular, which includes °35^{E} and °69^{SE}, are found in the peripheral areas of Phrygia, this is almost certainly a dialectal development of some kind.[364]

Accusative singular feminine: σαν °60^{E} (LL 1826)

In its only attestation, the pronoun σαν is likely correlated with the feminine dative singular μανκαι (PhL 90). We are dealing with a conflation of the cases, likely brought on by the fact that the two correlated elements are not

[363] Obrador-Cursach (PhL 91) treats *esai* as a single compounded form.
[364] See further in §II.3.3.3.

adjacent and that σαν precedes an accusative (... σαν κακουν ... μανκαι / ...).[365],[366]

Dative plural feminine: σας °56$^{E?}$, °73$^{W?}$ (*contra* LL 1827, PhL 90)

In °56^{E}, the pronoun σας is correlated with the feminine noun σκερεδριας '(part of the grave)'. Syntactically, we are dealing with an indirect object and thus expect the elements to be in the dative case. In °73^{W}, σας is correlated with the noun μδυει['(part of the grave)', which seems to be in the dative singular, so the two elements do not directly match, but since the inscription is damaged immediately following this point, one might read σας μδυει[ς], with the noun being in the dative plural.

The dative plural ending of the *a*-stems in nouns would have been created through analogy: masc. DSg *-*ōi* : DPl *-*ōis* = fem. DSg *-*āi* : DPl X, X = *-*āis.* The shortening of long diphthongs after Old Phrygian would have likely resulted in a New Phrygian DPl ending -ας.[367] In this case, both σας σκερεδριας and σας μδυει[ς] would be nominal phrases in the dative plural: *'to-these* σ./μ.'.[368]

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[365] Curiously, the use of an accusative singular for the dative singular appears in °60^{E} as σαν ... μανκαι, i.e. in the pronoun, and in °69^{SE} as σαι μανκαν, i.e. in the noun. Why this otherwise rare conflation appears twice in a phrase including the same noun is unclear.

[366] The conflation of the dative and the accusative singular of the *a*-stems can be partially understood in perceptual terms: the DSg ending -α(ι) [-a(j)], especially when realised without the glide, would have been acoustically very similar to -αν [-ã].

[367] By way of *-*āis* > *-*ās* > -*as*. Compare the o-stem development: *-*ōis* > -*ǫs* <ως>.

[368] The alternative and less elegant explanation is that the cases were conflated when expressing an indirect object (as assumed by PhL 90); in these two instances, the genitive singular would be used in place of the dative singular. σας σκερεδριας would then see both elements as being in the genitive singular, whereas σας μδυει would have the pronoun in the genitive and the noun in the dative singular. While we have clear evidence that the dative and accusative were occasionally conflated, these examples would be the only cases of the genitive and the dative also being conflated. In contrast to the conflation of the datives and the accusatives, which can be explained through the acoustic similarity of their desinences, i.e. -α(ι) [-a(j)] and -αν [-ã], no such mechanism can be proposed for the conflation of -ας [-as] and -α(ι) [-a(j)].

IV.3.4 *si* as a proclitic

A neuter nominative/accusative singular form *si* of the demonstrative pronoun appears twice in the Phrygian corpus (PhL 89). In °B-01, it appears as part of the phrase *s[i] bevdos* 'this statue' (Lubotsky 2008: 96-7). In °M-01b, it appears in *sikeneman* 'this niche'; while all other words in the inscription are separated with the use of two vertical dots, the syntagm *sikeneman* is written without any separator (Gusmani & Polat 1999: 155), which indicates that *si* does not function as a prosodically independent element.

There are three instances of an unexpected initial *s-* element in Old Phrygian: *smateran* (ASg fem. 'mother') in °M-01d (PhL 91), *smanes* (NSg masc. 'Manes (PN)') and *smanin* (ASg masc. '*id.*') both in °B-07 (*ibid.*). In this latter inscription, *s=manes* 'this=Manes' is not the same person as the *manes* 'Manes' who is also mentioned in the inscription.[369]

It seems clear that this initial *s-* must be in some way related to the definite pronoun *si/e-* (CIPP2 77; Gusmani & Polat 1999: 154-55; PhL 91). Most likely, the word-initial element *s(i)* imparts a meaning of definiteness on the following noun. It is prosodically dependent on the following word, as indicated by the occasional syncopation of *i*.[370]

[369] The entire sentence appears to be composed of three clauses: *smanes [...] estaes, va knais manuka odeketoy, meros=ke manes*: '*s*-Manes [...] erected, his wife *manuka* made, and *meros* Manes (also made)'. It is unlikely that the name would be repeated in the third clause if it were referring to the same individual. Rather, there are two persons named Manes, *this*-Manes (i.e. the one buried at the site) and another Manes who is not present, most likely his son.

[370] Compare also the loss of final **-i* in the preposition αδ < **adi* < **a-d^{h}i* (see §VI.1.1).

IV.4 Anaphoric pronoun *to-*

The attested forms of the pronoun *to-* are:

	masculine		feminine		neuter	
nominative		τος				το
genitive	*tovo*	του				
dative				τα / ται		
accusative				ταν		
nominative					*ta*	
genitive						
dative				τας		
accusative						

Table #36: The attested forms of the anaphoric pronoun *to-* in Phrygian.

The pronoun *to-* descends from the PIE demonstrative pronoun **so/seh₂/tod*. The initial *t-* of the nominative singular τος must have spread from the oblique cases (PhL 91).

Functionally, the pronoun το- appears to have an anaphoric meaning in New Phrygian (LL 1827). This can be clearly seen in those instances where it appears as part of the apodosis of a curse formula, referring back to the subject of the previous clause, such as in ιος ... αδδακετ, τος ... ε[ι]του °6^{W} (‘whoever ... does, he ... may-be’) (PhL 91).
Its precise meaning in Old Phrygian is less clear. In the instances where it appears (see below), there is no clear antecedent to which it would

unambiguously refer, and seems to function more as a demonstrative pronoun. Indeed, in New Phrygian inscription °2^{W}, the nominal phrase in the dative singular τα μανκαι, if the reading is to be trusted, appears in place of expected **σα μανκαι, indicating some overlap in meaning. Thus, the anaphoric function of the pronoun *to-* must be a secondary development from an original demonstrative function. The original distinction between Proto-Phrygian demonstrative pronouns **si-* and **to-* was likely one of proximality, 'this' and 'that' *vel sim.* respectively.

Nominative singular masculine: τος °6^{W} °25^{SW} °69^{SE} °103^{C} °129^{W}
The PIE masculine nominative singular **so* would have regularly developed into Phrygian **o*. As stated above, the initial τ- must have spread from the oblique stem **to-* (PhL 91). The final -ς of the nominative must be a secondary addition, taken from any one of the plethora of masculine nominative forms that end in *-s*.

Nominative/accusative singular neuter: το °116$^{W?}$ (LL 1827)
The nominative/accusative singular pronoun το is regularly descended from the PIE neuter nominative/accusative singular **tod*. Its identification in inscription °116^{W} is based purely on its correspondence to the expected reflex of PIE **tod.* Its function is unclear; it is possible that it functioned as a demonstrative pronoun modifying the neuter noun αιπος, but the two elements are separated by such a long string of text (at least 46 letters) that this is quite unlikely.

Genitive singular masculine/neuter: *tovo* °G-02; τουˀ °87^{W} (LL 1827)
The Old Phrygian genitive form *tovo* is regularly descended from the PIE genitive singular **toso* (*ibid.*).[371] The New Phrygian form is του, which would have presumably developed through the contraction of *-ovo* into †*-ō* and subsequently into -ου.

Dative singular feminine: τα °2^{W}, ται °18^{W}, °116^{W} (LL 1827)
The New Phrygian datives τα and ται developed from the PIE feminine dative singular **teh₂ei* (PhL 91). For the unexpected development of Old Phrygian *-āi* into -αι (instead of expected -α) in ται °18^{W}, °116^{W}, see above under *sāi* (§IV.3.3) and further in §II.3.3.1.
As noted above in this section, the function of τα in °2^{W} is simply demonstrative (ιος τα μανκαι κακουν αδδακετ, ... °2^{W}), which suggests that the old demonstrative meaning of the pronoun was still marginally preserved by the New Phrygian era, likely reinforced through contact with Greek, where the oblique cases of the definite article would have begun with τ- (in this specific case, cf. Gr. Dsg τῇ).

Accusative singular feminine: *tan*= °W-01c, ταν °15^{NW} °18^{W} °30^{Sˀ} °116^{W} (LL 1827)
The feminine accusative singular pronoun *tan*/ταν regularly developed from the PIE feminine accusative singular **teh₂m* (PhL 91).
In °W-01c *tan* is followed by a verb in final position without an intervening word separator, despite those being used to separate the other words, suggesting that it was not prosodically independent.

[371] As suggested by Ligorio and Lubotsky (*ibid.*) **-oso* regularly developed into **-oho* > **-o.o*, with the *-v-* of *-ovo* emerging as a hiatus filler before a rounded vowel.

In °W-01c and in °30^{S} the antecedent can be identified (*ataniyen kuryaneon* in °W-01c, and most likely ουεβαν in °30^{S}, though the former of these does not correspond in terms of grammatical gender).
Inscription °18^{W} is too poorly understood to provide further insight.
Inscriptions °15^{NW} and °116^{W}, however, show ταν with a purely demonstrative function without an antecedent (ταν ... σεσταμεναν μανκαν °15^{NW}, ταν σαυναμαν °116^{W}).

Nominative/accusative plural neuter: *ta* °B-01:4 (LL 1827), *ṭa* °B-07
The nominative/accusative plural pronoun *ta* developed regularly from the PIE neuter nominative/accusative plural/collective pronoun **th₂.* It has a demonstrative function in inscription °B-01 and modifies the nominal form *spereta* 'seed[?]'. The syntagm *ta spereta* 'these *spereta*' must be in the accusative case in light of the following *ayni kin telemi* 'or some *telemi*', where the pronoun *kin* is unambiguously in the accusative case (Lubotsky 1993: 97).
In inscription °B-07, the sequence *ṭat* appears at the very beginning and is marked as separate from the rest of the inscriptions by the two vertical dots. It is attractive to consider that the sequence ought to be segmented as *ṭa=t*, with *=t* being the intensive particle. In this case, *ṭa* may have been the NAPl neuter form of the pronoun with a demonstrative meaning such as "these". The use of this pronoun at the beginning of the inscription would be an exhortation to the reader to pay attention: "These (things)! –"

Dative plural feminine: τας °116^{W}
The dative plural pronoun τας is regularly descended from the Proto-Graeco-Phrygian feminine dative plural pronoun **tāis*, where the ending was analogically created through the proportion masc. Dsg **-ōi* : Dpl **-ōis*

= fem. DSg *-*āi* : DPl X, X = *-*āis*.[372] The contraction of *-*āis* to NPh -ας would have been regular.

The identification of τας as the dative plural is fairly secure, since it appears as part of a nominal phrase τας δ̣-ḳερης ονομανιαις °116[W] 'the named monuments[?]', where the other two elements are likewise in the dative plural.[373]

IV.5 Demonstrative/reflexive pronoun *avto-*

The attested forms of the demonstrative/reflexive pronoun *avto-* are:

	masculine		feminine	
nominative sg.		αυτος		
genitive sg.				
dative sg.	*avtoi*		*avtay*	αυται
accusative sg.	*avtun*	αυτον		

Table #37: The attested forms of the pronoun *avto-* in Phrygian.

The pronoun *avto-* is an innovation of Proto-Graeco-Phrygian, developed by the univerbation of the reflex of the PIE particle *h_2eu 'again' and the pronominal stem *to- (for which see §IV.4) (PhL 93).

[372] Compare also fem. DPl σας, §IV.3.3.

[373] An interpretation of this entire nominal phrase as being in the accusative case is unlikely for two reasons: 1) the ending -ης in consonant stems is only known in the nominative and dative plurals; 2) the feminine accusative plural ending of the *a*-stems (*-*eh_2ms*) has not been observed to contract as **-*as*.

The pronoun *avto-* in its reflexive function was preceded by the reflex of PIE **swe* 'self' > PGPh. **hwe*, from PGPh. **hwe=auto-* 'him/her/it-self' > Gr. ἑαυτό-, Phr. *ve- avto-* (cf. LL 1827 and PhL 94). The two languages do differ in the fact that Greek eventually seems to have univerbated the particle-pronoun combination into a new pronoun, whereas Phrygian kept the two elements separate and declined both.[374]

The inflected forms of *avto-* are entirely predictable and follow the declension of the pronoun *to-*, simply with the addition of *av-* at the beginning (PhL 93). For this reason, the individual forms will not be analysed beyond their syntactic and semantic function.

The pronoun *avto-* appears to have been used in several different functions, at least demonstrative, reflexive, and intensive.

In its demonstrative function, it is commonly used to refer to some previously mentioned entity and seems to be more emphatic than the similarly used anaphoric *to-*. As an example, an addition to the standard curse formula in inscriptions °33^{E} and °36^{E} uses αυτος to refer to the potential wrong-doer who is to be cursed in some manner: αυτος κε ουα κ ε/οροκα γεγαριτμενος ας βαταν τευτους '*both <u>he</u> and his e/oroka cursed by-Bas* [*will become?*]' (cf. PhL 93). As opposed to the anaphoric pronoun

[374] Obrador-Cursach (PhL 94) claims that the dat. sg. οεαυται shows its first element uninflected, identical to the structure of Greek ἑαυτῇ, and claims that this is the regular form. Historically, however, the lack of inflection in the element **swe* is a Greek innovation, and one that *ven avtun* suggests did not affect Phrygian. It is better to read οεαυται as representing a fully inflected dat. sg. /u̯ej au̯taj/ *<οει αυται> with a graphical omission of an intervocalic yod which would have presumably been predictable in context (cf. γλουρεος /glurejos/ °W-11 or the spelling of the dat. sg. of the enclitic pronoun as οι when following a vowel instead of ιοι which is used following consonants (Lubotsky 1997)).

to-, which always appears in a clause immediately following the clause where the referent is initially mentioned (ιος ..., το ... 'whoever ..., (he) ...'), *avto-* seems to be used when the referent is further syntactically removed,[375] though this was almost certainly not obligatory.

In its intensive function, the pronoun *avto-* appears as a nominal complement to the noun it is emphasizing. In inscriptions °W-01b and °130^{NW}, the pronoun is used to emphasise a divinity: *avtay materey* 'to/by/for/... Mother (Kybele) herself' and αδ αυτον μεκαν τιαν 'by the great Ti- himself'. In this function, the pronoun *avto-* behaves like an emphatic adjective (cf. PhL 93-94).

In the reflexive function, the pronoun *avto-* appears combined with the reflexive pronoun *ve-* (PhL 94). This is most clearly seen in inscription °W-01b (with the agent underlined): [[*vos=e=sai=t materey eveteksetey ovevin onoman daΨet]] [[lakedokey ven=avtun avtay materey]]* '[[whoever to-this *eveteksis* Mother *ovevin* name would-put]] [[may-he-be-seized himself by Mother herself]]' "Whoever would put his own name on this Mother *eveteksis*, may he himself be seized by the Mother herself". The verbal form *lakedo* is in the third person singular middle imperative; the subject of the verbal action is likewise its recipient. We may note that both the reflexive pronoun *ve-* and the pronoun *avto-* are declined.
The other example of a reflexive combination *ve- avto-* is less telling. In the poorly understood inscription °116^{W}, the syntagm οε αυται in the feminine dative singular appears as part of this clause: ις αργμενα- οπαρικο

[375] In inscription °33^{E}, the clause with αυτος is separated from the initial agent ιος by two intervening clauses: [[ιος νι σεμουν κνουμανει κακουν αδδακετ]] [[γεγρειμεναν εγεδου τιος ουταν]] [[ακ κε οι βεκος ακκαλος τι δρεγρουν ειτου]] [[αυτος κε ουα κ ε/οροκα γεγαριτμενος ας βαταν τευτους]].

οαν οε αυται.[376] The agent of the sentence is ις, the masculine nominative singular of the demonstrative pronoun *i-*, whereas οε αυται is feminine and in the dative case and as such not the patient. The situation is further complicated by an apparent lack of a verbal form, the lack of a legible ending in αργμενα-, and the inscrutability of οπαρικο. The following clause in the inscription also currently defies analysis. As such, no clear conclusions can be drawn from this example. We may for now simply conclude that the syntagm *ve- avto-* need not have been limited to those cases where the agent was also the (sole) beneficiary or patient of the verbal action.

The potential masculine/neuter dative singular forms *avtoi* and αυτω appear in a damaged or fragmentary context and cannot be syntactically or semantically analysed at this time (PhL 93).

IV.6 Relative pronoun *jo-*

The pronoun *jo-* is one of the most copiously attested lexemes in Phrygian, yet is only known in two of its inflected forms, masculine nominative singular *yos*/ιος and feminine accusative singular ιαν (PhL 95).

The stem *jo-*/ιο- is directly descended from the PIE relative pronoun *h_1i̯o-* (LL 1827), whence also Sanskrit *yá-* and Greek ὅ- (PhL 94).[377] The stem is

[376] For the argument that the element οε is likewise declined, see the second-to-last footnote.
[377] The Greek reflex is important for the purposes of identifying the initial consonantal segments: a simple PIE *i̯os would have surfaced as Greek **ζός. For a discussion of the reflexes of *h_1i̯- and *i̯-, see §II.3.1.1.3.

invariable and its declined forms follow the pronominal thematic declension, i.e. the pattern also found in *to-* and *ko-* (PhL 94).

The nominative singular masculine form ιος is copiously attested in New Phrygian (LL 1827, PhL 94ff.). The primary context in which it is currently known to appear is in the protasis of malediction formulae (PhL 94), where it has an indefinite meaning; the standard example is ιος νι σεμουν κνουμανει κακουν αδδακετ '<u>whoever</u> would do harm to this grave, ...'.
The nominative singular masculine form is mostly spelt as ιος, with a handful of exceptions (PhL 94-95).
The variant spelling ειος most likely arose as a result of contemporary Greek spelling variation (PhL 94), where ι and ει had come to represent the same phonetic value, [i] or [ī], which would be used to render a Phrygian [j]; it hardly seems necessary to postulate a compounded or variant pronoun ε=ιος of a type similar to *e=si-*. The latter is attested in Old Phrygian, seems to be supported by Greek cognates, and cannot be explained through a common spelling variation.[378] Furthermore, *e-*/ε- most likely encodes a proximal value, which is easy to apply to a demonstrative pronoun, while it is difficult to imagine why an indefinite pronoun would need to be encoded for a proximal value.
The variant ος is either a graphical or phonetic simplification, quite likely under the influence of contemporary Greek ὅς [os].
The variant ις is surely graphically simplified or reflecting a syncopated (perhaps dialectal or rapid) variant [is] or [jəs] (Brixhe 1987: 50-51 *apud* PhL 95, who noted a simplification of -ιο- > -ι- in the Greek of Roman Phrygia). It is quite unlikely that ις could stand for the identical nominative

[378] See further in §IV.2.

singular masculine ις of the pronoun *i/e-*, since a demonstrative pronoun would be wholly inappropriate in this context: **'he would do harm to this grave, may he become condemned by Ti-'.

The variant ιο, appearing in ιο νι (σ)εμον κνο[°4b^{W}, must likewise presumably be a graphical simplification or a reflection of a sporadic word-boundary assimilation ([jos ni] > [jo(n) ni] *vel sim.*).

A singular example exists where ιος is used in the apodosis of a malediction formula, apparently in place of the anaphoric pronoun form τος. Inscription °28^{SW} reads: ιος νι σεμουν κνουμανε κακουν αδακετ, ιος τιτετουκμενουν ειτου. This example is best disregarded, since it was evidently written by a scribe not well acquainted with writing Phrygian: next to the use of ιος for τος (which might as well be due to scribal error, the two only differing by a single horizontal bar), the medial participle τιτετουκμενουν (for expected τιτ(τ)ετικμενος) has the entirely unexpected ending -ουν (instead of the -ος we find elsewhere, though we might be dealing with a genitive plural with the meaning 'one of the condemned ones'), with the spelling of the participle itself being incorrect, its root element being spelt -τουκ- instead of -τικ-.[379]

[379] To the list of grievances against this specific scribe we may also add his decision to spell κνουμανε instead of the far more common κνουμανει and the lack of geminate spelling in αδακετ and τιτετουκμενουν. As has been argued in §II.2.3.2.2 and §II.2.3.2.3, the geminates were disappearing from spoken language in the New Phrygian era and in a number of cases seemed to have only been preserved graphically. The combined peculiarities of this inscription suggest it was written by someone who was either not a fluent speaker of Phrygian and simply transcribed what was dictated to them (with the ου spelling for ι possibly being some mistaken attempt at hypercorrection for what they might have perceived as closer to [y], possibly as a result of the nasal μ appearing in the following syllable), a novice scribe who was not familiar with the conventions of transcribing Phrygian, or possibly both. On the other hand, their spelling of ειτου with <ει>, at a time when Greek <ει> already represented [ī], does suggest that Phrygian [ei] in at least non-final position was still pronounced differently than [i], which would be spelt far more naturally with <ι>.

In Old Phrygian, the nominative singular masculine form of the relative pronoun is *yos* 6x, *ios* 4x (LL 1827, PhL 94), apparently with an indefinite meaning.

The reduplicated variant *yosyos* °B-03 (LL 1827, PhL 95) is presumably used to emphasize the indefinite character of the pronoun.[380]

For *isyos* °B-07*,* there are in principle two possible interpretations: 1) we are dealing with a pronominal chain *is=yos*, i.e. the nominative singular masculine form of the demonstrative pronoun, *is,* followed by the indefinite/relative *yos*; 2) we are dealing with reduplicated *yosyos* that had its first element syncopated in the same manner as the New Phrygian variant ις. The former of these two options is preferred here, since Old Phrygian spelling is certainly more stable than New Phrygian and examples of vowel syncope, either graphic or phonetic, are few and far between in that era of Phrygian. As such, taking the form at face value seems the preferable of the two choices.

In a somewhat unexpected turn, following this reading, the *yos* in *isyos* can actually be understood as a relative pronoun introducing an embedded clause: *[is [yos (...) ordoinete(t)] (...) anivaΨeti smanin]* '[he, [who *ordoinet*'s], ought-to-*anivaks* Manes]' "he, who *ordoinet*s, ought to *anivaks* Manes". In this case, *isyos* is a pronominal chain in the proper sense, consisting of elements that are semantically independent and prosodically linked (as suggested by the lack of word spacing between them), functioning in the same manner as *yos=esai=t* °W-01b.

An alternative syntactic analysis is [*isyos (...) ordoinete(t)] [(...) anivaΨeti smanin]* '[he=whoever *ordoinet*'s], that-one ought-to-*anivaks* Manes]'

[380] Semantically we may probably compare the degrees in meaning to English *whoever* and *whosoever*, the latter being more emphatic.

"whosoever would *ordoinet*, he ought to *anivaks* Manes". In this case, *isyos* must be understood as a bound pronoun consisting of inflectable elements *i-* and *yo-*; a bound pronoun being distinguished from a pronominal chain by virtue of a semantic interdependency between the two elements.[381] A bound pronoun consisting of the demonstrative *i-* and the relative/indefinite *yo-* would have presumably encoded a more emphatic variant of the relative/indefinite pronoun, functionally likely similar to *yosyos*.
Both pronominal chains (*yos=esai*) and bound pronouns (i.e. *ve- avto-*) are attested in Phrygian, so we cannot use their presence to decide between the two analyses. At best, we may suggest the addition of a demonstrative pronoun to create a bound pronoun with an indefinite meaning would be somewhat unexpected for purely semantic reasons. As such, an interpretation of *isyos* as a pronominal chain is preferred.

In inscription °31^{S} we find two instances of what might be case forms of the pronoun *jo-*. The initial part of the inscription reads: ας σενουν κνουμαν αδιθρερακ ξευνεοι δδικε[σ]ειαν (vac.) μανκαν ιαν εσταες βρατερε ...
The sequence δδικε[σ]ειαν has been interpreted a number of different ways. Neumann (1986: 82) reads δδικες ειαν and assumes δδικες to be an aorist, which is problematic for its lack of an augment and the wholly bizarre initial geminate. He suggested that the initial δ was due to scribal error and amended the sequence as (ε)δικε[ς], which seems rather forced, since Δ and E are hardly similar. Neumann (1986: 82) did assume that the following ειαν was the accusative singular feminine form of the pronoun *jo-*, possibly with the same aberrant spelling as ειος. [382]

[381] For more on pronominal chains and bound pronouns, see §IV.13.
[382] Neumann (1986: 81) interprets ειαν as representing a reflex of an earlier *ε=σαν, which is simply untenable in light of relative chronology and the development of *s*-initial

Rejecting an analysis of the sequence ειαν as showing a form of the relative pronoun, Woudhuizen (2008-2009: 183) read (α)δικε[σ](α)ι, which does reasonably explain the initial ΔΔ as a misspelling of AΔ, but the reading of final -ειαν as -αιαν is ungrounded. Finally, Obrador-Cursach (PhL 160-161) reads (α)δικε[σ]ει. He interprets the form αδικεσει as verbal but himself admits the ending -ει instead of -τι is unexpected.[383]

I propose that the sequence ought to be read as αδικεσειαν, i.e. with minimal emendation, and that it ought to be segmented as αδικες ειαν. In this segmentation, I take αδικες to be a 3sg aorist form. The apparent lack of an augment is easily explicable if we take αδ to be a preverb. In that case, the verbal root was vowel-initial ικ- and there are in principle two possibilities: 1) if there was an actual syllabic augment ε-, it would appear between αδ= and ικ- and the resulting /adḗkes/ < **ad=e-ikes* with the regular *ei* > *ḗ* development would be spelt as αδικες, which is in line with New Phrygian spellings of /ḗ/; 2) if Phrygian was more similar to Greek, the augment in vowel-initial roots may have been quantitative, i.e. the root initial vowel would have been lengthened to show that the form was augmented, in which case αδικες stands for /adīkes/.[384] Etymologically, if we compare the root ικ- to Greek ἴκω 'to come, arrive', the first clause makes perfect sense: ας σεμουν κνουμαν αδιθρερακ ξευνεοι αδικες 'to this grave Adithrerak for-Xeune arrived' "Adithrerak came to this grave for Xeune".

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pronouns; Neumann's *εσαν would be PPh. **e=san* << PGPh. **e=kehₓm*, but PPh. **s* < PPh. **k* / _*V*[+front] was never lost.

[383] Following the framework established in §V.2.1, we could explain the verbal ending -ει as encoding the 3sg subjunctive. In light of the fact that the inscription continues with a reference to the μανκα that was already placed for a brother, however, a verbal form in the subjunctive, presumably used to express some proscription, expectation, or desire does not appear to be semantically fitting.

[384] Or, rather, /adḗkes/ again, with /ḗ/ spelt as <ι>, since Phrygian did not seem to actually possess an /ī/ vowel.

If we follow this reading, ειαν can hardly be anything other than the relative pronoun in the accusative singular of the feminine gender, with initial ει showing the same spelling as ειος, as already suggested by Neumann. Since there is only one possible antecedent of the feminine gender in the previous clause, ειαν must undoubtedly refer to Xeune herself. Unfortunately, there is a gap of approximately eight letters following ειαν. Most likely, another verb and possibly some other element would appear in this lacuna.

The following clause is likely part of the same sentence: ιαν εσταες βρατερε. In this clause, the syntax seems pretty clear. ιαν functions as a relative pronoun in the feminine accusative singular (PhL 95). ιαν apparently refers to the immediately preceding feminine accusative singular μανκαν: μανκαν ιαν εσταες βρατερε 'the stele, which he-stood-up for-brother'.

Combining the three clauses, then, we may analyse the sentence as: '*to this grave Adithrerak came for Xeune, whom* (vac.) *the stele*, *which he erected for (his) brother*'.

Thus, inscription °31^{S} includes two identifiable instances of the relative pronoun, the feminine accusative singular ειαν and ιαν. Their function in this context is very clearly relative, confirming that this was still one of the canonical functions of the pronoun in the New Phrygian era.

IV.7 Indefinite pronoun *ko-*

The indefinite pronoun *ko-* in Phrygian is attested in only a single form, masculine nominative singular κος.

The pronoun is used in an indefinite function; it's primary distinction from the indefinite uses of *jo-* seems to be that it encodes the meaning 'anybody, somebody' as opposed to 'whoever'. Nevertheless, in a few New Phrygian examples, κος is used in place of the expected ιος, having the meaning 'whoever'. This suggests that the meaning of the two pronouns had begun to coalesce somewhat by that period.

Obrador-Cursach (PhL 278-9) argues that forms descended from the declension of the PIE pronouns *k^wo- and *k^wi- belong to the same pronoun in synchronic Phrygian, with κιν being a neuter nominative-accusative singular belonging to the pronoun *ko-* (which has κος as its masculine nominative singular form). No argument is provided in favour of this analysis. Note that this would be an otherwise unparalleled distribution of pronominal vocalism: nothing in the corpus suggests that the neuters would be somehow more resistant to absorption into a thematic-type declension. Since a masculine nominative singular form of the pronoun *ki-* has now been identified and is κις, rather than κος, Obrador-Cursach's proposal of a complete convergence of the two pronouns cannot be upheld.[385] Nevertheless, it is likely that there was significant semantic and functional overlap between the two pronouns, especially during the later stages of the language.

[385] See §IV.8 for κις.

Etymologically, the stem *ko-* is directly descended from the PIE interrogative/indefinite pronoun *k^wo- (Fortson 2004: 130; cf. PhL 95), which was preserved into Proto-Graeco-Phrygian as *k^wo-. In attested Greek, this pronoun is no longer productive, but a number of case-forms of its antecedent, as well as adverbial derivations from it, have become lexicalized as adverbs, particles, and question words (e.g. ποῖ, πῇ, πῶς, ποτε, πόθεν, ...).

Despite only a single case form being known, there is no reason to assume this pronoun would be declined any differently than the other thematic pronouns found in Phrygian, *to-* and *jo-*. Fossilized Greek forms confirm that Proto-Graeco-Phrygian *k^wo- (Chantraine 1999: 921-922) was declined identically to other Proto-Graeco-Phrygian thematic pronouns.

Masculine nominative singular κος appears instead of the expected relative pronoun ιος 'whoever' in the protasis of a funerary malediction formula as part of a syntagm αι(νι) κος 'if anybody' in three instances (PhL 96): αινι κος σεμουν κνουμανει κακουν αδδακετ αινι μανκα °18^W "if anybody does something bad to this grave", αι κος σεμουν του κνουμανει κακουν αδδακετ °64^E 'id.', αινι κος κακην αδδακετ κορουμανη σως κη γουμεις °130^{NW} "if anybody does something bad to this grave plot or these burial grounds".

It is possible that the syntagm αι κος appears as part of a second malediction formula in the badly worn latter half of inscription °72^E: [-]κος ι[-----]κκιτορ κε [-------]ε α[υ]τος ειτου, though this is impossible to confirm at present.

There are no other instances of this pronoun appearing elsewhere in the corpus.[386]

IV.8 Interrogative pronoun *ki-*

The interrogative/indefinite pronoun *ki-* is attested a total of four times in the Phrygian corpus, twice separately, as *kin* and κιν (LL 1827), and twice as part of bound pronouns, in κιυιν and κισυις.

Etymologically, the stem *ki-* is a regular reflex from the PIE interrogative pronoun **k*^{w}*i/e-,* later Proto-Graeco-Phrygian **k*^{w}*i/e-* (LL 1827). The Greek descendant of this PIE and PGPh. pronoun, τίς 'who? (nom. sg. masc.)', continued to be used in an interrogative meaning.

The precise meaning of this pronoun in Phrygian is more difficult to determine. In two instances it seems to function basically as a nominal complement (similar to the nominal-complement emphatic function of *avto-*) imparting an emphatic meaning of indefiniteness: ιος νι σεμιν κνουμανε μουρουν δακετ αινι κακουν κιν, ... 'whoever to-this grave [a]

[386] Obrador-Cursach (PhL 96) and Hämmig (fthc.) segment *mekos* °*B*-07 as *me=kos*, with *kos* being another example of the masculine nominative singular of the pronoun *ko-* and *me* being the negative particle descended from PIE **meh*$_1$. Leaving aside the problematic proposition of PIE **meh*$_1$ surfacing as ***me* rather than $^{+}$*mā*, the *kos* cannot have an indefinite function in this context: ***"*whoever X, somebody/anybody ought not Y"/"he, who X, somebody/anybody ought not Y."* Even taking *me=kos* as a negated version of the indefinite pronoun, ostensibly meaning 'nobody *vel sim.*', the reading still does not make sense: ***"*whoever does X, nobody ought Y*"/"*he, who does X, nobody ought Y*". The only way to make sense of this segmentation is to assume that *kos* had an anaphoric meaning, which is an entirely unwarranted assumption; see §VI.4. Rather, *mekos* is the adverb belonging to the adjective *meka-* 'big, great', meaning 'greatly', the syntax being the much clearer "*whosoever does X, greatly ought-to Y"/"he, who does X, greatly ought-to Y".*

foolish[?] [thing] does or bad something / some bad-[thing], ...' °100[E] (PhL 96) and *yos tivo ta spereta ayni kin telemi* °B-01, which is more poorly understood, but presumably means something like 'whoever *tivo* these *spereta* or some *telemi*'.[387], [388]

The other two instances of the pronoun *ki-* both appears in the Middle Phrygian inscription °W-11 as parts of a bound pronoun κι- υι- (i.e. *ki- vi-*): κιυιν and κισυις. The contexts in which they appear are unfortunately not understood. Nevertheless, the parallelism between κισυις and κιυιν suggests that we are dealing with a bound pronoun with both of its pronominal elements declined in the same case. The likely identity of υι- with the Old Phrygian pronoun *ve-* then beckons us to explain the elements κι and κις as pronouns of some kind, and the only reasonable interpretation is to see them as case forms of the attested Phrygian pronoun *ki-*/κι-.

With κις=υις (i.e. *kis=vis*) there can be little doubt that we are dealing with the masculine nominative singular of the pronoun *ki-*.[389] The meaning of

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[387] *telemi* is most likely not an adjective that modifies a quasi-nominal *kin* 'something *vel sim.*'. Indeed, κακουν in malediction formulae is used as a noun meaning 'a bad [thing]' (cf. Greek τὸ κακόν), so the syntagm κακουν κιν is more likely to directly translate as 'a bad-thing some = some bad-thing' rather than 'a bad something'. In the same vein, it is likely *telemi* is actually a noun.

[388] My native Slovenian may provide a parallel. The word *kaj* 'what' is generally the nominative-accusative neuter interrogative pronoun, which can, among other uses, also function as a less emphatic/defined variant of the noun *nekaj* 'something' (itself from *ne* 'not' + *kaj* 'what'). Cf. *Vzamem kaj.* 'I take something [undefined].' ~ *Vzamem nekaj.* 'I take something [unknown or irrelevant, but specific].'

[389] It is unclear whether this nominative singular form was limited to the masculine gender or whether it would have encompassed the feminine gender as well. In PIE itself, nominative **k^{w}is* was used for both the masculine and feminine genders. Greek τίς was used for both the masculine and feminine genders, suggesting there was no distinction between the two genders in Proto-Graeco-Phrygian. Nonetheless, it is not unthinkable that a separate feminine form of this pronoun could emerge in Proto-Phrygian, presumably following the pattern of demonstrative masc. **ja* >> **k^{w}is* ~ **k^{w}ja/k^{w}a* > (potentially) **$^{?}$sa* or **ka$^{?}$*. No such cases are known to exist, but the possibility should be

the context is not known to us and, indeed, the sequence κισυις appears at what seems to be the end of a verse; inscription °W-11 was separated into six seventeen syllable (i.e. hexametric) verses. The Greek hexameter itself, however, never required verse-lines to end with the ending of a clause, and even if that were the case, the composer of Phrygian inscription °W-11 apparently merely counted the number of syllables per line without paying attention to or being very knowledgeable of the Greek hexameter, at least in terms of metrics; a stylistically poor separation of clauses would then hardly be unexpected.

With κι=υιν, it seems clear on the basis of υιν that κι is likewise in the masculine accusative singular or the neuter nominative-accusative singular. Since the *i*-type pronouns seem to have the same ending both for both of these forms, with the neuter NASg adopting the masculine ASg ending,[390] the best explanation is that κιυιν is the surface realization of what would have been an underlying κιν=υιν, with a simplification of the cluster [nu̯] into simply [u̯] = <v>.[391] Alternatively, perhaps by this point the original neuter nominative-accusative singular *i*-pronominal ending -Ø < *-*d*, as found in *si* < **ḱid*, had not yet been wholly ousted by the masculine ASg ending -*n*. In that case, the pronoun *ki*- would have preserved the old state of affairs, i.e. neut. nom-acc. sg. κι < **k*^{w}*id*, while

borne in mind when interpreting future Phrygian texts. The specific instance of κις discussed here, however, is unlikely to shed any light on this matter until a better analysis of inscription °W-11 is available.

[390] The evidence for this adoption is found in κακουν κιν, if κακουν is to be analysed as a neuter, and in the adoption of the masculine accusative singular σεμουν for the neuter nominative-accusative singular in σεμουν κνουμαν °31^{S}.

[391] Since no other examples of such a simplification are known, it might have been entirely regular or simply the result of dialectal or rapid speech. In either case, New Phrygian νενυεριᾳ in inscription °9^{W} does not serve as a counterargument: inscription °9^{W} is several centuries younger than °W-11 and, additionally, the word in question is a non-native personal name.

the *vi-* pronoun would have already received the neut. nom.-acc. sg. ending that eventually spread to *ki-* as well, neut. nom.-acc. sg. υιν << **vi* < **su̯id*. Until we have a better understanding of inscription °W-11, it is difficult to speculate on what the precise function of κι- was. The pronoun *vi-*/υι- seems to appear exclusively or at least predominantly with other pronominal elements, which at least seems to suggest that κι- in inscription °W-11 is to be taken as a syntactically pronominal element. It does seem unlikely that κι- would be used as an interrogative pronoun; the context of a funerary inscription would presumably not include any direct questions. Perhaps it was used in a relative or indefinite function, akin to *yos* and *kos,* with υι- serving an emphatic or reflexive function, though it would then be unclear why this specific pronoun was used at the expense of the others.[392] Perhaps, if we look at the function of κι- in New Phrygian inscriptions, this original pronoun might have become semantically nominalized as an indefinite adjective or noun used to mean 'some/someone/something', with *vi-* serving as an emphatic or reflexive pronominal affix; e.g. κισυις 'someone, who himself[?]', κιυιν 'something itself[?]'.

IV.9 Enclitic pronoun *(j)o-*

The enclitic pronoun *(j)o-* is known to us only in the historically masculine dative singular form in New Phrygian, where it appears as either ιοι or οι (PhL 92).

Lubotsky (1997) clearly identified the distribution between ιοι and οι: the former variant only appears after a consonant and the latter variant only

[392] Consider the use of the interrogative *what* in English, where it can be used as a relative replacing "that which": *I see what you are doing.*

after a vowel (also LL 1826). It is clear that (ι)οι is accentually dependent on other prosodic elements in the clause.

Etymologically, the enclitic pronoun was almost certainly built on the stem of the PIE **hₗe/i-* pronoun (LL 1826). Lubotsky (1997) compared the use and desinence of enclitic (ι)οι to the dative enclitic pronouns in Sanskrit, i.e. **hₗmoi, toi* > Skt. *me, te*, with both also adopting the function of the genitive. It is uncertain whether any other case forms of the enclitic pronoun exist in Phrygian or whether (ι)οι has taken over the function of all the oblique cases.

In most instances, this pronoun appears to be used as a nominal complement with a possessive function that appears before the noun it modifies. The examples of the pronoun (ι)οι being used in a possessive function are: ιοι αναρ (nom.sg.) 'her husband' °15^{NW},[393] οι ουεβαν (acc.sg.) 'his *veba*' °48^{NW}, οι θαλαμειδη (dat.sg.) 'to its sepuchral chamber' °4^{W}, οι ειροι (nom.pl.) 'his *eiroi*' °7^{W}, οι πετες (nom.pl.) 'his feet' °12^{S}, οι παντα κενα (nom.pl.) 'his all/every *kena*' °35^{E}.

In some cases, (ι)οι can also be analysed as having the function of an anaphoric pronoun with a dative role, referring back to someone or something already established previously.

Most unambiguously, this seems to be the case in inscriptions °18^{W} (βε<κ>ος ιοι με τοτοσσειτι σαρναν) and °99^{NW} (με κε οι τοτοσσειτι Βας βεκος). The two clauses are composed of the same fundamental elements: the agent is some divinity (Σαρναν or Βας) who should give away (με τοτοσσειτι) bread (βεκος). (ι)οι does not immediately precede a noun in either clause, and may thus be syntactically independent: *may Bas/Sarnan*

[393] The context in which this phrase appears is fragmentary, but the meaning of the phrase is rather clear.

give bread away from him. However, if the pronoun (ι)οι need not have appeared immediately before the noun in its possessive function, both clauses still make perfect sense: *may Bas/Sarnan give his bread away.*[394]
The other examples are not much clearer:
ακ κε οι βεκος ακκαλος τιδρεγρουν ειτου 'may his *akkalos* bread become inedible' *or* 'may *akkalos* bread become inedible to him'
Βα[ς] ιοι βεκος μεβερε[τ] 'may Bas take away his bread' or 'may Bas take bread away from him'

IV.10 Reflexive pronouns *ve-* and *ibe-*

Phrygian appears to have possessed two pronouns that could be used with a reflexive meaning, *ve-* and *ibe-*.
These two pronouns differ from all other pronominal types in following a specific type of a pronominal declension, the pronominal *e*-declension, that was separate from both the usual *i*- and thematic pronominal declensions, though it appears some of the forms eventually began to coalesce with those of the pronominal *i*-declension. The pronoun *ve-* appears to have two variants, one used in the bound pronouns, and another used independently; the only attestation of the latter uses *i*-type endings.

[394] Presumably by first taking it or by giving away the allotted bread.

The attested forms of the pronouns *ve-* and *ibe-* are:

	ve-		*ibe-*	
	masculine	feminine	masculine	feminine
nominative	υις			*ibeya*
genitive				
dative	*ivimun,* οε	οε	*ibey*	
accusative	*ven,* υιν		*iben*	

Table #38: The attested forms of the pronouns *ve-* and *ibe-* in Phrygian.

We may conclude that the declensional type followed by the *ibe-* pronoun and the bound variant of the *ve*-pronoun was different from the *i*-type on the basis of the dative and accusative cases in the singular: the dative singular masculine ending of the *i*-type had an intermediary element *-em-* (as in σεμουν) and was not simply identical to the athematic dative singular masculine nominal ending *-ey*, whereas *ve(y)* and *ibey* do seem to show this equivalence.

The accusative singular forms *ven* and *iben* do not show the characteristic *i*-vocalism we always find in the (old) accusatives of the *i*-type pronouns (cf. *sin, kin*, never ***sen* or ***ken*). The variant form υιν shows allophonic raising of *e* before a final nasal; an underlying form ending in *-en* being written with *-in* is pervasive throughout Phrygian, whereas an underlying *-in* is never written as ***-en.*

The forms υις and *ivimun* are the basis for our assumption that the comparatively more marginal *e*-type pronouns had some of their endings replaced by the more common *i*-type endings.[395]

[395] This was certainly facilitated by the similarity or outright identity of some of the *e*-type endings to their *i*-type counterparts: nom. sg. **-es* ~ *-is,* acc.sg. *-en* [ẹn] ~ *-in*, gen. sg.

The fact that οε (= **vey*) is used as the feminine dative singular of *ve-* suggests it did not have separate forms for the masculine and feminine genders. *ibe-*, on the other hand, seems to have had a dedicated feminine stem *ibeya-*, which declined as a typical *a*-stem, whereas *ibe-* was used as the masculine (and likely neuter) stem.[396]

The etymological origin of the pronominal stem *ve-* is not difficult to ascertain: it can stem from the PIE reflexive particle **su̯e* (LL 1827; PhL 97), which was reflected in Proto-Graeco-Phrygian as **hu̯e*. Both Greek and Phrygian built pronouns on the basis of this particle: Greek created a possesive pronoun/adjective ἑό- 'his, her' by attaching *o*-stem endings to the particle (Chantraine 1999: 307). Phrygian, on the other hand, appears to have added athematic nominal endings to the particle itself (**hwe* + **-s, *-(e)i, *-n*), though, puzzlingly, did not initially adapt the resulting pronoun to the already existing pronominal types.

The origin of the stem *ibe-* is somewhat less clear. There can hardly be any doubt that the element *-b-* is a reflex of **b*^{h} that is found in the PIE dative singular **seb*^{h}*io* or **seb*^{h}*ei* (cf. CIEL 234-235)*;* an ablaut variant of this dative form underlies the Greek plural personal and reflexive pronoun σφεῖς. Quite likely, the Phrygian sequence *Vbe-* reflects an earlier sequence **Vsb*^{h}*e-*.[397] In the same manner that *ve-* received its declensional endings, *be-* would have seen the stem *be-* < **sb*^{h}*e-* extended with athematic endings,

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**-evo* ~ **-evo*, etc. When these replacements took place is presently impossible to answer; υις suggests that the replacement of the bound form of the pronoun in the nominative singular masculine must have happened before the Middle Phrygian period, whereas *ivimun* suggests that the transfer of the independent form of the pronoun was even earlier.

[396] See also further below in this section under the discussion of the form *ibeya.*

[397] With the cluster **sb*^{h} undergoing the same type of simplification that resulted in PGPh. **sd*^{h} > PPh. **d*; cf. *lakedo* < **sleh*$_2$*g*^{w}*-esd*^{h}*ōd*.

giving acc.sg **be-* + *-n,* dat.sg. **be-* + *-(e)i*, etc. The parallel with Greek is relevant in this case: the pronoun σφεῖς 'theirs', though only having plural forms, sees the zero-grade stem **sbʰe-* extended with various types of endings; in Attic, the forms are transparent enough: nom. pl. σφεῖς < σφέ + ες, gen. pl. σφῶν < σφέ + -ων, dat. pl. σφίσι << σφέ + -σι, acc. pl. σφᾶς < σφέ + -ας. In the other dialects, many of the declensional endings are clearly adopted from other types, but the situation is far from uniform; for instance, the accusative plural shows no ending in Epic σφέ, Aeolic ἄσφι, ἄσφε, and Doric σφέ/ψέ, and the Epic, Ionic, and Doric dative plural σφίν is clearly aberrant both in the form of the ending and the ι-vocalism.[398] The accusative in particular, seemingly appearing as the bare stem descended from **sbʰe*, suggests that creation of the pronoun σφεῖς (and its variants) was only firmly established after the Proto-Greek period. The most that can be assumed for Proto-Greek itself is that the stem **sbʰe* was only used with plural semantics. It thus follows quite clearly that the creation of the *(i)be-* pronoun was an independent innovation of Proto-Phrygian, though the fact that Greek likewise innovated a pronoun from the same stem does suggest that the embers of this creation were already present in Proto-Graeco-Phrygian.

We should note here that, while Greek only used PGPh. **sbʰe* with plural semantics, there is no *a priori* reason to assume that the PGPh. form was used exclusively with a plural reference; Proto-Greek may have well specialised the original semantic scope to the plural in contrast to the prototypically singular **swe* > Proto-Greek **hu̯e*. The fact that the Phrygian forms of *ibe-* are apparently all declined in the singular case supports this proposition; with both **swe* and **sbʰe* forming the basis of

[398] With the entire form σφίν being due to some irregular development of the attested variant σφίσιν or its antecedent.

two new Phrygian pronouns, the differentiation between the pair was evidently not identical to its developments in Proto-Greek. What the difference between the two particles was in Proto-Graeco-Phrygian currently appears impossible to answer; we should simply note that PGPh. must have possessed a pair of particles, **hu̯e* and **sbʰe,* with the first inherited directly from PIE **su̯e* and the second extracted from the PIE dative singular **sebʰei vel sim*. (CIEL 234-235)

In PIE itself, the forms of the reflexive pronoun only seemed to have a **bʰ* element present in the dative singular case, whence it could then spread into other case forms (e.g. OCS gen.sg. *sebe* << dat.sg. *sebě* (CIEL 235)). Beekes and de Vaan (*ibid.*) suggest that a dative singular form **sbʰei* in Greek was first replaced by **σφί*, which was subsequently interpreted as a dative plural on the basis of the ending **-φι*, imparting the plural semantics characteristic of the Greek σφε- pronoun. This development would then need to be dated to the Proto-Greek period.[399]

The initial *i-* of the pronoun *ibe-* is best explained by assuming that we are dealing with a pronoun composed of the proclitic pronominal element *e-* < **h₁e*, also seen in *esa-* (cf. Gr. ἐκεῖνος),[400] preceding either the indeclinable particle **sbʰe* or the emerging pronoun **sbʰe-*: **e=sbʰé-* > PPh. **ezbʰé* > PPh. **izbé* > *ibe-*. The initial *i* is the result of a regular development **e*$_{[\text{-accent}]}$ > **i / _CC*.[401]

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[399] While this scenario does seem to best explain how **σφε-* acquired its plural association in Greek, the specific development of the pronoun σφε- must be somewhat more complex: simply interpreting **σφί* as a dative plural **σ-* + *-φί* would presumably result in the interpretation of **σ-* alone as the stem-form if we were dealing with a simple back-formation. The interpretation of **σφί* as a plural must have happened while the language still possessed a particle **σφε*; in that case, **σφί* could actually be interpreted as underlying **σφ-φί*, from which the rest of the paradigm could be back-formed.

[400] See §IV.2 above.

[401] Cf. *niptiyan* < **neptih₂m* and *ivimun* < **h₁e-sue-*. See further §II.3.4.

The declension of the pronoun *ve-* appears to differ depending on whether it appears as part of a bound pronoun (*ve-=auto-, ki-=ve-,* and *o=ve=ve-*) or if it appears as an independent element (*ivimun*). The pronoun *ibe-* is only attested on its own, though the specifics of its use and its precise semantics are difficult to ascertain on the basis of the poorly understood context.

Until the current material is better understood or more examples of either *ve-* or *ibe-* are found, no conclusive judgement can be made on how the two pronouns differed in function.

υις 'nom. sg. masc. reflexive pronoun'

The form υις appears as part of a bound pronoun κισυις, composed of the nominative singular of the interrogative pronoun *ki-* (PIE < **k*^{w}*i-*), κις, and the nominative singular masculine of the reflexive pronoun *ve-*, υις. The *i-* vocalism of υις is most likely a replacement of an older **u̯es* (< **su̯e-s*) adopted from those pronouns that followed the pronominal *i*-declension.

οε = $^{+}$*vey* 'dat. sg. fem. reflexive pronoun'

The form οε appears as part of a bound pronoun with a reflexive meaning in the dative singular feminine case οε=αυται. Since it is evident from the example *ven=avtun* that the bound pronoun *ve-=auto-* has both of its constituent pronominal elements declined and since αυται can hardly be anything other than a dative singular feminine form of the demonstrative/reflexive pronoun *auto-*, the sequence οε must likewise be in the dative singular case and in the feminine gender. Thus, οε is a variant spelling for expected οει, $^{+}$*vey* in Old Phrygian terms; the spelling

simplification of a dative singular desinence -ει into -ε is a common fixture of New Phrygian inscriptions.

ivimun 'dat. sg. masc. reflexive pronoun'

The form *ivimun* appears in °B-05 at what appears to be the beginning of a conditional sentence: *ivimun inmeney asenan daket torvetun* […]. The desinence *-imun*, immediately reminiscent of New Phrygian dat. sg. -εμουν, and the following word *inmeney* appearing in the dative case both suggest that we are dealing with some pronominal form in the dative singular (Hämmig 2013: 149). Hämmig (*ibid.*) has proposed that the initial *iv-* is a corruption of some kind, perhaps due to scribal error, and that the starting sequence *ivimun* ought to be divided as *iv imun*, to be closely compared to New Phrygian ιος σεμουν 'whoever to-this'. This is not necessary, however. If we read the clause in which *ivimun* appears as a conditional clause, it would be part of the second consecutive conditional sentence in inscription °B-05: [[*yos niy art sint imenan* (...) *dedasitiy*]$_{\text{protasis}}$ [*tubetiv* (...)]$_{\text{apodosis 1}}$ [*mekas key koris abretoy* (...)]$_{\text{apodosis 2}}$]$_{\text{conditional sentence 1}}$ [[*ivimun inmeney asenan daket torvetun* (...)]$_{\text{protasis}}$ [*mederitoy*]$_{\text{apodosis 1}}$ [*koris ke abretoy* (...)]$_{\text{apodosis 2}}$]$_{\text{conditional sentence 2}}$ "[[whoever would put (…) this monument]$_{\text{protasis}}$ [he will *tube* (...)]$_{\text{apodosis 1}}$ [and the big *koris* will be broken (...)]$_{\text{apodosis 2}}$]$_{\text{conditional sentence 1}}$ [[(whoever) to this-very monument would do *asen(a)* of the trees (...)]$_{\text{protasis}}$ [he will be bound]$_{\text{apodosis 1}}$ [and *koris* will be broken (...)]$_{\text{apodosis 2}}$]$_{\text{conditional sentence 2}}$

With two consecutive conditional sentences, it is entirely possible that the initial indefinite pronoun *yos* 'whoever' need not have been repeated, since it would be pragmatically understood in the second protasis. In this case, we may take the *ivimun* at face value as a single pronominal form. Since no other pronoun has the element *v-*, the likeliest option is that we are

dealing with a form of the *ve*-pronoun. Of all the other attested forms of the *ve*-pronoun, *ivimun* is the only form to appear independently, i.e. not as part of a bound pronoun.

The dat. sg. ending *-imun* belongs to the *i*-type endings, suggesting that the independent form of this pronoun had already switched to that type, in contrast to the bound forms of the pronoun *ve-*, which continue to utilize the *e*-type endings into the New Phrygian era.

The initial *i-* has the same origin as the *i-* of *ibe-*: the unaccented proclitic pronominal *e-* (cf. *esa-*) originally appeared before an original sequence of two consonants, **hu̯-* < PIE **su̯-*, and underwent reduction to *i-*.[402] The presence of this pronominal *i-* < **e-* suggests that the form was in some way emphatic, which may serve to explain why *ivimun* behaves so differently from the bound versions of the *ve*-pronoun.

In terms of its meaning, the pronoun modifies *inmeney* 'memorial (dat. sg.)', presumably the same memorial mentioned in the first protasis in the syntagm *sin=t imenan* 'this memorial' (acc. sg.). This suggests some kind of an anaphoric function for this pronominal form in the immediate context. The reflexive pronouns *iben* and *ibey* in the same inscription also appear to be used in an anaphoric function.

ven, υιν 'acc. sg. masc. reflexive pronoun'

The form *ven* appears as part of bound pronouns *ven=avtun* and *o=ve=vin*. For an analysis of its use in combination with *avto-*, see §IV.5. The spelling *ven* in *venavtun,* which one would expect to appear spelt as *vin* in word-final position in Old Phrygian, demonstrates that: 1) the vowel of the stem was still underlyingly *-e-* and thus not influenced by the *i*-type pronominal

[402] For the process, see §II.3.4.

declension in this form; 2) *venavtun* functioned as a single prosodic word, i.e. *-en* was not word-final.

υιν, like υις in the same inscription, appears as part of a bound pronoun *ki-=ve-*, though in the accusative case. While the nominative singular case of *ve-* had obviously been transferred to the *i*-type pronominal declension, it is slightly less clear what happened with the accusative singular; the spelling υιν could simply reflect the common pre-final-nasal raising of *e* commonly found in Old Phrygian texts. The segmentation of inscription °W-11 is very much uncertain, so it is impossible to give a definitive judgement, though sequences such as ενκε, presumably to be segmented as εν κε, would suggest that *e* was not raised before a final nasal, thus suggesting that υιν does actually represent a form that adopted *i*-vocalism in the masculine accusative singular from the *i*-type pronominal declension.

ibey 'dat. sg. masc.[?] reflexive pronoun'

The form *ibey* is syntactically entirely isolated in its immediate context: °B-05 *koṛis ąbretoy nun ibey neẏotąn ṇiptiyan sirun mireyun*; none of the other words in its vicinity have an ending that could be interpreted as a dative. Quite likely, then, *ibey* is used in a quasi-demonstrative/anaphoric function, referring to the beneficiary of a verbal action. Until the inscription is better understood, nothing can be added to this superficial analysis.

iben 'acc. sg. masc.[?] reflexive pronoun'

As with *ibey,* no clear syntactic role is apparent for *iben*. It appears at the beginning of a line immediately following a badly damaged and uninterpretable end of the previous line. *iben* is presumably the direct object of a clause ending with the verb *edatoy*: °B-05 *sin=t imenąn kąliyą titedaṭ*[*oy* .]*edekm*[...]*mẹąṣ*[?] *ḍ*[?]*u*[?]*ṃiḍ iben edątoy*, with *iben* referring back

to *sin=t imenan* 'this memorial (acc.sg.)'. Yet again it seems, then, that the pronoun *ibe-* was used in some kind of an anaphoric function.[403]

ibeya 'nom. sg. fem. reflexive pronoun'

ibeya appears as part of a nominal phrase *matar kubeleya ibeya*, long translated as 'Mother Kybele *ibeya'*, with *ibeya* understood as some type of an epithet. With the etymological origin of *ibe-* being more clear, it seems that *ibeya* is simply used as an emphatic addition to the phrase, meaning 'herself': *matar kubeleya ibeya duman ektetoy* 'Mother Kybele herself religious-community caused-to-be-acquired'. The use of some kind of a pronoun as a way of more clearly specifying Mother Kybele has at least two parallels in Old Phrygian: *[...]esai=t materey eveteksetey* 'to-this Mother *evetekset-*' and *avtay materey* 'by Mother herself'. The best course of action, then, is to interpret *matar kubeleya ibeya* as simply an emphatic phrasing used to make clear that the establishment of the religious community was indeed the result of her actions.

Syntactically, *ibeya* is used quite dissimilarly to *ibey* and *iben*; the latter two appear to function as anaphoric pronouns (though, presumably, with some hint of a reflexive meaning), whereas *ibeya* behaves fully as an adnominal element, functionally akin to an adjective. The use of pronouns in an adnominal function is not without precedent in Phrygian.[404] Nevertheless, one may note that *ibeya* is extended with a *ja*-suffix that is usually reserved for purely nominal feminine formations, with no other pronouns showing this extension for the feminine gender, if they even

[403] If one disregards the damaged section and assumes that the second line of the inscription begins a new clause, *iben edatoy dakeran atriyas davoi okimakiva* [...] might potentially be interpreted as having *iben* modify the noun *dakeran* in the accusative singular, but a coordinated nominal phrase of this type being separated by a verb would be syntactically anomalous in the Phrygian corpus.

[404] Consider *avtay materey* (§IV.5) and the analysis of κιν (§IV.8).

possess separate forms for it. The only other *e*-type pronoun, *ve*-, does not seem to have had any separate feminine forms at all. While it is possible that the *ibeya*-type is simply the normal feminine pronominal form of *ibe*- that adopted its marker *ja*- from the productive nominal feminine formations, we should also acknowledge the possibility that *ibeya* is in fact a *jo*-type adjective built from a pronominal stem *ibe*- with a meaning like 'who is herself'. If *ibeya* was in fact a nominal element, it might well have been used as an epithet for Kybele.

IV.11 Possessive pronoun *vo-*

The attested forms of the possessive pronoun *vo*- are:

	neuter	feminine
nominative		*va*
genitive		
dative		*vay*
accusative		οαν
nom./acc. pl.	ουα	

Table #39: The attested forms of the possessive pronoun *vo*- in Phrygian.

The possessive pronoun is apparently declined like the rest of the thematic pronouns in Phrygian.

The possessive pronoun is used to indicate that a noun is possessed by someone previously referred to. The antecedent is grammatically masculine in all unambiguous instances:

Manes, [...] *va knais* ‘Manes [...], his wife’,
ιος [...] κε ουα κ ε/ορокα ‘he [...], his *e/oroka’,*
ιος [...], υκε акαλα оουιτετου ουα ‘he [...], and *akala* may-оουιτε his’.
In *vay niptiyay* ‘his[?] niece/granddaughter’ it is unclear who the possessor is, whereas the syntax of ις αργμενα[οπαρικο оαν оеαυται currently defies interpretation.
It is presently unclear whether this means that *vo-* only indicates possession by a male antecedent, i.e. the meaning ‘his’, with the meanings ‘her’ and ‘its’ being expressed by some other means, or if it is unspecified for gender.

In etymological terms, the possessive pronoun is composed of the zero-grade of the PIE reflexive particle **su̯e* extended with simple thematic endings (LL 1827). **su̯o-* did not seem to exist in PIE, so its creation must be an independent Phrygian development. The Sanskrit possessive/reflexive pronoun *svá-* was formed in an identical manner to this Phrygian pronoun. Greek and Italic, on the other hand, formed their possessive pronouns from the full-grade of **su̯e*: Gr. ἑός and Latin *suus*, both from **seu̯-o-*.

IV.12 Personal pronouns

Until very recently, no forms belonging to the 1st and 2nd person pronouns have been identified. With the discovery of the Idol at Seyitgazi, i.e. inscription °W-14, Lubotsky (in Tamsü Polat et al. 2020: 50) has identified *meu* as the enclitic first person pronoun in the genitive singular, meaning ‘of-me’; the clause in which it appears is *iman meu termos* ‘memorial of-me (is) a boundary-stone’.

meu is a reflex of the PIE genitive singular form **meso* > **me(v)o*, with a development of the sequence **evo* into *eu*. This is not an expected development (cf. *atevo* < **ateho* < **-e-so*) and is presumably the result of the enclitic nature of the pronoun. Epic Greek also possesses this same enclitic personal pronoun as μευ, a result of synaeresis **e.o* > *eu*, which is presumably the same process that created Phrygian *meu.*

IV.13 Bound pronouns and pronominal chains

As in many other Indo-European languages, several pronouns and particles may appear in sequence at some point in a clause. It seems that, while the pronominal forms in such sequences were not clitics per se, they could form a unitary prosodic sequence. While New Phrygian does not use word divisions, this fact is evident in some Old Phrygian inscriptions, which, while marking divisions between full lexical words, would spell such pronominal chains in a single uninterrupted sequence, even though the individual pronominal elements had separate syntactic roles. The best example of such a pronominal chain is *yosesait*, to be segmented into three elements: *yos=esai=t* 'whosoever to-this (indeed)', the nom. sg. masc. relative pronoun *yos*, the dat. sg. fem. demonstrative pronoun *esai*, and the (likely enclitic) emphatic particle *-t.* Pronominal chains of this type were apparently exclusively used in clause-initial position.

On the other hand, Phrygian possesses a number of what are best referred to as 'bound' pronouns, composed of two pronouns immediately following each other, with both of them being declined and referring to the same

antecedent. Such bound pronouns would function as single units both syntactically and semantically, with the meaning of the bound pronoun being different from that of either of the constituent elements. The best example is *ve-=avto-*, attested in the acc. sg. masc. *venavtun,* and dat. sg. fem. οεαυται. While the interpretation of inscription °W-11 is rather uncertain, it seems to provide another example in *ki-=vi-*, attested in nom. sg. masc. κισυις and acc. sg. masc./nom.-acc. sg. neut. κιυιν.

Etymologically, while the specific bound pronouns and their structures in Phrygian were only fully developed in Proto-Phrygian, Proto-Graeco-Phrygian pronominal compounding was far from marginal and must have provided the necessary model for the expansion and further development of bound pronouns.

A prominent example of such pronominal compounding is the Proto-Graeco-Phrygian pronominal stem **eki/e-*,[405] with the oblique stem of the **i/e-* pronoun (i.e. PGPh. **e-*) preposed to the proximal demonstrative pronoun **ki-*. It appears that old compounds prefixed with the oblique stem form *e-* were fully lexicalized in Proto-Graeco-Phrygian already and were not treated as bound pronouns in Phrygian, its initial element remaining undeclined (as in **esi-* < **eki-* and *ibe-* < **esbʰe-*).

On the other hand, a comparison of Greek ἑαυτό- and the Phrygian bound pronoun *ve-=avto-* suggests that the Proto-Graeco-Phrygian syntagm **hʷe auto-* < PIE **sṷe h₂eṷ=to-* was not yet lexicalized as a pronominal form of its own, resulting in different reflexes, with Greek **hʷeauto-* being the result of univerbation and Proto-Phrygian forming a bound pronoun where both elements would need to have been inflected.

[405] Eventually giving rise to Greek ἐκεῖνος and Phrygian ⁺*esi-*.

V Verbal Morphology

V.1 The Verbal System of Phrygian

The Phrygian verbs were inflected in the categories of voice (active or middle), mood (indicative, imperative, optative, and subjunctive), and tense (aorist, present, imperfect, perfect) (cf. LL 1827; PhL 98, Sowa 2007: 73ff.).

The lexical root is the primary lexical unit of a word and is an abstraction that can be used to great effect in the study of PIE and the IE languages. A verbal root is a lexical root that underlies verbal forms.
Care must be taken to distinguish between a verbal root and a verbal stem. The former is an abstract underlying representation of the interrelatedness of all verbal stems and forms derived from it, which, emphatically, cannot be subdivided into smaller meaningful constituent parts. A verbal stem is less abstract in the sense that it refers to the observable material common to a specific inflectional category; in other words, the stem is that part of the word that takes inflections.
The phonological form of a verbal stem *may* be identical to what we would conceive of as the phonological material composing a root, but the two are conceptually different. In some synchronic language variety, one may observe how the various actually observable verbal stems interact with each other, and it is these relations between existing material that the speakers would understand and utilize in their command of the language. In historical linguistics, the concept of the 'root' is used as a means of facilitating the formalization of these relations, not merely on a synchronic level or purely on the basis of evidently parseable surface forms, but often

through the utilization of diachronic understanding or some other knowledge that need not be accessible to a competent native speaker of a language.[406]

This is the first modern work on Phrygian to interpret the verbal system of the language through a comprehensive synchronic model. Compare this approach to that of Ligorio & Lubotsky (LL 1827-1828), who group verbal forms on the basis of their endings, noting that "the stem formation and the function of the majority of verbal forms are still unknown", or with Obrador-Cursach (PhL 98-106) and Sowa (2007) who do group the verbal forms into various categories but make no systematic effort to interrelate these categories in terms of stem or morphological analysis.

The analysis of Phrygian verbal forms in this work will utilize the concept of the verbal root as the most basic building block of the Phrygian verbal system.

A Phrygian verbal root would generally form three or more primary tense-aspect stems:

1) the present stem;
2) the aorist stem;
3) the perfect stem;
4) (possibly) the sigmatic optative stems.[407]

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[406] The question of whether specific verbal stems belong to what we pragmatically designate the same root is necessarily contigent on the chronological and analytical depth we are willing to utilize in explaining the stem in question. One must bear in mind that even though the "root" can be understood through diachronic processes, the "root" itself is still a synchronic object.

[407] The sigmatic optatives are modal constructions based on the present and the aorist stems. It is unclear whether the stem of the sigmatic optatives would have been

In Phrygian, verbal endings are added to the verbal stems.
The various attested ways of forming different primary tense-aspect stems are examined in §V.3. A primary tense-aspect stem could be extended by a suffix encoding a grammatical mood (subjunctive, optative, and possibly the sigmatic optative).

Finally, every finite verbal form ends with the addition of a grammatical ending that is used to encode grammatical person, number, voice, mood, and possibly aspect or tense.

Every Phrygian finite verbal form can, in essence, be parsed by following this scheme, with the non-obligatory elements enclosed by brackets:

(PREVERB)-(AUGMENT)-(REDUPLICATION)-ROOT-(TENSE-FORMING SUFFIX)-(MOOD-FORMING SUFFIX)-ENDING

These few examples will best serve to demonstrate this principle:

	preverb	**augment**	**reduplication**	**root**	**tense**	**mood**	**ending**
edaes		*e-*		*-da-*	*-es-* [408]		*-Ø*
epaktoy		*e-*		*-pak-*			*-toi*
ενεπαρκες	*en-*	*-e-*		*-park-*	*-es-*		*-Ø*
αββερετορ	*ab-*			*-ber-*	*-e-*		*-tor*
dedasitiy			*de-*	*-da-*		*-si-*	*-ti*
kakuioi				*kako-*	*-i̯-*	*-oi̯-*	*-Ø*
egeseti				*eg-*	*-e-*	*-se-*	*-ti*

Table #40: Phrygian verbal forms decomposed into constituent elements.

synchronically predictable from any of the other principle parts. As such, the sigmatic optative stems are conditionally considered to be the fourth principal part of a verb.

[408] But see §V.3.2.1 for an alternative analysis where *-es* is parsed as a verbal ending.

V.1.1 The attested verbal categories of Phrygian

The finite forms of Phrygian verbs appear in the following types of formations:

Ia) the simple present indicative, composed of a primary present stem and the primary set of endings, found in the active and middle voices (*i.e. tubeti*, αββερετοι) (cf. PhL 99: "present indicative");

Ib) the imperfect, composed of a primary present stem and the secondary set of endings, found in the active and middle voices (*i.e.* δακετ, αββερετορ) (cf. PhL 99-100: "present subjunctive"[409]);

Ic) the present imperative, composed of a primary present stem and the imperative set of endings, found in the active and middle voices (ειτου, εγεδου) (cf. PhL 102-103: "present imperative");

Id) the present optative, composed of a primary present stem, the optative suffix *-i-*, and the secondary endings, found in the active and middle voice (*kakuioi*) (cf. PhL 102: "present optative");

Ie) the present subjunctive, composed of a primary present stem, the suffix *-e/o-* and the subjunctive variety of the primary set of endings, found in the active voice (*e.g. podaskai*) (novel identification of formation type);

IIa-A) the *s*-aorist and original root aorist indicative active, composed of the augment *e-*, the primary aorist stem, and the suffix/ending *-es-* (*edaes,* ενεπαρκες) (cf. PhL 103-104: "aorist");

IIa-M) the root aorist indicative middle, composed of the augment

[409] For Obrador-Cursach's categorization, see footnote #412.

e-, the primary aorist stem, and the secondary set of middle endings (*estatoi)* (cf. PhL 105: "middle aorist");

IIb-M) the thematic aorist indicative middle, composed of the augment *e*-, the primary aorist stem, the thematic vowel, and the secondary set of middle endings (*ektetoy*);

IIc-M) the thematic aorist imperative, composed of the primary aorist stem and the imperative set of endings, found in the middle voice (*lakedo*);

IIIa) the perfect indicative, composed of the perfect primary stem and the perfect set of endings (δακαρεν) (cf. PhL 105-106: "perfect");

IIIb) the perfect subjunctive, composed of the perfect primary stem and the athematic set of subjunctive endings (*aey*);

IVa) the primary sigmatic optative, composed of a sigmatic optative stem and the primary set of endings, found in the active voice (*dedasitiy,* δεδασσιννι, *egeseti,* τοτοσσειτι) (cf. PhL 100-102: "present reduplicated subjunctive with *-se-* ~ *-si-*);

IVb) the secondary sigmatic optative, composed of a sigmatic optative stem and the secondary set of endings, found in the active voice (*da*Ψ*et,* εγεσιτ) (cf. PhL 100-102: same as IVa);

IVc) the sigmatic imperative, composed of a sigmatic optative stem and the imperative set of endings (ομνισιτους, *tekiseton)* (cf. PhL 100-102: same as IVa).

V.1.2 The meanings of attested verbal categories

Only a handful of clause types can currently be unambiguously identified in Phrygian. Due to the nature of the corpus, however, both the semantics and the syntactic structure of the types of clauses that can be identified are fairly well understood.

Since all identifiable verbal forms in Phrygian appear in the 3rd person, the descriptions of meanings are necessarily limited to this grammatical person throughout this section. No meanings beyond the grammatical 3rd person ought to be inferred for any of the constructions explained.

The basic clause types that can be identified are:

- simple declarative clauses, either main or subordinate clauses, where the verb is used to express a factual event (*realis*): e.g. °M01-b *baba [...] sikeneman edaes* 'Baba […] placed this niche';
- optative clauses, always main clauses, where the verb is used to express the speaker's desire or exhortation for an action to take place or for a state of affairs to come into being (deontic modality), e.g. °115^{W} Τιε τιττετικμενος ειτου 'may he become condemned by Ti-';
- conditional clauses, always subordinate clauses, where the verb expresses a condition that must be fulfilled in order for the action of the main clause to take place (epistemic modality), e.g. °57^{E} ιος νι σεμουν κνουμανει κακουν αδδακετ 'whoever would do something bad to this grave';

- future/predictive clauses, both main and subordinate, where the verb expresses a prediction on what will take place (future tense/epistemic modality), e.g. °W-11 πεννιτι ιος κοροαν δετουν 'whoever will pass by the interred girl'.

The attested verbal categories are associated with these basic identifiable clause types. Every type of verbal formation will be treated separately in this chapter. The table below is a quick summary of the associations of verbal formation types with clause types and is given for convenience.

	clause type		semantic/modal value		
	main clause	subordinate clause	*realis*	epistemic modality	deontic modality
Ia	✓	✓	✓	✓	
Ib	✓	✓		✓	✓
Ic	✓				✓
Id		✓		✓	✓
Ie	✓				✓
IIa	✓		✓		
IIb	✓		✓		
IIc	✓				✓
IIIa	✓		✓		
IIIb	✓				✓
IVa	✓	✓		✓	✓
IVb	✓	✓		✓	✓
IVc	✓				✓

Table #41: Types of Phrygian verbal formations, types of clauses in which they appear, and their semantic values.

In the Phrygian corpus, conditional sentences are extremely common and mostly appear as malediction formulae, though a handful of benedictive conditional sentences also exist. These types of sentences are treated more extensively in section §V.5.

The canonical example of the New Phrygian curse formula follows this structure: [ιος νι σεμουν κνουμανει κακουν αδδακετ] = *protasis/condition* | [με ζεμελως κε δεως κε Τιη τιττετικμενος ειτου] = *apodosis/result* 'whoever to-this grave something-bad would-do | among men and gods by-Ti- condemned may-he-become' "whoever would do something bad to this grave, may he become condemned by Ti- among men and gods" (Lubotsky 1998, cf. PhL 22).

Ia The simple present indicative

The simple indicative present is rarely used in the Phrygian corpus, as one would expect based on the nature of the attested texts (PhL 99). Despite the fact that the simple present indicatives are so sparsely attested, there can be little doubt with regards to their canonical function in terms of the comparative data: they would be used as simple statements of fact with a present tense reference (CIEL 273).[410]

The active simple presents are occasionally, if rarely, used in a conditional clause (cf. also PhL 99); in such a context, they are used to indicate a condition that is expected to be fulfilled (see §V.5.1).

[410] Whether they could also be used for a future tense reference or any generic non-past reference remains indeterminate at this point.

°W-11 **πεννιτι** ιος κοροαν δετουν [...] 'walks-by whoever girl placed' = 'whoever walks by the interred girl'

In New Phrygian, simple present middle voice forms are found several times in relative conditional clauses expressing a condition that may be fulfilled (PhL 99-100).[411]

°129^{W} ιος νι σα ματ[ε]ρε κακον **αββερετοι** [...] 'whoever to-this mother something bad **will-cause-to-be-brought**'

The simple presents in main clauses of conditional sentences are used to describe an event that is expected to occur (as a consequence of the fulfilment of the condition); it is possible to describe such uses as having a minimally modal future tense reference (see §V.5.2).

°B-05 *yos [...] dedasitiy, [...] mekas [...] koris* ***abretoy*** 'whoever [...] will-do, [...] big *koris* **will-be-broken**'

Ib The imperfect indicative

The attested forms of the imperfect indicative are attested in relative conditional clauses, expressing a condition to be fulfilled, and in main clauses of conditional sentences, expressing either a desire for or a consequence should the condition be fulfilled. Their modal value is clearly referencing a non-factual action at the time of the utterance, so they are not,

[411] Imperfect middle forms are found about as often as simple present middle forms. The difference in meaning between the two is presumably one of future-less-vivid against future-more-vivid, respectively. See further in §V.5.1.

semantically speaking, indicative forms as such (PhL 100), at least in the contexts in which they are attested. Nevertheless, they are formally morphologically indicative forms and are listed as such,[412] since they do not exhibit the presence of a mood-forming suffix and are not imperatives. In Phrygian, the imperfect in a conditional clause appears to encode epistemic modality (cf. PhL 99-100).

> °126^{W} ιος νι σεμουν κνουμανε κακ[ου]ν **αδδακετ**, Τιε τιττετικμενος ειτου 'whoever to-this grave something-bad **would-do**, by-Ti- condemned may-he-become'

In main clauses, the imperfect can be interpreted as expressing either epistemic or deontic modality.

> °86^{W} Βας ιοι βεκος **μεβερε[τ]** 'Bas **may-bring** away his bread'

Ic The present imperative

The present imperative in Phrygian has a hortative meaning in the 3rd person. It expresses a speaker's desire or exhortation for a certain action or state of affairs to come into being, encoding deontic modality (cf. PhL 102-

[412] Obrador-Cursach (PhL 99-100) dubs these verbal formations the "present subjunctives", but this is based on the fact that they are attested in conditional sentences, where they carry a modal meaning. His categorization, then, is semantically-based. In formal terms, the imperfects are most closely comparable to the augmentless imperfects of Greek, i.e. present-stem formations with secondary endings and without an augment. In my view, using the formal criterion to classify these formations is superior to using the semantic one, since the use of a past-tense formation like the imperfect to convey modal meaning in certain contexts, like the conditional, is cross-linguistically common (see §V.5.1), meaning that the semantic criterion is too context-dependent for a proper categorization.

103). It presumably differs from the aorist imperative in its aspectual value.

> °57[E] ιος νι σεμουν κνουμανει κακουν αδδακετ, τιττετικμενος ατ τι **αδειτου** 'whoever to-this to- grave something-bad would-do, condemned by Ti- **may-he-become**'

Id The present optative

The present optative in Phrygian is attested only twice, both times appearing as the main verb of a conditional clause. In conditional clauses, we may surmise that the verbal form pragmatically expresses some verbal action that needs to happen in order for the action of the main verb to be fulfilled, and the same is likely to hold for the optative. Thus, the optative presumably encodes a state of affairs that had not yet taken place at the time of the utterance; as such, it expresses epistemic modality (cf. PhL 102).

> °G-02 *ios oporokitis-* ***kakoioi****tovo: podaskai* 'whoever *oporokitis*[?] **would-do-bad** of-him, may-he-*podaske*'

> °P-04a *ios servotsati* ***kakuioi***, ... 'whoever *servotsati* **would-do-bad**, ...'

Ie The present subjunctive

The present subjunctive in Phrygian has a hortative meaning.[413] It

[413] This is the first work on Phrygian to propose the existence of this particular type of subjunctive, basing its existence on an analysis of the verbal forms *podaskai* °G-02 and *aey* °W-01a. See further in §V.3.8.

expresses the speaker's desire or exhortation for a certain action or state of affairs to come into being.

°G-02 *ios [...] kakoioi [...]:* ***podaskai*** 'whoever would-do-bad, **may-he-*podaske***' (see §V.3.8)

IIa,b The aorist indicative

The aorist indicative in a main clause is used to refer to an action in the past (cf. PhL 98, 103).

°M-01b *baba* [...] *sikeneman* ***edaes*** 'Baba [...] this niche **placed**'

°B-07 *smanes* [...] ***estaes****, va knais manuka* ***odeketoy*** 'Manes [...] **erected**, his wife Manuka **had-it-made**'

°31^{S} ...] μανκαν ιαν **εσταες** βρατερε 'the stele, which **he-erected** for-brother'

°W-01a [...] *bonok* [...] *vrekun* ***tedatoy*** '[...] Bonok [...] '(as-a-)sculpture **had-it-placed**'

°B-01 *s*[*i*] *bevdos* [...] ***edaes*** […]*, matar kubeleya […] duman* ***ektetoy*** 'this statue [...] **he-placed** […], Mother Kybele […] religious-community **caused-to-be-acquired**'

IIc The aorist imperative

The aorist imperative in Phrygian has a hortative meaning. It expresses a speaker's desire or exhortation for a certain action or state of affairs to come into being. It expresses deontic modality (cf. PhL 102-103). It presumably differs from the present imperative in its aspectual value, though it is unclear in what way.

> °W-01b *yos[…] da*Ψ*et,* ***lakedo*** *key avtay materey* 'whoever […] should-put, **seized-may-he-be** by-herself by-Mother'

IIIa The perfect indicative

The perfect is found extremely rarely as a finite formation in the Phrygian corpus, so its precise function cannot be clearly determined on the basis of synchronic data (cf. PhL 105-106). Most likely, it has a similar function to that found in PIE and Greek: it is used to describe a state that is the result of a previously completed verbal action (Fortson 2004: 94-95).

> °98^{NW} **δακαρεν** πατερης ευκιν αργου '**they-have-placed** parents$_{[subject]}$ …'

IIIb The perfect subjunctive

The perfect subjunctive in Phrygian has a hortative meaning. It expresses the speaker's desire or exhortation for a certain action or state of affairs to come into being.

°W-01a *yostutut---a-m-noy : akenanogavos* ***aey*** 'whoever [...], *akenanogavos* **may-he-be**'

IVa,b The sigmatic optatives

The primary and secondary sigmatic optatives are known to appear in both main and subordinate clauses.[414] The semantic distinction between the primary and secondary sigmatic optatives is currently unknown.
In a main clause, they apparently encode a hortative meaning, i.e. a speaker's desire or exhortation for a certain action or state of affairs to come into being.

°99^{NW} ιος [...] αδδακετ, [...], με κε οι **τοτοσσειτι** Βας βεκος 'whoever [...] would-do, [...], away from-him **ought-to-give** Bas bread'

°18^{W} αινι κος [...] αδδακετ [...], βεκος ιοι με **τοτοσσειτι** σαρναν 'if someone [...] would-do [...], bread from-him away **ought-to-give** *Sarnan*'

In a subordinate clause, they apparently express epistemic modality and are used to encode a potential action or an action that needs to be fulfilled in order for the action of the verb of the main clause to take place (cf. PhL 100-102).

[414] For an explanation of this morphological category, refer to §V.3.4.

°W-01b *yos [...] onoman* ***daΨet****, ...* 'whoever [...] name **would-put**, ...'

°130^{NW} αινι ουεβαν **δεδασσιννι** πατρος, ... 'when/if the-*veban* **they-would-place** of-the-father, ...'

°P-04a *ios ni akenan* ***egeseti***, ... 'whoever *aken* **would-hold**, ...'

°B-07 *is [...] mekos* ***anivaΨeti*** *smanin* 'he [...] greatly **would-honour**[?] Manes'

IVc The sigmatic imperative

The sigmatic imperatives are used in main clauses with a hortative meaning, i.e. expressing a speaker's desire or exhortation for a certain action or state of affairs to come into being (cf. PhL 101).

°W-11 πεννιτι ιος ..., σουν ομαστα ομνισιτους 'passes-by whoever [...], him *omasta* **may-*omni***'

°W-14 ***tekiseton*** *dagoy* 'the *dago*s **may-they-*teki***'

V.1.3 The middle voice

Generally speaking, the PIE middle voice was used to indicate that the verbal action in some way also affects the agent (Clackson 2008: 142-143). In other cases, the middle would be used as a passive, demoting the agent of the verbal action to a peripheral role and giving greater prominence to

the direct object (*ibid.*). Some middle forms have developed specific unpredictable semantics and became lexicalised.

Passive use of the middle voice is most likely found in the following examples:

°W-01b ..., ***lakedo****key venavtun avtay materey* '**may-he-be-seized** *key* (=modal particle) himself by the Mother herself' = 'may he himself be seized by the Mother herself'

°B-05 (l. 8-10) …, *mekas key koris* ***abretoy*** […] 'and big *koris* **will-be-broken** […]' = 'and the big *koris* will be broken'

°B-05 (l. 11-12) …, ***mederitoy***, *koris ke* ***abretoy*** […] '**he-will-be-bound**, and *koris* **will-be-broken**' = 'he will be bound and the *koris* will be broken'

More commonly, however, we find non-passive uses of the middle voice. As a point of departure, we may compare the following pair, where the syntactic construction of the clause with a verb in the middle voice is identical to one having a verb in the active voice (cf. PhL 99-100):

ιος νι σα ματερε κακον αββερετοι °129^{W} 'whoever to-this to-mother a-bad-thing would-bring$^{?}$ (mid.)' = 'whoever would bring$^{?}$ a bad thing to this mother'

[ιο]ς νι σεμουν κνουμανε [κακον] αββερετ °6^{W} 'whoever to-this to-grave a-bad-thing would-bring (act.)' = 'whoever would bring a bad thing to this grave'

We must reasonably assume that the choice of voice was not entirely random and that the two types of clauses must have differed in some semantic respect (*contra* PhL 99-100). It is our task now to attempt to discover this difference.

Most easily interpretable uses of the middle voice can be found in a clause where a subject and a direct object can be clearly identified and where they both take the cases they would have taken in a construction with a verb in the active voice (i.e., the nominative and the accusative, respectively).

As such, we may immediately exclude the possibility that the morphological middle voice is inherently identical to a syntactic passive voice.

From an Indo-European point of view, then, one could conclude that a transitive verb in the middle voice may have encoded some reflexive or self-benefactive view; or that, for some lexical items, middle morphology became lexically and/or valency distinctive (Clackson 2008: 142-143).

No perfect argument can be made against the latter case; bearing in mind the preponderance of deponents and the many lexicalizations of meaning based on the grammatical voice in the IE languages (*ibid.*), similar phenomena ought to be found in Phrygian as well. For the examples of an active-middle opposition that we can find in the corpus, however, that is surely not the case. The pairing of the two relevant verbal roots *ber-* 'to bring' and *dak-* 'to put' with two verbal voices, with no change in syntax, and no broadly discernible change in meaning, clearly suggests that the use of grammatical voice could not have been lexically conditioned for at least these two verbal roots, i.e. we are clearly dealing with oppositional middles.

An interpretation that would see the middle voice used with a self-benefactive meaning in the context of a curse formula is not ideal. When contrasted with the much broader meaning of the active ('whoever damages

[for any reason]'), a self-benefactive meaning ('whoever damages [for his own benefit]') would limit the scope to a subset of intentional actions, but would, through explicit omission, exclude harm done by accident, apathy, or even pure malice, if benefit were to be understood as purely material.[415]

One attractive possibility for a use of the middle voice that would be congruent with the contexts in which it appears is its use in the construction most clearly named the "causeeless causative" (Keemer & Verhagen 1994: 138-9), also dubbed the "causative middle" in Greek (Smyth 1920: 392). These types of constructions are characterised by explicitly marking the causer and the direct object of a verbal action, while omitting the actual agent, the causee, who performs the verbal action.[416] Causatives in general increase the valence of a verb, increasing the number of verbal arguments by one.[417] Causeeless causatives of transitive verbs differ from regular causatives in that the expressed number of verbal arguments of a transitive verb remains the same, but the actual roles of the verbal arguments are not identical to those found in non-causatives. In a non-causative sentence 'X does something to Y', X is agent and Y is the direct object; in a causeless causative sentence 'W has something done to Y', Y is the direct object, but

[415] On a similar basis, the entire "reflexive domain" of Kemmer (1993: 41ff.) can be excluded as a possible reading. Unsuitable readings also include the interpretation of middles in this context as expressing reciprocal situations and mental events (*ibid.*: 96ff.).
[416] In English, the causeeless causatives are expressed by using the "to have/get something done" construction; i.e. "he has a house built". In this example, it is clear that the subject ('he') did not build the house himself, but rather caused someone else to build it. In such constructions, the actual agent (in this example that would presumably be 'the builders') remains unexpressed. Similar constructions exist in a number of other languages. My native Slovenian, for instance, uses a 'dati' ('to give') + infinitive construction: "on dá zgraditi hišo" ('he has a house built,' literally 'he gives to build a house').
[417] Thus, causatives of intransitives take two arguments: non-causative "the tree falls" ('X does something') ~ causative "he fells the tree" ('W causes that X does something'). Causatives of transitive verbs take three or more arguments: non-causative "he breaks the vase" ('X does something to Y') ~ causative "they make him break the vase" ('W causes that X does something to Y').

W is not the agent of the verbal action, even if they are syntactically the subject. The actual agent X is not or is only optionally expressed.[418]

In Phrygian, when the middle voice is used with a transitive verb, the clause structure remains fundamentally active-like in syntax, but the subject of such a sentence is demoted in terms of agentivity, functioning not as the agent of the verbal action, but rather as its causer or facilitator. This use of the middle voice as reducing the prominence of a verbal agent in favour of some other verbal argument is congruent with the more passive-like functions of the middle voice in PIE and Greek.

The causeeless causative reading of the transitive Phrygian middles when contrasted with the active in conditional sentences does not suffer from the issue of a lessening of scope that the self-benefactive reading does: 'whoever causes harm [on his own or through an intermediary]'. In fact, the possible curse applies even more broadly, threatening both the direct perpetrator of harm (for any reason) and any associated volitional agent.

While this proposal for what the transitive middles in Phrygian meant is somewhat speculative, there are a number of cases where it semantically fits better than a reflexive or self-benefactive meaning usually assumed.

°73^{W} ιος νι σεμον κνουμανι κακον αββερετορ 'whoever to-this grave something-bad **would-cause-to-be-brought**' as opposed to 'would-bring (for his own benefit)' = 'whoever would cause something bad to be brought to this grave'

[418] In English, the agent (causee) X is expressed through the use of a *by*-prepositional phrase: W has something done to Y *by X* (e.g. "He has a house built by the builders.").

°B-07 *Manes … estaes, va knais Manuka odeketoy* 'Manes … erected, his wife Manuka **caused-(it)-to-be-made**' as opposed to 'made it (for her own benefit)' = 'Manes … erected [it], his wife Manuka had it made'

How precisely a middle voice intransitive would have functioned in Phrygian remains unclear. We may reasonably suppose that in general terms, an unaccusative verb (such as 'to fall') in the middle voice would have a passive meaning, possibly pragmatically implying some agent (though not necessarily), whereas an unergative verb (such as 'to run') would have some other, likely reflexive or self-benefactive, meaning.[419] The transitive causeeless causative construction would have presumably developed from unaccusative intransitives with pragmatically implied agents, where a proper causativisation (using the active voice) would have seen the introduction of the actual agent, and a causeeless causativisation (using the middle voice) would have introduced another non-agent argument to the verb.

How the middle voice interacted with the imperative mood when not used with a passive meaning is currently unknown. Some imperative middles seem to behave identically to the actives. Consider:

°105^{E} …, γεγρειμεναν **εγεδου** τιος ουταν 'written **may-he-hold** of-Ti-punishment' "may he hold the written punishment of Ti-"

[419] Do note that in PIE unergative verbs tended to take middle morphology, whereas unaccusatives took active morphology (Clackson 2008: 143).

°108[E] ..., [ακ κε οι] βεκος ακκαλο[ς τι δρ]εγρουν **ειδου** 'to-him bread *akkalos* inedible **may-become**' "may *akkalos* bread become inedible to him"

A causeeless causative construction is more difficult to justify in these instances and no broad reaching conclusion can be made for the moment.

V.2 Personal endings

Verbal endings in Phrygian convey information about person, number, mood, voice, and aspect or tense. Due to the limited corpus of Phrygian, we have no attestation of the endings for the 1st and 2nd persons that we have been able to identify. Thus, the endings we are aware of all belong to the 3rd person, either singular or plural.

In historical terms, the verbal endings of the active voice attested in Phrygian developed from the four categories of PIE endings: primary endings, secondary endings, imperative endings, and perfect endings. When describing Phrygian, we will continue to use the terms "primary" and "secondary" endings, since we are dealing with two sets of endings that map onto certain verbal formations and which ultimately derive from the primary and secondary PIE endings. One must bear in mind, however, that the use of the two sets in attested Phrygian is at times quite different from what is reconstructed in PIE, both in terms of verbal formations in which

they may appear and in terms of the meaning they impart when in opposition to each other.[420]

The primary, secondary, and imperative endings can each be further subdivided into thematic and athematic. In terms of PIE, the thematic endings generally differ from the athematic by the addition of the thematic vowel *-*e/o*- to the verbal stem before the ending, though there are some exceptions, most notably with the 1sg thematic primary active ending *-*ō* as contrasted to the 1sg athematic primary active ending *-*mi*.[421]
The following attested endings of Phrygian are morphologically innovative with respect to the Proto-Graeco-Phrygian stage: the 3sg primary thematic ending -*e-ti*, the 3sg secondary ending *–(e)-t*, the 3pl present imperative endings -*nnō* and -*tōn*, the 3sg aorist imperative ending -*tōs*, and the 3pl perfect ending -*āren*. The question of whether the 3sg aorist active desinence -*es* is to be understood as an ending is dealt with extensively in section §V.3.2.1.

[420] Consider, for instance, the use of a primary middle ending in the aorist or the contrastive use of a primary ending in the sigmatic optative. In PIE, the use of a primary ending in the aorist or the optative mood would not be permitted.
[421] Whether there was any difference between the active athematic and thematic 2sg and 3sg endings remains a matter of debate (contrast Fortson 2004: 84-85, 89 and CIEL 258-261). Without delving into the question of what the situation was in PIE, as far as the pre-history of Phrygian is concerned, it seems clear that, at the PGPh. stage, the 3sg thematic ending was *-*ei*, whereas the 3sg athematic ending was *-*ti* (§V.2.1.1). The two endings at that stage were evidently not in any kind of an obvious derivational relationship.

	prim.	sec.	prim. mid.	sec. mid.	imperative	imperative mid.	perf.
present	✓	✓	✓	✓	✓	✓	
subjunctive	✓						
optative	✓	✓					
sigmatic optative	✓	✓			✓		
aorist		✓[422]	✓				
perfect							✓

Table #42: The endings appearing with types of Phrygian verbal stems.

V.2.1 Primary active endings

Primary active endings in Phrygian are used with present stems and the sigmatic optative stems, but never with the aorist or perfect stems. As such, their basic function is to encode a non-past reference (cf. PhL 99).
There is a separate set of endings which derive from the inherited primary active endings that are used exclusively with the subjunctive mood.

The attested primary endings in Phrygian are:

	athematic active		thematic active	
	basic	subjunctive	basic	subjunctive
3sg	*-ti*	*-ei*	*-e-ti*	*-āi*
3pl	*-nni*			

Table #43: The primary active endings in Phrygian.

[422] As already noted, refer to §V.3.2.1 for a more detailed account.

-ti '(3rd person singular athematic active primary)' *anivaΨeti* 'may he mourn[?]', *dabati*[423], *dedasitiy* 'may he put', *deΨeti* 'may he burn[?]', *egeseti* 'may he hold', δαδιτι, ριδιτι, τοτοσσειτι 'may he give'
-e-ti '(3rd person singular thematic active primary)' *poreti*, *tubetiv*, πεννιτι 'passes by', ~~βερετι~~

The third person singular athematic active primary ending *-ti* is known to us from several forms of the sigmatic optative and what appear to be athematic presents. Formally, it is directly descended from the PIE ending *-*ti* (cf. PhL 99).

The third person singular thematic active primary ending *-e-ti* presents us with a number of issues. These are compounded by the fact that the reconstruction of the actual form of the third person singular thematic active primary ending in PIE is a matter of dispute. Most Indo-European languages point to an original thematic ending *-*e-ti*: Skt. *-a-ti*, Lat. *-i-t*, Got. *-þ*. Problematic, however, are the Greek ending -ει < *-*e-i* and Lithuanian *-a* < *-*e* (CIEL 260). Broadly speaking, there are two schools of thought on the matter (Meier-Brügger 2010: 312, Willi 2018: 6-7). The first of these is that the original PIE ending was *-*e-ti* and that the Greek and Baltic developments are secondary (Fortson 2004: 84-85 and 89; Willi 2018: 6-7). The second is that Greek and Baltic reflect the original state of affairs, where the original PIE ending was *-*e* and that the ending *-*e-ti* was analogically created on the basis of athematic *-*ti* in the individual prehistories of the languages which point to it (CIEL 260).[424]

[423] The form is unclear.
[424] Beekes (*ibid.*) also adduces that the phonetically irregular *-tъ* in OCS *-e-tъ* is a secondarily added particle unrelated to the athematic ending *-*ti*.

Phrygian shows a small number of forms which can be analysed as containing the 3rd person thematic ending (PhL 99). Of these, one should most likely be taken out of consideration. βερετι °103C has a damaged part immediately following <ι>, so it is uncertain whether the stroke read as <ι> is part of the damage itself or, if a genuine letter, whether it belongs to the verbal ending or is an independent element. Based on other known attestations of the New Phrygian curse formula with an active verb, we would expect a secondary ending (*ibid.*). Thus, drawing any conclusions from this form would be premature at this point.

More telling is the Middle Phrygian form πεννιτι °W-11, the left-displaced verb of the protasis of a conditional sentence: πεννιτι ιος κοροαν δετουν 'whoever passes by the interred girl' (Obrador-Cursach 2020: 42ff.). πεννιτι can hardly be interpreted as anything other than a verb and we are evidently dealing with the 3sg ending *-ti*. A closer examination of the form, undertaken in §V.3.5, leads to the conclusion that πεννιτι is a 3sg present indicative of a denominative *je*-type verb, with -ι- being used to spell the segment /ē̯/ that resulted as a contraction of *-eje-*, where the latter *-e-* is the thematic vowel.[425] The form πεννιτι /pen:ē̯ti/, then, is thematic, meaning that the 3sg thematic primary ending by at least the Middle Phrygian period was *-ti* / -τι.

The forms *poreti* and *tubetiv* likewise appear to have a desinence reflecting *-*e-ti* and it thus seems probable they are thematic presents as well (PhL 99), [426] though the actual words are not understood and different interpretations may still be possible.

[425] The whole form can be transposed as **pent-e-i̯e-ti*.
[426] *tubetiv* is immediately followed by a rounded vowel, so the final *-v* simply reflects a glide as a hiatus filler.

On the basis of the available data, it appears we should assume that *-e-ti* is the 3rd person singular active thematic ending (cf. Skt. *-ati,* Lat. *-et*, etc.) (as is assumed by Orel 1997: 398, who suggests direct descent from PIE **-e-ti*).

-āi '(3rd person singular thematic active subjunctive)' *podaskai* 'may he be trampled upon[?]'
-ey '(3rd person singular athematic active subjunctive)' *aey* 'may he be'

It is now clear that *podaskai* °G-02 is a verbal form in the 3rd person singular (Kloekhorst 2015: 117), one appearing in the apodosis of a conditional sentence, suggesting it has a jussive meaning.
To explain the ending *-ai*, we may begin by noting that the final *-i* is almost certainly the *-i* found in other primary endings, meaning that the ending *-ai* itself must be primary. Further, the element *-sk-* can hardly have originated in anything other than the reflex of the PIE inchoative verbal suffix **-sḱe-* (PhL 332-333).[427] Since this suffix was thematic and was unlikely to have become athematised, the best conclusion is that *a*-vocalism in a thematic verbal formation has an origin in the vowel **ē*, which is the vocalism characteristic of 3rd person singular thematic subjunctives in PIE.[428] The ending *-ai,* which we can transpose as originating from an earlier **-ēi,* has a perfect match in the Greek subjunctive 3rd person singular active thematic ending -ῃ. The interpretation of *-ai* as a subjunctive ending is semantically justified by the jussive meaning of the verbal form. As such, we may

[427] For the preservation of PIE **-sk-* > Ph. *-sk-* we may cite βλασκον °W-11, ουελασκετου °87[W], and ουελασκοννου °120[W] in addition to *podaskai*. See §V.3.1.4.
[428] A possible objection might be that *a*-vocalism spread from the 1st person singular of medial forms, PIE **-h₂e-i*, which would then mean *podaskai* is some kind of a medial form. The 3rd person singular medial forms have well known endings in Phrygian, *-(e-)toi* and *-(e-)tor*, however, which do not show any kind of *a*-vocalism.

conclude that the 3rd person singular thematic active subjunctive ending in Phrygian was *-āi* < *-*ēi*. The PIE thematic subjunctive vocalism *-*ē*- itself was a contraction of *-*e-e*-, i.e. the thematic vowel and the subjunctive marker, which was formally identical to the thematic vowel (CIEL 274), and we may assume on this basis that the 3rd person singular athematic active subjunctive ending in Phrygian was *-ei*.

A verbal form that shows this subjunctive ending *-ei* in an athematic context is *aey* in inscription °W-01a. Lubotsky (1988: 17-18) has previously analysed *aey* as a perfect form (< **h₁e-h₁s-e* + *-i*), with *ā*- being the reduplicated perfect stem of the verbal root $^{+}$*es*- ('to be'; < PIE **h₁es*-), *-e* the 3sg perfect ending, and *-i* a secondary addition to the perfect ending from the primary endings, the implication being that the ending *-ey* was the indicative 3sg perfect ending. A more attractive explanation is that, while still a perfect form, *aey* is in fact a subjunctive; i.e. the perfect stem **h₁e-h₁s-* > *ā*- + 3sg subj. ending *-ey*. This is supported by the sentence structure, where *aey* appears in the apodosis of a conditional sentence and is likely to have a jussive meaning: *yostutut [...]*, *akenanogavos aey* 'whoever [...], *akenanogavas* may-he-be' (*contra* PhL 106).

-nni '(3rd person plural athematic active primary)' δεδασσιννι 'they will$^{?}$ place'

The third person plural athematic active primary ending is known from a single sigmatic optative attestation, but is fairly secure (cf. Hämmig 2013: 131, Avram 2015: 209, PhL 158). The development from PIE *-*nti* > Phrygian *-nni* is phonetically regular. The form in question does, however, provide a crucial piece of evidence against interpreting sigmatic optatives

as thematic: it is known from the imperative thematic ending -ου-νvου < **o-ntōd* that the thematic vowel was *o* in the third person plural and thus likely had the same distribution as it did in PIE. In light of this, -ι-νvι < **-e-nni* < **-e-nti* would need to have replaced the expected ending $^{+}$*-onni* < **-o-nti* through levelling of the *e* variant of the thematic vowel if we wished to interpret it as a thematic ending. Considering the other evidence for the athematic nature of the sigmatic optatives (§V.3.4 and cf. PhL 101) and the fact that this levelling would be restricted to the primary thematic system only, this is exceedingly unlikely. Rather, the -ι- of δεδασσιννι is part of the verbal stem and the actual verbal ending is simply the athematic -νvι < **-nti*.

V.2.1.1 The development of the primary active endings

The following table lays out a simplified version of the basic system of the primary 3sg desinences in Phrygian and Classical Greek:

	athematic	thematic	athm. subj.	them. subj.
Phrygian	*-ti*	*-e-ti*	*-ey*	*-āi* < **-ēj*
Greek	-σι < *-τι	-ει	-ῃ	-ῃ

Table #44: The primary 3sg active desinences of Phrygian and Attic Greek.

If we compare the attested 3rd person singular forms in Greek and Phrygian, the following conclusions may be immediately drawn about Proto-Graeco-Phrygian: the 3sg athematic primary ending was clearly **-ti* and the 3sg thematic subjunctive desinence was **-ēi*. As far as the Greek athematic subjunctive ending -ῃ is concerned, it is an innovation that spread from the thematic subjunctive, with a number of forms still showing an older ending

-ει (Sihler 1995: 593-594), suggesting the reconstruction of a PGPh. athematic subjunctive ending *-*ei*.

There is, on the other hand, a notable mismatch concerning the 3sg indicative primary thematic endings, with Greek having -ει (transposed PGPh. *-*ei*) and Phrygian having -*eti* (transposed PGPh. *-*eti*). As such, the 3sg indicative primary thematic ending is not directly reconstructible for PGPh. We must, then, answer the question which of the two indicative endings, Phrygian -*eti* or Greek -ει, reflects the more archaic state of affairs. Kuryłowicz's 4th law of analogy can serve as a solid starting point for answering this question:

"*When, following a morphological transformation, a form undergoes differentiation, the new form corresponds to its primary function, and the old form is reserved for a secondary function."* (Kuryłowicz 1949: 30)

The likeliest conclusion is that the Phrygian 3sg thematic ending -*eti* was an innovation that replaced an earlier PGPh. *-*ei*. This is congruent with the fact that the PIE athematic subjunctives utilized the thematic desinence (CIEL 274), with the 3sg athematic subjunctive and 3sg thematic present having the identical desinence *-*ei* in Proto-Graeco-Phrygian. If we assumed that the PGPh. 3sg thematic ending was *-*e-ti*, while the 3sg athematic subjunctive ending was *-*ej*, it would be difficult to explain why, in the pre-history of Greek, the subjunctive ending would have taken over the function of the indicative.

The Phrygian creation of a thematic 3sg primary ending -*eti* to replace -*ei* would have been trivial, based on the proportion -*t* : -*ti* = -*e*-*t* : X,

X = *-e-ti*.[429] In line with Kuryłowicz's 4th law of analogy, the new ending *-eti* would have taken over the basic function of the indicative.[430] In the athematic stems, the Proto-Graeco-Phrygian contrast between indicative *-*ti* and subjunctive *-*ei* would have remained fundamentally unchanged.

	athematic	thematic	athm. subj.	them. subj.
PGPh.	*-*ti*	*-*ei*	*-*ei*	*-*ēi*

Table #45: The primary 3sg active desinences of Proto-Graeco-Phrygian.

The existence of the 3sg thematic active ending *-*ei* in Proto-Graeco-Phrygian unfortunately yields no additional argument in the debate of whether this ending represents an archaism, i.e. the preservation of an original PIE thematic ending *-*e(i)*, or is an innovation of Proto-Graeco-Phrygian that replaced original PIE *-*e-ti*. Any explanation that the ending *-*ei* was an innovation of Proto-Greek can simply be pushed back to the Proto-Graeco-Phrygian stage without any change in argumentation.

V.2.2 Secondary active endings

The active secondary endings in Phrygian are used in the imperfect, the sigmatic optatives, the optative mood, and possibly the aorist.

[429] Evidently after the re-creation of the secondary ending *-t*, for which see §V.2.2.
[430] Such a situation has a clear parallel in Indic (cf. CIEL 274): the newly created 1sg thematic ending Skt. *-ā-mi* < *-*o-mi* was used in the very common thematic presents, while the subjunctive retained the archaic ending Ved. *-ā* < *-*oH* (later extended with *-*ni* to give Skt. *-āni*).

The attested secondary endings in Phrygian are:

	athematic active	thematic active
3sg.	*-t / -Ø / (-es)*[431]	*-e-t*
3pl.	*-en?*	

Table #46: The secondary active endings in Phrygian.

-t '(3rd person singular athematic active secondary)' *daΨet* 'would place'*, umniset,* βρειτ 'would break', εγεσιτ 'would hold', *ordoinete(t)* 'would properly feast'[432]

-Ø '(3rd person singular athematic active secondary)' *kakoioi/kakuioi* 'would do bad'

-e-t '(3rd person singular thematic active secondary)' δακετ 'would place', βερετ 'would bring'

-Ø '(3rd person singular athematic active secondary)' *ebaes* 'he spoke', *edaes* 'he placed', *estaes* 'he erected'

The 3rd person singular active secondary endings at first glance appear to directly reflect PIE athematic **-t* and thematic **-e-t* (cf. Orel 1997: 399-400, PhL 100ff.).[433] Since it is now clear that Phrygian lost its final stops at some point in its prehistory (see §II.3.1.2.1) and subsequently reintroduced them, the situation becomes considerably more complicated:

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[431] The section on the endings proceeds from the preliminary analysis that the desinence *-es* found in the 3rd person singular active aorist is an aorist-forming suffix and that the actual synchronically underlying ending of these forms is -Ø. For a more detailed account, see §V.3.2.1.

[432] The actual attested form is *ordoineten* °B-07, with its final stop being assimilated to a following nasal. Compare αδακεν με and αδακεμ μανκαι. For the process, see §II.2.3.1.3 above.

[433] Cf. Sowa (2007: 83), who cites Haas (1966: 204) in wondering whether *-t* could have originated in the primary ending **-ti.* Since a number of examples with an attested ending *-ti* clearly exist in both Old and New Phrygian (see §V.2.1), this explanation is no longer tenable.

the regular development of both athematic *-*t* (regardless of its phonetic environment) and thematic *-*e-t* would have simply resulted in a 3rd person singular active secondary ending **-Ø.[434] It is thus clear that the ending -*t* must have been reintroduced at some point after the split of Phrygian and Greek, when final stops were no longer prohibited by phonotactics. Below is a scenario that lays out the most likely chain of events that reintroduced *-*t* as the synchronic secondary ending in Phrygian.

consonant-final stem			vowel-final stem		
1sg athm. act. prim.	2sg athm. act. prim.	3sg athm. act. prim.	1sg athm. act. prim.[435]	2sg athm. act. prim.	3sg athm. act. prim.
1sg athm. act. sec.	2sg athm. act. sec.	3sg athm. act. sec.	1sg athm. act. sec. *and* 1sg them. act. sec.[436]	2sg athm. act. sec. *and* 2sg them. act. sec.	3sg athm. act. sec. *and* 3sg them. act. sec.
Stage I: Early Proto-Graeco-Phrygian before $C_{[+stop]} > Ø$ / _#					
-C-mi	-C-si	-C-ti	-V-mi	-V-si	-V-ti
-C-m	-C-s	-C-t	-V-m	-V-s	-V-t
Stage II: Proto-Graeco-Phrygian after $C_{[+stop]} > Ø$ / _#					
-C-mi	-C-si	-C-ti	-V-mi	-V-hi	V-ti
-C-n̥	-C-s	-Ø	-V-n	-V-s	-V-Ø

[434] PIE *b^her-e-t* > Proto-Graeco-Phrygian *b^her-e-Ø* > Greek φέρε (as in the Epic imperfect), but not Phrygian **bere.*

[435] In light of the issues regarding the primary thematic active endings, the thematic endings are left out of consideration here.

[436] In terms of phonetic developments, the two would behave identically.

Stage III: Early Proto-Phrygian restoration of stem-final consonants: *-V-s : -V-Ø = -C-s : X, X = -C-Ø*					
-C-mi	-C-si	-C-ti	-V-mi	-V-hi	V-ti
-C-an	-C-s	**-C-Ø**	-V-n	-V-s	-V-Ø
Stage IV: Proto-Phrygian reintroduction of 3rd person secondary *-*t* to consonant-final stems: *-C-si : -C-s = -C-ti : X, X = -C-t*					
-C-mi	-C-si	-C-ti	-V-mi	-V-hi	V-ti
-C-an	-C-s	**-C-t**	-V-n	-V-s	-V-Ø
Stage V: Proto-Phrygian spread of 3rd person secondary *-*t* to vowel-final athematic and thematic stems: *-C-s : -C-t = -V-s : X, X = -V-t*					
-C-mi	-C-si	-C-ti	-V-mi	-V-hi	V-ti
-C-an	-C-s	-C-t	-V-n	-V-s	**-V-t**

Table #47: The re-creation of the Phrygian secondary verbal ending *-t*. Underlined forms are analogical.

The analogical developments in stages 3 and 5 are trivial: levelling of the stem and spread of an ending to other forms that encode the same meaning, respectively. Only Stage 4, the reintroduction (or rather, re-creation) of the ending *-*t* to consonant-final stems represents a non-trivial innovation.[437]

[437] One may imagine a number of alternative scenarios. One other candidate would see Stage 3 *-V-hi* replaced with Stage 4b *-V-si* on the basis of *-C-s : -C-si = -V-s : X, X=-V-si*. Then, in stage 5b the *-*t* ending is recreated in vowel-final stems: *V-si :: -V-s = -V-ti :: Y, Y = -V-t*. If we assumed the spread of this ending to consonant-final stems, this would require 6 stages to reach the same outcome as the scenario above, which requires only five. On the other hand, within this alternative framework, the ending *-*t* need not have spread to consonant-final stems at all (3rd singular active aorist *-es* may just as easily reflect *-es-*

The developments after Stage 5 would presumably be the result of phonetic developments. When the ending *-*t* was preceded by a vowel, it remained unchanged (e.g. βερετ). In accordance with the law of final cluster reduction (PPh. *-C_1C_2...C_3# > *-C_1#) that took place before Old Phrygian, consonant-final stems would have presumably lost the ending *-*t* in the 3rd person singular, as well as the ending *-*s* in the 2nd person singular. Due to the paucity of clearly interpretable data, however, how consonant-final stems interacted with the secondary ending -*t* in synchronic Phrygian is currently unknown.[438],[439]

The general presence of a phonetic element **t* in the 3rd person singular endings, however, both in athematic *-*ti* and middle *-*tor* and *-*toi*, surely played a role in re-enforcing the newly created ending *-*t*.[440]

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t as *-*es*-*Ø*). In principle, then, this alternative explanation is possible, but has the downside of needing to re-create two endings for two different categories. The scenario in the main text only requires the creation of a single ending in some forms of the 3rd person singular secondary active system, which then spread throughout the rest of its own category. The identification of a 2nd person singular primary ending would serve as good evidence in favour of one or the other analysis. If this alternative analysis should actually be correct, some changes would need to be made in the account given for the creation of the aorist system elsewhere in this section and in §V.3.2.

[438] It seems that the new 3rd person singular secondary ending *-*t* never spread to the optatives. In that case, the ending -*oi* directly reflects Proto-Graeco-Phrygian *-*oi* < PIE *-*oih₁t* (cf. PhL 102). The subjunctives preserved the original inherited endings and were not affected by the remodelling of the system of endings, so the optatives could have likewise avoided the secondary spread of *-*t*.

[439] If one supposed that the 3sg active aorists were actually extended with a secondary ending *-*t*, which is questionable, the attested forms would have shown the result of the law of final cluster reduction: *-*es*-*t* > *-*es*.

[440] An analogical pattern based on the middles could have also produced an ending *-*t*: primary *-*toi* :: secondary *-*to* = primary *-*ti* :: secondary X, X = *-*t*. It is unclear, however, whether such a proportion could have been set up at any point in Phrygian pre-history, since the attested Phrygian system of middle endings is quite dissimilar to the system required for this analogical pattern to be possible. The scenario outlined in the main text is focused on the more transparent and well-supported primary-secondary distinction as used in the active present stem.

The developments proposed here are valid for the imperfects, but not the aorists, which would have developed along different lines, for which see §V.3.2.

-en '(3rd person plural athematic active secondary)' cf. δακαρεν 'they have placed'

The verbal form δακαρεν is correlated with a subject in the nominative plural in inscription °98^{NW}: δακαρεν πατερης 'the fathers/parents have-placed'. We must then analyse the form as encoding a 3rd person plural, meaning that the ending -αρεν can hardly be anything other than the 3pl perfect ending *-*ēr*, which was secondarily extended with the athematic active secondary ending *-*ent* (LL 1828, PhL 105); the verbal form δακαρεν must then be a perfect. Such a development has a direct parallel in the Latin 3rd person perfect ending -*ērunt* < *-*ēr* + *-*ont* (*ibid.*), with the difference being that Latin added the thematic ending, while Phrygian added the athematic ending. The athematic nature of the Phrygian ending -εν is conclusively demonstrated by the 3rd person plural imperative thematic ending -ουννου < *-*ontōd* (PhL 103), which shows that the thematic vowel in the 3rd person plural (i.e. before *-*nt*-) was preserved as *o* in Phrygian. Thus, on the basis of the agglutinated perfect ending -αρεν, we may safely conclude that the Phrygian 3rd person plural athematic active secondary ending was -*en*, regularly descended from PIE *-*ent.*

V.2.3 Middle endings

The attested middle endings in Phrygian are:

	3sg athematic middle	3sg thematic middle
imperfect		*-e-tor*
aorist and primary	*-toi*	*-e-toi*

Table #48: The middle endings in Phrygian.

-toi '(3rd person singular athematic middle aorist)' *estatoi* 'caused to be erected'*, edatoy* 'caused to be placed'*, od=eketoy* 'caused to be made'*, ektetoy* 'caused to be acquired'*, pupratoy*

-toi ('3rd person singular athematic middle primary)' *a=bretoy* 'will be broken'

-e-toi '(3rd person singular thematic middle primary)' *me=deritoy*, αβ=βερετοι 'will cause to be brought'

The ending *-toi* / -τοι appears to be the primary middle ending, since it is used with the present stem of verbs: *mederitoy, abretoy*, and αββερετοι.[441] The ending *-toi* in *estatoi, edatoi*, and *(od)eketoy* is, on the other hand, also clearly used with verbs with a past tense reference, as confirmed by the presence of the augment (cf. LL 1827, PhL 105). From a diachronic perspective, the presence of the formant *-i* in an ending associated with past tense reference is entirely unexpected; in the other Indo-European languages, *-i* is restricted to the set of the primary endings and is associated with the present tense (LL 1827). In Greek, medial forms that end in -ι

[441] For the use of the former two in the main clause of a conditional sentence, see §V.5.2. For the use of the latter in a conditional clause, see §V.5.1.

(singular -μαι, -ῃ, -ται) are limited to the primary endings, whereas the secondary medial endings show no trace of it (singular -μην, -ω, -το). Phrygian is clearly the outlier from an Indo-European perspective, so the use of a formally primary-appearing ending in the aorists must be a specifically Phrygian development (cf. PhL 100).[442]

The 3sg middle aorists ending in *-toi* are apparently the middle counterparts to the 3sg active aorists ending in *-es* (LL 1827).

-e-tor '(3rd person singular thematic middle imperfect/secondary?)'

αδ=δακετορ 'would cause to be done', αβ=βερετορ 'would cause to be brought'

The New Phrygian forms δακετορ and βερετορ appear in the same contexts as the active imperfects δακετ and βερετ (LL 1828, cf. PhL 99-100). As a result, the latter two are interpreted as likewise being middles by Ligorio & Lubotsky (LL 1828), but such an interpretation is unlikely (Kortlandt 2016: 252ff.) for formal reasons.[443]

The medial nature of the ending *-e-tor* can hardly be doubted; a medial ending with the element *-r-* appears in several branches of IE (Fortson 2004: 86-87, CIEL 268-271).

The syntactic contexts in which αδδακετορ and αββερετορ appear are identical to those in which (αδ)δακετ and (αβ)βερετ do (LL 1828). While the data is comparatively scarce, the conclusion is unavoidable: imperfects ending in *-t* (i.e. present stems with a secondary ending) correspond generally to present stem verbs ending in *-tor*. This suggests that the two

[442] See further below in the same section.
[443] For the analysis of the dichotomy between active *-t* and middle *-tor*, see the following footnotes in this section.

formations are directly comparable, which is hard to deny (cf. Kortlandt 2016: 252ff.),[444] and that -τορ, by extension, is a secondary ending. This cannot hold as such, however – the aorists, which were prehistorically very clearly associated with the secondary endings, use the ending *-toi*/-τοι. If we are to interpret the forms in -τορ as imperfects, then, it must follow that the aorists and the imperfects of Phrygian utilize different sets of endings in the middle voice, rather than a common set of secondary endings. This is not necessarily that out of place, since the imperfects and the aorists also utilize entirely different sets of desinences at least in the 3rd person singular active: *-t* and *-es*, respectively.

V.2.3.1 The development of the Phrygian medial endings

The Phrygian middle endings pose a considerable interpretative challenge. In addition to the general Phrygian problem of a lack of data, the presence of the ending *-tor*, reminiscent of other Indo-European *r*-type middle endings (Fortson 2004: 86-87; CIEL 268-271), and the use of *-toi*, which clearly looks like a primary ending, in the aorist are especially difficult to account for.

As our point of departure, let us note that the 3rd person singular middle primary ending transponate **-toi* based on (dialectal) Greek -τοι, Sanskrit

[444] Kortlandt (2016: 120) does make the unwarranted assumption that αββερετορ and αδδακετ are the canonical forms used in the inscriptions and that αββερετ and αδδακετορ are simply the results of mix-ups. There is little basis for this assumption. αββερετ and αββερετορ/αββερετοι are nowhere as unbalanced in attestation as suggested: the latter pair is as best twice as common as the former form (cf. PhL 154). The notably rarer use of αδδακετορ when compared to αδδακετ, where the latter is by far the most commonly used verb in the protasis of a curse formula, can easily be attributed to simple inertia as a result of a canonized phrase which originated in a metric formula. It is not surprising that in non-canonized formulations of the curse formula variations would abound; when the rarer verbal root *ber-* is used, the verbal forms used are proportionally distributed: 3x αββερετ, 3x αββερετορ, 4-5x αββερετοι (*ibid.*).

-te, and Gothic *-da* is a late creation of the individual languages based on an analogy with the 3sg act. prim. ending *-*ti* (cf. Clackson 2007: 144-145; Fortson 2004: 85-87; Sihler 1995: 471-474, 477; CIEL 268-269; Kortlandt 2010: 85-86ff.; Kortlandt 2003: 37ff.).[445]

Both Greek and Phrygian do possess a common *-toi*/-τοι ending, so it is reasonable to reconstruct such an ending for Proto-Graeco-Phrygian, even if the two are dissimilarly used.

In the prehistory of Greek, the ending *-*toi* must have certainly been used as a primary ending at least by the Proto-Greek era; it is difficult to justify its creation otherwise. Furthermore, on the basis of Greek data alone, where the primary-secondary distinction of the endings is almost perfectly paralleled in the active and middle voices, it is difficult to imagine how prehistoric *-*toi* could have been used as *anything other* than a primary ending.[446]

In attested Phrygian, the ending *-toi* is predominantly attested in the aorist, a formation typically associated with the secondary endings in an Indo-European context. In spite of this, it is difficult to imagine a situation where an ending *-*toi* could emerge without being, at least initially, associated with the primary endings. Indeed, in certain instances (namely, αββερετοι, *mederitoy*, and *abretoy*) the ending *-toi* was apparently used with the present tense, as one would expect of a primary ending.

If we assume a common origin for Proto-Phrygian *-*toi* and Proto-Greek *-τοι, a Proto-Graeco-Phrygian ending *-*toi* must have originally had an

[445] Though some of the listed authors have considerable disagreements on the question of the development of the middle endings and the specifics of this development, they all ultimately agree that *-*toi* is an *einzelsprachlich* creation or at best a post-PIE-proper development only shared by some branches.

[446] That is, even if *-*toi* were only created to be used in a subset of primary-ending formations, Greek presents no evidence that it was ever used outside of primary-ending formations.

exclusively primary function. It thus inevitably follows that the Phrygian use of *-toi* in the aorist is a secondary extension into that category. As for why this took place, we will return to this question later in this section.

The reflex of the Proto-Graeco-Phrygian ending *-*to* is not attested anywhere in Phrygian, though we must reconstruct it on the basis of Greek. In any case, it must have been the fundamental building block in the creation of the ending *-*toi*.

The Phrygian ending -τορ is far more enigmatic than *-toi*, both in its function and origin. As we have already noted in section §V.2.3 above, the ending -τορ in New Phrygian appears in the exact same semantic and syntactic contexts as the secondary ending -*t* when used with the imperfects. Without committing to the idea of an Armeno-Graeco-Phrygian branch, we may note that Kortlandt (2016: 252ff.) has suggested that the original 3sg imperfect ending in the pre-history of Greek, Armenian, Thracian, and Phrygian included the element *r. In Greek, this ending would have been replaced by the secondary ending -το, whereas in Armenian the ending with *r would have developed into the 3sg (active) imperfect endings -*ēr* < *-*etor* and -*iwr* < *-*etro* in different dialects (Meillet 1936: 126-127; cf. Kortlandt 2003: 36ff.). As far as Phrygian is concerned, the idea that an ending with the element *r was used for the imperfects is appealing: the synchronic data strongly suggests that the ending -τορ was used in, and possibly exclusive to, the imperfects.

To return to the question of the use of *-toi* in the aorists, one possible explanation is a functional reorientation of the middle endings based on the modal value of the constructions in which they were used.

In Proto-Phrygian, the ending *-*to* would have presumably only been used in the aorist indicative and the optative mood; as we indicated above, the imperfects would have used the ending *-*tor*. In the active voice, the endings *-*Ø* and *-*t* would have been common to the imperfects and the optatives, but not the aorists, which would have used an entirely different ending, *-*es*. If the system of the secondary endings in the optative and the imperfect (*-Ø/-t : -to/-tor*) as a whole became associated with modal meanings as the imperfects adopted hypothetical semantics,[447] the aorist may have been pushed into adopting the only modally neutral 3sg middle ending available in the language: *-toi*.

A similar distribution exists in the active voice between the use of a simple present and an imperfect in a conditional clause: the former expresses the notion of prediction (i.e. a high degree of epistemic certainty) or a generic future-time reference, whereas the latter is used to express a possible (and undesired) future (§V.5.1). This suggests that the primary endings are modally neutral, adding no additional modal meaning, whereas the secondary endings are modally marked, either adding a modal meaning where there is none or intensifying the modal meaning of an already modal formation.[448]

A concretely testable prediction emerges from this hypothesis: if secondary endings were indeed modally marked, we would expect the 3sg ending of

[447] For which see §V.5.1.

[448] The situation regarding the subjunctive is less clear, but need not be a concern. In the active voice, the subjunctive endings are synchronically distinct from the primary endings and fall outside the described distribution, similarly to the imperative endings. As for the middle voice, there are no known attested middle subjunctives. One possibility is that the same distribution between the primary and secondary endings holds for the subjunctives as well. Do note that the subjunctives are considerably rarer than other modally marked formations in the Phrygian corpus and that they express exclusively deontic modality, in contrast to the optatives and the imperfects, which have both epistemic and deontic modal meanings, so their situations may not be directly comparable.

the middle voice in the indicative of the perfects to be *-toi*, in alignment with the aorist and present indicatives, rather than *-*to* or *-*tor*. If such a form were found, it would go a long way towards confirming the proposed sequence of developments.[449]

V.2.4 The imperative endings

The imperative endings are used to convey commands or wishes and come in an active and middle set, used to encode the active and middle voice, respectively (PhL 102). Whether they differed in the thematic and athematic conjugations in anything other than the addition of a thematic vowel outside the 3rd person singular is currently uncertain.

The attested imperative endings are:

	athematic active	thematic active	thematic middle
3sg.	*-tu,* -του, -τους		*-e-dō,* -ε-δου
3pl.	*-tōn,* -ννου	-ο-ννου	

Table #49: The imperative endings in Phrygian.

[449] The 3pl perfect indicative form δακαρεν < *-*ēr-ent* can be argued to be a counter-example to the proposed scenario, since it shows the presence of an agglutinated secondary ending *-*ent* in the indicative mood. The situation is not so clear cut, however: the entire complex -αρεν is the ending in this form, not just -εν. Thus, while the final two segments are identical in the 3pl athematic secondary and the 3pl perfect ending and even share the same origin, the speakers would have surely synchronically understood them as entirely separate endings. For comparison, the 3sg thematic active optative desinence *-oi* and the 3sg middle primary ending *-toi* likewise share the final two segments, yet no one would suggest that they exerted systemic influence on each other.

-tu, -τουν (< +-tō) '3rd person singular athematic active imperative' *ituv* 'may he become', ειτου 'may he become'

The 3rd person singular active imperative ending that is written as -τουν is directly descended from the PIE 3sg active imperative ending *-*tōd* through Proto-Graeco-Phrygian *-*tō* (cf. Gr. -τω(ν)) (PhL 102-103). This is suggested by the following reasons:

1) The Greek imperative endings require us to reconstruct Proto-Greek *-*tō* < PIE *-*tōd* (CIEL 276-277; cf. Rix 1992: 265).
2) The Old Phrygian (variant) 3pl active imperative ending -*tōn* can only be explained as an analogical creation on the basis of PPh 3sg active imperative *-*tō* + PPh 3pl active indicative secondary *-*n* (< PIE *-*nt*). The length of the vowel in -*tōn* is supported by the fact that the vowel is not raised; we would expect an Old Phrygian /-tŏn/ to be spelt <-*tun*> (Tamsü Polat et al. 2020: 51). This suggests that not only was the 3sg active imperative *-*tō* present in Proto-Graeco-Phrygian, it was present in Proto-Phrygian as well and must have been prominent enough to form the basis of an innovative ending.
3) The OPh. 3sg middle imperative ending -*do* (> NPh. -δου) originates from the PGPh. ending *-*sd^{h}ō* (PhL 103), which was itself analogically created on the basis of the proportion: 2pl impv. act. *-*te* :: 2pl impv. mid. *-*sd^{h}e* = 3sg impv. act. *-*tō* :: 3sg impv. mid. X, X = *-*sd^{h}ō*. This proportion requires the existence of a Proto-Phrygian *-*tō*.

The Old Phrygian form *ituv* °B-07, which shows an ending -*tu* in the Old Phrygian era already, is best explained by the fact that the inscription in question is among the latest Old Phrygian inscription, is in the periphery of what would have been Phrygian speaking area, and is written in a local

variant of the Phrygian alphabet (CIPP2 26-32). Thus, the ending *-tu* is likely the result of the *ō* > *u* (or > *ū?*) shift having already taken place in this variety of Phrygian.[450],[451]

-τους '3rd person singular athematic active imperative' ομνισιτους (*contra* PhL 101, who segments ομνισιτου=ς), τ=ευτους (cf. PhL 357)

The ending variant -τους does not appear to have a fundamentally different function to -του. All attestations of this variant appear in the apodosis of curse formulae, where the imperative mood is used to lay out the consequences of improper behaviour. -τους itself, presumably from OPh. *-tōs*, must be an innovation of Phrygian. The -του- element is quite obviously identical to the usual 3sg active imperative ending -του/$^{+}$*-tō,* whereas identifying the element -ς is more difficult. The only known verbal desinence whence a final -ς could have spread is the 3sg active aorist desinence *-es.* Indeed, those constructions suggest that there was a period

[450] The inscription in question also already seems to show a monophthongized reflex of OPh. *ei* in the very same word: *ituv* (= *ḗtu)* < **eitō*. The reflex of a non-final *ei* likely merged with *ḗ* (= [ɛ̄]) before the beginning of the New Phrygian era (for which, see also §II.2.3.1.2). This further suggests that some of the phonetic developments that are characteristic of New Phrygian were taking or had already taken place in the variety of Phrygian used for this inscription.

[451] It is true that, in addition to **-tōd*, PIE possessed a 3sg active imperative ending **-tu* (CIEL 276-277), which would have developed regularly into Old Phrygian *-tu* and New Phrygian -του. These two attested endings could then not necessarily descend from **-tōd*, as we suggest above, but rather from **-tu*. Since the existence of the ending **-tō* is established at least until the beginning of the Proto-Phrygian era on the basis of the reasons provided above, an ending **-tu* would have needed to co-exist with it until that time as well and possibly co-exist with **-tō* into the historic era as well. That is possible in principle, as the two endings could have acquired different functions, with Greek losing the PGPh. **-tu* ending. In light of all the data, the only reasonable ground to even posit the existence of a reflex of an older **-tu* ending in any stage of Phrygian is the form *ituv*. As far as this particular form is concerned, however, the explanation provided in the main text is certainly more parsimonious than any account positing the existence of two imperative endings.

in Phrygian pre-history where the sigmatic aorist marker *-*s*- was parsed by the speakers as being the 3sg active aorist ending.[452] It may well be that the perceived 3sg aorist ending *-*s* could have been agglutinated onto the unmarked imperative ending as a means of imparting some additional meaning, likely aspectual.

If this was the case, we might presume that the ending -τους was the 3sg imperative aorist ending; as such, it might have been restricted in use to the aorist stem only. The few verbal stems appearing with the ending -τους do not shed much light on the issue. The stem ομνισι- is a sigmatic optative verb, belonging to a construction that originated in the sigmatic aorists; as such, the use of an aoristic ending in such formations may be a relic from a time when the construction was still understood as inherently aoristic. Identifying the root underlying τευ- is more difficult; if we were to interpret it as an aorist stem, it would need to be a root aorist formation. Unfortunately, no good etymology is forthcoming.[453] As such, this proposal remains speculative for the time being.

An alternative proposal would see -ς as some kind of an enclitic element that need not be part of the ending at all (as is proposed in PhL 101, 356-357).

If we may speak of two endings at all, the functional difference between

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[452] See §V.3.2.1.

[453] Obrador-Cursach (PhL 356-357) suggests a possible cognacy with Greek δέω 'to lack, miss, stand in need of'. The resultative clause showing this form reads: αυτος κε ουα κ ε/οροκα γεγαριτμενος ας Βαταν τευτους 'both he and his *e/oroka* cursed by Bas may-τευ'. The meaning 'stand/be in need' could potentially fit: 'he […] cursed by-Bas may-be-in-need' = 'may he be in need of being cursed by Bas', but the exhortation seems overly circumlocutious (≈ 'may it become necessary that he become cursed') and the syntax is quite strained and not in line with the uses of Greek δέω in the active. Perhaps a better candidate would be a derivation from the PIE root *$seuh_1$- 'to drive, to set in motion, to be in motion' (cf. also Hittite *suwezzi* 'to banish'), with the initial τ being the same particle that is also known in *t-edatoy*. The meaning of the clause would then be 'may he and his *e/oroka* be-set-in-motion as cursed by Bas'.

-του and -τους is unknown.[454]

-tōn '3rd person plural athematic active imperative' *tekiseton*
-nnō '3rd person plural athematic active imperative' ειννου 'may they become'
-o-nnō '3rd person plural thematic active imperative' εγουννου 'may they hold'

The 3rd person plural active imperative endings are *-tōn* and -ννου, the former appearing once in Old Phrygian and the latter appearing multiple times in New Phrygian (for the latter, PhL 103).[455],[456]
The 3rd person plural indicative endings in the daughter languages are transparent and thus likely recent (cf. CIEL 276-277, but cf. Rix 1992:265). Various Greek dialects appeared to have separately innovated a number of different endings after the disintegration of Proto-Greek: -των (3sg active imperative -τω + 3pl active indicative secondary -ν), -ντω (through proportional analogy), -ντων (-ντω + 3pl active indicative secondary -ν) (Rix 1992: 265-266). The fact that these endings are all post-Proto-Greek means that Proto-Greek itself did not have a standard ending for the 3rd

[454] If the final -ς originated in the aorist, the present-aorist distinction in the imperative could reasonably convey an aspectual value, which we would be hard pressed to identify.
[455] The interpretation of *tekiseton* as having a 3pl active imperative ending is contingent on the word separation of the phrase *tekisetondagoy.* Lubotsky (in Tamsü Polat 2020) has argued for a division *tekiseton* (3pl act. impv.) *dagoy* (nom.pl.) 'may the *dago*-s *teki*-!'. An alternative division sees the sequence divided into *tekiset* (3pl sigm. opt.) *ondagoy* (dat. sg.) 'may-he-*teki*- to/for-*dago*-'. The former analysis is preferred here for two reasons. 1) Since a sequence *-*nt*- develops into *-nn*-, a non-assimilation of *-*nd*- would be unexpected, suggesting that *on*- is a prefix or an appended preposition. No such prefix or preposition is known in Phrygian, however. 2) The vowel of *on* must be long, since we would expect a sequence *ŏnC* to be rendered as <*unC*>. This speaks even more strongly against the analysis of *on* as some kind of a prefix or cliticized preposition.
[456] Following the arguments in the previous footnote, *-ton* is analysed here as a 3pl act. impv. ending. Should this analysis turn out to be incorrect, the following section is relevant only in those parts that pertain directly to the origin of the ending *-nno*/-ννου.

person plural active imperative and, by extension, neither could have Proto-Graeco-Phrygian. It is of course quite possible that the various endings reflected in the Greek dialects and Phrygian did co-exist in Proto-Graeco-Phrygian, with none of them being more prominent than any of the others, or, due to the relatively trivial nature of their creation, were continuously created and re-created by the speakers on an *ad hoc* basis. In any case, what is clear is that none of the variants became prominent enough to become the canonical ending in Proto-Graeco-Phrygian and that the grammaticalization of the endings took place comparatively late in both Greek and Phrygian.

The Old Phrygian ending *-tōn* is an amalgamation of the 3sg active imperative ending *-tō* and the 3pl active indicative secondary ending *-n* (< PIE **-nt*). The fact that the vowel in the ending is long is confirmed by the fact that it is spelt as <*o*>; if the vowel were short, we would expect an ending **-tŏn* to be spelt **<-*tun*> (Tamsü Polat et al. 2020: 51).

The New Phrygian ending -ννου was created on the basis of a four-way proportion – 3sg indicative primary *-ti*: 3pl indicative primary *-nni* = 3sg imperative *-tō* > -του : 3pl imperative X, X = *-nnō* > -ννου.

The distribution of the endings *-tōn* and -ννου has two possible explanations:

1) the ending -ννου is a post-Old-Phrygian analogical creation that replaced an earlier ending *-tōn*;
2) the endings *-tōn* and *-nnō* were in free variation throughout Phrygian (pre-)history, possibly since the Proto-Graeco-Phrygian period.[457]

[457] Another possibility that bears mentioning, but that cannot currently be verified in any way, is that *-ton* is actually an aorist imperative ending. In this case, the difference between *-nnō* and *-tōn* would be identical to that between -του and -τους if one were to adopt the interpretation of the latter being an aorist ending that is used with sigmatic optatives

Until more instances of *-tōn* in either Old or New Phrygian or attestations of *-nnō* in Old Phrygian are found, this question will remain unanswered. Provisionally, the former explanation seems preferable, since such a long-standing free-variation in grammatical morphemes is less likely than the alternative.

-e-dō '3rd person singular thematic middle imperative' *lakedo* 'may he be seized', εγεδου 'may he hold (for himself)[?]', ειδου 'may he become'

The 3rd person singular middle imperative ending *-dō* is a direct reflex of Proto-Graeco-Phrygian *-*sd*^{h}*ō* (PhL 103). This ending is a clear innovation of Proto-Graeco-Phrygian, originating from a four-way proportion: 2pl impv. act. *-*te* :: 2pl impv. mid. *-*sd*^{h}*e* = 3sg impv. act. *-*tō* :: X, X = *-*sd*^{h}*ō* (cf. CIEL 277). PIE itself does not appear to have possessed a 3sg middle imperative ending distinct from the active at all (Fortson 2004: 95), or, if it did, its form was wholly dissimilar from PGPh. *-*sd*^{h}*ō* (CIEL 277). The *-*sd*^{h}- consonantism of this middle ending was taken over from the 2nd person plural middle ending *-*sd*^{h}*e* (*ibid.*).[458],[459]

(which were originally aoristic). Since the available data is so scarce, this proposal is best considered as an afterthought for the moment. If further data were to corroborate this analysis, however, the implications may be far-reaching and well worth exploring.

[458] With the 2nd person plural imperative ending being identical to the indicative ending, the active *-*te* ~ middle *-*sd*^{h}*e* pattern was first adopted into the imperative mood, after which an analogy *-*te* : *-*sd*^{h}*e* = *-*tō(d)* : X, X = *-*sd*^{h}*ō(d)* would create a new imperative ending. A 2nd person plural form would ordinarily not be an expected part of a proportional analogy, but the 2nd person imperative, either singular or plural, is by far the most commonly used form of that mood, which explains its prominent role in the creation of other imperative endings.

[459] As already argued in footnote #451 above, note additionally that if the 3rd person singular active imperative endings *-*tōd* and *-*tu* were actually still in free variation in Proto-Graeco-Phrygian, this scenario for the creation of PGPh. *-*sd*^{h}*ō* would be severely undercut; not only would two free variants of an ending analogically create an additional two variants of an ending in a different category, why would Phrygian grammaticalize the *-*tu* ending for the active, but the *-*sd*^{h}*ō* ending for the middle, instead of a more natural

V.2.5 The perfect endings

3sg.	~~*-ei*~~
3pl.	*-aren*

Table #50: The perfect endings in Phrygian.

Lubotsky (1988: 17-18) has proposed that the verbal form *aey* (found in °W-01a and °B-01) should be analysed as a 3rd person singular perfect, stemming ultimately from reduplicated PIE **h₁e-h₁s-e* with the addition of a primary marker *-i* (cf. also LL 1828). This is quite problematic, since the ending *-aren* suggests that the endings of the perfect were additionally characterised by the addition of a secondary ending (see §V.2.2 above). Lubotsky himself (1988: 18), however, proposed that *aey* is the verb of a clause following a conditional clause in inscription °W-01: *yos tutut [...] akenanoganos aey* ['whoever X, *akenanogavos* he-(has-been/is/may-be). Since it is now clear on the basis of *podaskai* that the verb of a resultative clause following a conditional clause ('whosoever X, may-he Y') can appear in the subjunctive mood (for which see §V.1.2), it is far more appealing to analyse *aey* as a subjunctive. If one analysed *aey* as a 3rd person active perfect subjunctive to the PIE root **h₁es-* 'to be', its specific development would be mostly unremarkable. The ending *-ey*, then, is not an indicative perfect ending.

In inscription °B-01 the syntactic situation is more complicated, with the 8th line being: *kesiti oyvos aey apaktneni [...]*. Still, if we adopt the interpretation of *aey* as a subjunctive, with *kesiti* quite clearly being a

pair of **-tu* ~ **-sdʰu* or **-tō* ~ **-sdʰō*?

sigmatic optative verb as well,[460] we may reasonably propose that a sentence boundary follows *kesiti* and that *oyvos aey apaktneni* | *pakray evkobeyan epaktoy* form two new clauses, with *aey* and *epaktoy* being their verbs. *aey* may well be the verb of a resultative main clause fulfilling the condition of the clause including *kesiti*, or it might be the primary verb in a clause belonging to a sentence that does not include the verbal form *kesiti*. Since all the words in the final two clauses currently defy interpretation (cf. PhL 178, 223-224, 325, 326), beyond the identification of *epaktoy* as a verb in the aorist (PhL 229), we can only speculate on how a verb in the subjunctive mood would have functioned in this context.[461]

-αρεν '3rd person plural perfect'

As already discussed in §V.2.2 above, the form δακαρεν encodes a verbal form in the 3rd person plural, as is evident from the subject being in the nominative plural: δακαρεν πατερης 'the fathers/parents have-placed'. As such, the ending -αρεν cannot reasonably be interpreted as anything other than originating in the PIE 3rd person plural perfect ending *-*ēr* > PPh. *-*ār*, which was secondarily extended with the PIE 3pl athematic active secondary ending *-*ent* > PPh. *-*en* (PhL 105).

The agglutination of the secondary ending to original *-*ār* is a comparatively trivial development. A parallel, but independent, process can be seen in the Latin 3rd person perfect ending -*ērunt* (*ibid.*), where the 3pl perfect ending *-*ēr* was extended with the 3pl secondary thematic ending *-*ont*.

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[460] One quite likely belonging to the PIE root *$k^{w}ei$- 'to do, make'; cf. OPh. *eketoy* 'she caused to be made' °B-07.

[461] Do also note that the word divisions, while apparently mostly properly separating the words, also render *apaktneni* as a single word. If not a misreading or due to scribal error, a word-internal sequence -*ktn*- would be extremely unexpected, which means we are presumably dealing with an attached clitic chain of some kind.

Since Greek has regularised the use of an innovative ending -ᾱσι(ν) (< *-*n̥t* + *-*nti*) (cf. Rix 1992: 256-257), the 3pl perfect ending in Proto-Graeco-Phrygian must have been *-*ēr*.

V.3 The Phrygian verbal stems

A verbal stem is the element of a verbal form to which the conjugational endings are added.

Every Phrygian verbal stem is composed of an obligatory element, the root, and an optional suffix. Phrygian verbs, as a rule, distinguish at least three, likely four, primary stems: the present stem, the aorist stem, the perfect stem, and possibly the sigmatic optative stem. These are so named because they are used as the basis for the formation of present, aorist, and perfect tenses and the sigmatic optatives with their corresponding conjugated forms. Our current knowledge of the Phrygian verbal system suggests that all other verbal formations are in essence predictable if these four primary verbal stems, or principal parts, are known.[462]

Unfortunately, there are no known verbs with all their principal parts unambiguously attested. [463]

[462] This is, to the best of my knowledge, the first work on Phrygian to explicitly operate with the notion of a set number of "primary stems" or "principal parts" from which all verbal forms can be deduced. Cf. Ligorio and Lubotsky (LL 1827), who note that "the stem formation [...] of the majority of verbal forms [is] still unknown[.]"

[463] The only candidate for the preservation of all its verbal stems is the highly irregular verb *da(k)-,* which had most likely split into two verbal neo-roots, *da-* and *dak-*, through a complex sequence of developments. See further in this section and particularly §V.3.9.3.

V.3.1 The present stem

Due to the nature of the Phrygian corpus, the number of verbs in the present tense indicative is exceedingly small, and all the possible examples can be disputed to a larger or smaller degree. We are fortunate, however, in having a comparatively large number of imperative formations attested (cf. PhL 102-103). Imperatives could originally have been formed to both the present and the aorist stems, and some attested Phrygian imperative forms were clearly formed on the basis of the present stem. Phrygian still possessed the category of aorist imperatives, however.

V.3.1.1 The root present

Relevant examples: *i-*/ει- 'to go, become'

The root present in Phrygian can be most clearly seen in the 3sg act. impv. *ituv* / ειτου, 3sg mid. impv. ειδου, and 3pl act. impv. ειννου, all belonging to the verbal root *ei-* 'to go' < PIE *$h_1$ei-* '*id.*' (cf. PhL 102, 261-262). The two attested active forms reflect Proto-Graeco-Phrygian **ei-tōd* and **i-ntōd*, respectively, and ειδου °108[E], if a reliable form, must reflect the medial form **(e)i-sd^{h}ōd.* In PIE, the root **$h_1$ei-* 'to go' formed an ablauting root present: sg. **$h_1$éi-* ~ pl. **h_1i-'* (LIV$_2$ 232-233). New Phrygian 3pl ειννου < **ei-ntō* must be the result of levelling of the vocalism of the

singular in the plural (*contra* CIPP2 64, PhL 262).[464],[465] This suggests a high likelihood that the irregular vocalism emerging from the ablaut of original root presents might have been levelled out in most representatives of the class. Such a development would be entirely in line with the tendencies observed in other IE languages.

The PGPh. forms of the imperative of the root descended from PIE **h₁ei-* 'to go' developed into Greek 3sg act. impv. ἴτω, with levelling of the zero-grade and 3pl act. impv. ἰόντων, which is an entirely innovative form (cf. Rix 1992: 265).

V.3.1.2 The thematic present

The thematic present stem, i.e. the root extended with a thematic vowel, is most clearly seen in forms of the verb *eg-* 'to hold, have' (PhL 102-103, 218-219). The PIE verbal root **seǵʰ-* 'to hold' from which it originated most likely formed a thematic present in PIE already (LIV$_2$ 515-516).[466]

εγεδου 'may he hold' is the 3sg middle imperative, directly descended from Proto-Graeco-Phrygian **hegʰ-e-sdʰō,* which has a reflex in Greek ἐχέσθω 'id.' (PhL 103, 218).

εγουννου 'may they hold' is the 3pl active imperative, from PGPh. **hegʰ- + -o-ntō*; one may directly compare Greek ἐχόντων 'id.' with added final -ν (PhL 103, 218-219; cf. Rix 1992: 265).

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[464] That the imperative of **h₁ei-* originally had a full grade in the singular in PIE is confirmed by Latin 3sg act impv *ītō* < **ei-*, Skt 3sg act. impv. *étu* < **ei-*.

[465] For the spelling *ituv* with <*i*> in the singular, we may assume that the diphthong *ei* had merged word-internally with *ę̄* in this late Old Phrygian inscription. The same inscription also already seems to show the *ō* > *u* development, despite being of Old Phrygian age.

[466] As is suggested by the related Skt. *sáhate* 'to be victorious'.

The verbal participle αιδομενο- 'blazing, burning' shows a thematic vowel between the root αιδ- and the middle participle suffix -μενο- and has a clear cognate in Greek αἰθόμενο- 'blazing, burning' (from the verb αἴθω 'to light up', αἴθομαι 'to burn') (CIPP2 20, LL 1828, *contra* PhL 107). Both are ultimately descended from the PIE verbal root **h₂eid*ʰ- 'to ignite' (LIV₂ 259), whose reflex must then have formed a thematic present in Proto-Graeco-Phrygian.[467]

The verbal stem βερε- 'to bear, bring', found in New Phrygian, is most likely also a present stem. It appears in the following three conjugated forms: (αβ)βερετ, (αβ)βερετορ, and (αβ)βερετοι (cf. PhL 99-100, 154-155).[468] Since -τοι is known to be the primary medial 3sg ending, the present nature of the stem βερε- seems to be confirmed. The forms βερετ and βερετορ, both with secondary endings, belong to the category of imperfects (see §V.1.1-2).

An alternative proposal sees βερ-ε- as a subjunctive of the present stem, where the second vowel in the expected form **βερ-α < *βερ-ε-ε- would have been adopted from the athematic conjugation, where it would have remained simply -ε- (PhL 99-100, Hämmig *fthc.*[469]). This suggestion is problematic for several reasons: 1) the thematic present and the thematic subjunctive would have become formally identical as the result of this development; 2) the subjunctive is not otherwise known to use secondary

[467] Since a nasal present is attested in Vedic *indhé* 'to ignite' (LIV₂ 259), it appears more likely that the thematic present conjugation of PGPh. **aidʰ-e/o-* is innovative. Even adducing the possible cognate Vedic *édhate* 'to shine' < **h₂eidʰ-e/o-,* the thematic forms are still better understood as separate post-PIE innovations in PGPh. and Indic.

[468] αβερετι °103^{C} likely does not exist (*contra* PhL 154). See §V.2.1.

[469] Hämmig suggests that the **ē* > Phr. *ā* sound law did not apply unconditionally and that, as such, βερετ may preserve a reflex of old **ē* in its second vowel. The sound law in question is extremely well supported in Phrygian terms, however. It is questionable to repudiate it for the sake of upholding a dubious subjunctive analysis.

endings; 3) if we are correct in interpreting Old Phrygian *podaskai* as a thematic subjunctive present,[470] the thematic vowel in the 3sg subjunctive was still *-a-* in Old Phrygian, and the subjunctive took its own set of endings. These objections can in principle be dismissed if we assumed that the Old Phrygian thematic subjunctive in *-a-* with subjunctive endings was entirely replaced by an innovative *-e-* subjunctive which allowed the use of both primary and secondary endings by the New Phrygian era. Suggesting such a major reworking of the thematic subjunctive system, however, seems quite unnecessary, when βερε- appears very plainly to be a simple thematic present stem, with its use of the secondary endings evidently imparting a modal value, one which presumably developed from an earlier aspectual-temporal value.[471]

The PIE verbal root **bʰer-* formed thematic presents in PIE already (LIV$_2$ 76-77).[472] Indeed, the association between the reflex of this root and the thematic conjugation in Greek is so firmly established that all its associated non-present forms are suppletive (Chantraine 1999: 1189-1191).

The form ιστεικετ 'to expose (himself)[?]' is composed of the prefix ισ- and the verbal form τεικετ, a thematic present belonging to the root τεικ- 'to show', reflecting PIE **deiḱ-* 'to point' (Lubotsky 2004: 235).

The verbal form *ordoineten* 'would properly feast[?]', which stands for [+]*ordoinetet* with assimilation of its final stop to a following nasal,[473] most

[470] For which see §V.2.1.
[471] See §V.1.2 and §V.5.1.
[472] A thematic present derivation stem is attested in every single post-Anatolian branch of Indo-European.
[473] An assimilation of a word-final stop to a following nasal is occasionally seen in New Phrygian inscriptions and is the result of a specific development of word-final stops at a stage between Old and New Phrygian, for which see §II.2.3.2.1. With °B-07 being one of

likely belongs to the class of thematic presents as well (*contra* CIPP2, PhL 320, Obrador-Cursach 2021b). Since the root element in this verb cannot be as readily identified, the interpretation of the form as a subjunctive with a secondary ending cannot be as easily dismissed as was the case with βερετ, since the form may have been athematic. In the absence of other evidence for such a type of subjunctives, however, the preferable analysis is to take *-et* as the desinence of a thematic formation with a secondary ending.[474]

It is clear that *ordoinet-* cannot be a primary verbal root, but a compound of some kind (also suggested by Obrador-Cursach (2021b: 54), though differing in the details).[475] One possibility is to parse the sequence as *ordo=in=et-e-,* i.e. a prefixed verbal stem *in=et-e-* preceded by a compositional element *ordo-*. Since the inscription in question is written next to a depiction of a funerary banquet, I propose to interpret *in=et-e-* as a sequence of a prefix **en vel sim.* and a verbal root *et-*, descended from PIE **h₁ed-* 'to eat'. This PIE root does appear as a thematic present in

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the latest Old Phrygian inscriptions, it is not unreasonable to suppose that it may have already been affected by this development. An analysis of *ordoineten* as a verbal form in the 3rd person singular is strongly suggested by the syntax in any case (*contra* CIPP2 84, PhL 320): *ordoineten* is the only candidate for a finite predicate of the clause in which it appears. The subject of this predicate is either *yos* or *isyos*, both of which would require the use of a finite verbal form in the 3rd person singular. Thus, interpreting *-en* as the 3pl athematic secondary desinence derived from PIE **-ent* makes no sense in context, and a reading of the whole word as a nominal form leaves one without a necessary predicate.

[474] One may rightly note that we have been quick to dismiss the existence of a subjunctive with secondary endings on the basis of this single form, whereas we have previously embraced the existence of a category of subjunctive-only verbal endings on the basis of a single form, *podaskai*. The two situations are quite dissimilar, however. In the case of *-et*, a different and far more transparent analysis exists. With *podaskai*, no transparent analysis was possible, and we were forced to eliminate other attested ending types as explanations, until only a single reasonably possible reflex of an ending remained a viable explanation (see §V.2.1). In other words, whereas an analysis of *-et* would have begun with the assumption that the form is subjunctive and would explain the data in those terms, the analysis of *-ai* first sought to explain the data, with the explanation of the form as subjunctive emerging as the only possible conclusion on the basis of that analysis, which, as it should turn out, fits the context both semantically and syntactically.

[475] It is impossible for *ordoinet-* to be a simple root with a prefix in Indo-European terms, no matter where one puts the morpheme boundary.

Greek (LIV$_2$ 230, Chantraine 1999: 312-313), so if we assume that its present stem was thematic in PGPh. already, there are no formal difficulties in assuming this development.[476] Whether *et-* reflects a PIE full grade **h$_1$ed-* or a zero-grade **h$_1$d-* is entirely ambiguous in terms of Phrygian and Greek data, since the two variants would have surfaced as identical in Proto-Graeco-Phrygian. The Phrygian element *ordo-* in this interpretation is cognate with Greek ὀρθο-, both regularly descended from PGPh. **ord^{h}u̯o-* < PIE **h$_3$rd^{h}-u̯o-* (for which see §III.3.1.5). Compound verbs with ὀρθο- 'proper' are common in Greek: consider, for instance, ὀρθο-γνωμέω 'to think properly' (cf. Chantraine 1999: 818). In that case, the entire verbal formation *ordo-in=et-e-* would mean 'to properly eat one's fill' *vel sim.*, with the propriety probably referring to some ritualistic manner of consuming food in the context of a funeral banquet.

The sigmatic optative forms *egeseti* and εγεσιτ, their stem being *eg-e-si-*, can now serve to more greatly inform our understanding of the Phrygian verbal system.[477] Since *eg-e-* as a verbal stem must have synchronically been a thematic present,[478] we must conclude that sigmatic optatives could synchronically be built on the basis of the present stem. This has important ramifications for the category of the reduplicated presents treated below.

Another form to consider here is one that is usually cited as γερε[τ/ν]

[476] While there is no **ἐν-έδω in Greek, there does exist its aorist counterpart ἔμφαγον 'to eat one's fill', so either a creation of a Proto-Phrygian **en-et-e* or a descent from PGPh. **en=ed-e-,* subsequently lost in the present in Greek, is evidently not difficult in the slightest.
[477] For the category, see §V3.4.
[478] Consider εγουννου and εγεδου discussed above in this section.

(Lubotsky 1988: 24; PhL 217-218),[479] which appears in the protasis of a curse in °71^{W}: τις κε γερε[τ/ν], τιττετικμ[ε]νοι ιννου '*tis* would-*gere*, condemned may-they-become'.[480] It is well known that the particle κε in Phrygian can appear without its final -ε when followed by a vowel. As such, one may also read the verbal form as (ε)γερε[τ/ν]. The reading of the final letter in (ε)γερε[τ/ν] is unclear, but τις is likely to be a loan of Greek τίς 'who' (PhL 361), which could stand for the interrogative pronoun κις/κος in a relative function meaning 'who(ever)', meaning that the 3sg reading (ε)γερετ is preferrable to a 3pl reading (ε)γερεν, though there is then a mismatch between the subjects of the protasis and the apodosis (PhL 218). (ε)γερε[τ] seemingly functions as the main verb in the protasis of a curse formula. Morphologically, then, it is almost certainly an imperfect formed to a thematic present verbal stem. On this basis, we may securely dismiss the possibility of this specific form showing the presence of an augment, though the form may still be read as either εγερ-ε- or γερ-ε-.

Immediately reminiscent of (ε)γερε[τ] is *egertoy* (§V.3.2.2; cf. PhL 105, 217) and a connection between them is commonly drawn (*ibid.*). *egertoy* is attested in what appears to be a purely declarative sentence and can only be analysed as a past tense (i.e. augmented) root aorist *e-ger-toy*: *ataniyen : kuryaneon : tan=egertoy* '*Ataniyen,* the *kuryaneon*, this/it (acc.sg.) caused-to-be-*ger*' (cf. Lubotsky 1988: 24-25, PhL 218).[481]

When this data is taken into account, then, if *egertoy* and (ε)γερε[τ] are

[479] As for as the form (ε)γερετοι is concerned, the reading of the inscription in which it supposedly appears is unclear. (PhL 217-218, 568-569) If the form does exist, it is most likely simply the middle counterpart to (ε)γερε[τ], and the analysis below pertains to both equally.

[480] The use of κε as a modal particle instead of the more common νι is a result of Greek influence. See further in §VI.2.3.

[481] Interpreting *egertoy* as a non-past form, the sentence is meaningless: *'*A.*, the *k.*, would/will cause this/it to be *ger*.'

taken to be forms belonging to the same verbal root, that root must have been *ger-*, which would form a thematic present stem and a root aorist. In this case, the actual form found in °71[W] is γερε[τ].[482]

Whether γερε[τ] and *egertoy* match semantically is a more difficult question, as the two are used in a quite dissimilar context. In °71[W] it is clear that (ε)γερετ, by virtue of being in the protasis of a curse, must refer to some action that is perceived as unfavourable by the author of the text ('whoever[?] would-do-X, condemned may-they-be(come)', where X is obviously not a positive action). On the other hand, *egertoy* appears in a more neutral context where the verb presumably refers to the simple action of placing or commissioning the monument ('*Ataniyen,* the *k.*, this (=the monument[?]) caused-to-be-Y', where Y is unlikely to be a negative action) (cf. Lubotsky 1988: 24).[483] For the moment, then, the relatedness of *egertoy* and (ε)γερε- remains an open question.

[482] Woodhouse (2006: 163) has proposed that the initial εγ- of εγερε- is a preposition, one also found in εγεδου and εγδαες, among other forms, but this specific proposal seems far-fetched.

[483] A mechanical reconstruction of a Phrygian root *ger-* would suggest descent from PIE **g*^{wh}*er-* 'to become warm' (LIV$_2$ 219-220), but that is unlikely in light of the semantics. If we assumed that (ε)γερε[τ] did in fact have an appended preposition, as per the previous footnote, one candidate for a verbal root that would semantically fit would be PIE **ǵ*^{h}*er-* 'take, fetch' (LIV$_2$: 177). W-01c could then be read '*Ataniyen,* the *k.*, had it (i.e. the Mother) taken (i.e. received) [by the religious community]', whereas °71[W] would have the inscription mean 'Whoever would take [the monument], ... While the existence of the PIE root **ǵ*^{h}*er-* is only assumed on the basis of Vedic data (*ibid.*), it does have the benefit of having formed a root aorist and a thematic present in that language, as would need to be the case for a root underlying both *egertoy* and γερε-, with the Proto-Phrygian zero-grade root allomorph spreading its initial consonant into forms that would have palatalized the initial velar.

V.3.1.3 The reduplicated present

Relevant forms: *dedasitiy* 'would place', δεδασσιννι 'will[?] place', *(an)ivaΨeti* 'ought to mourn[?]', τοτοσσειτι 'may give'

The verbal forms *dedasitiy*, δεδασσιννι, and τοτοσσειτι belong to the Phrygian sigmatic optatives (cf. PhL 100). It is unlikely that the stems *deda-* and τοτο- could be aorist stems; the reduplicated aorists are comparatively rare in PIE terms and have the vowel in their root syllable appear in zero grade, which is not the case here; *deda-* can only reflect an original full grade *d^hV-d^heh_1-.[484] The reduplicated character of the stem can thus only originate in a PIE reduplicated present or perfect (*contra* PhL 102, who assumes the reduplication to be language-internal). It is telling that the PIE verbal roots *d^heh_1- and *deh_3-, whose descendants we find in *deda-* and τοτο-, form reduplicated presents in Greek, τίθημι and δίδωμι, respectively, and seemed to have formed reduplicated presents in PIE already.[485] Of all the other examples of the sigmatic optatives we have attested, however, none suggest that the sigmatic optatives could be built with perfect-stems, whereas the existence of de-presentive sigmatic optatives is at least supported by *egeseti* and εγεσιτ.[486] The creation of reduplicated perfect stems seems to demand the vocalism *-e-* in the reduplicated syllable in Phrygian (cf. γε̲γρειμεναν, γε̲γαριτμενος), so for this reason alone, τοτο- can hardly be interpreted as being the result of perfect-forming reduplication, requiring us to analyse it as a reduplicated

[484] For the short vowel of τοτο-, see §V.3.4.1.
[485] Cf. Sanskrit *dádhāti, dádāti*, respectively.
[486] *umniset* and ομνισιτους both suggest that sigmatic optatives were built even with denominative verbs; see §V.3.4 below.

present stem. While *deda-*/δεδα- is uninformative in this respect,[487] its analysis as a perfect is hardly warranted with no corroborating data.

The nature of the vocalism in the reduplicated present stems in Phrygian seems haphazard at first glance (cf. PhL 101). Greek, in comparison, clearly shows that the reduplicated syllable in its present stems consistently took the vowel *-i-* (Rix 1992: 208-209). Phrygian shows what is probably best considered an anticipatory echo-vowel in its reduplicated syllable, at least in τοτοσσειτι (from full grade **tō-*). An echo-vowel in post-PIE reduplicatory processes is rather common in the Indo-European languages in general (cf. Latin *cucurrī et al.* and Classical Sanskrit perfects) and in typological terms as well. With knowledge of historical developments, *dedasitiy*/δεδασσιννι can also be understood as showing this echo-vowel if we assume that the vocalism in the reduplicated syllable developed before the **ē* > *ā* shift took place; i.e. **dV-dē-* > **de-dē-* > *de-dā-*. The similarity of Proto-Phrygian **de-dē-* 'to put', as if from PIE **d^he-$d^hē$-*, to Sanskrit **dádhā-* 'to put' < **d^he-$d^hē$-* is most likely accidental. In Sanskrit, the

[487] In PIE, the strong forms of the reduplicated perfect showed the *o*-grade in the root syllable. The attested Greek perfects with *o*-grade can generally be interpreted as retentions from PIE or derivations of retained forms (cf. Sihler 1995: 572-574). There can be no doubt that the *o*-grade of the perfect was replaced with *e*-vocalism in some roots by the Proto-Greek stage at the very latest, most notably in the PIE **CeH-* root type, exemplified by τίθημι ~ τέθηκα (< **d^heh_1-*) and ἵστημι ~ ἕστηκα (< **steh₂-*), and innovative perfect forms no longer used the *o*-grade, which suggests that *o*-vocalism for the perfects was no longer actively productive by that time. There are no known examples of an *o*-grade perfect form in Phrygian (with the only possible exception being τοτοσσειτι, but where the vocalism of the reduplicated syllable is incongruous with a perfect interpretation). We should then conclude that the use of an *o*-grade in the perfect was no longer mandatory and productive by the latest stage of Proto-Graeco-Phrygian. The precursor of the Phrygian verbal root *dā-* < **dē-*, descended from a PIE **CeH-* root, would have almost certainly formed its perfect with an *e*-grade in Proto-Graeco-Phrygian. Thus, Phrygian *dedā-* (< **dedē-*) of *dedasitiy* could in principle be a perfect stem, but there is no positive evidence arguing in favour of that as opposed to it being a reduplicated present stem with an echo vowel (for which see below).

reduplicated presents in general use the vowel *e* in their reduplicated syllable, whereas in Phrygian, τοτο- suggests that an echo vowel is used in the reduplicated presents;[488] it is most parsimonious to assume that the same explanation holds for *dedā-* as well.

The reduplicative vowel of Phrygian cannot, in any case, be the result of a regular sound change: neither **i* nor **e,* both of which appear in reduplicated syllables in PIE, would have assimilated in quality to a following vowel at any stage of Phrygian pre-history.

V.3.1.4 The *ske*-presents

Relevant forms: *podaskai* 'may he be trampled upon[?]', βλασκον[?], ουελασκε/ο-

In PIE (and Greek) terms, the *ske*-presents were built with a root in the zero grade extended with the thematic suffix -*ske*- (LIV$_2$ 19, Rix 1992: 213-214).

The first of attested *ske*-presents in Phrygian is Old Phrygian *podaskai*, which has been recognized as the only possible verbal form in the apodosis of inscription °G-02 (Kloekhorst 2015: 117). The ending -*ai* is otherwise unattested in Phrygian, but can hardly be anything else than a 3sg subjunctive ending descended from Proto-Graeco-Phrygian *-*e-e-i* (as reflected in Greek -η).[489] The element -*sk*- is immediately reminiscent of the PIE inchoative/iterative thematic suffix *-*ske/o*- and must be descended from it (*ibid.*; PhL 101, 123, 332); any other PIE antecedent is extremely

[488] Compare Proto-Phrygian **to-tō*- 'to give' < **do-dō*- and Sanskrit *dádā*- 'to give' < **dedō*-, where the Sanskrit form does not continue **dodō*- > ***dādā*-.
[489] For details on this identification, see §V.2.1.

unlikely in phonetic terms, and the *-ske*-presents were a prominent category in both PIE and, as suggested by later Greek, in PGPh. as well (Chantraine 1984: 223-227).

In *podaskai, po-* most likely functioned as a prefix of some kind (Kloekhorst 2015: 117), whereas the verbal stem **daske-* shows the reflex of the PIE root **dʰeh₁-* (*ibid.*), synchronically reflected as the Phrygian neo-roots **da-/da(k)-*. It seems that this particular example of a *ske*-present had levelled the full-grade of the root (**dʰeh₁-* > *da-*) at the expense of the zero grade (**dʰh₁-* > *de-*, as seen in δετο-).

The suffix *ske-* in this particular example most likely encoded an iterative meaning, which was one of the functions of PIE **-ske-* (Rix 1992: 192; cf. 213-214). The entire verbal stem *podaskai* may have meant something like 'to be trampled upon' (as suggested by Kloekhorst 2015: 117), with a more original meaning being '*to be repeatedly put under' (from **po(C)-* 'under' and **daske-* 'to repeatedly put' >> *po=daske-* '*to repeatedly put beneath (oneself) = to repeatedly step upon').

Another word that shows a cluster *-sk-* is βλασκον in °W-11 (cf. CIPP2 18-19; PhL 197-198). The apparent ending -ον can be understood as the 3pl thematic secondary ending derived from PIE **-ont* (CIPP2 18-19); the thematic nature of the ending is congruent with the use of the *ske*-suffix.[490] The context around this word is poorly understood, however, so we may at this point simply note that, if the form is indeed verbal, the element βλα-, presumably the verbal root, can be transposed into an earlier full-grade

[490] -ον could also entirely regularly reflect a 1sg thematic secondary ending **-om (ibid.)*. Inscription °W-11 was apparently a funerary monument, however, so it is less likely that it should show a verbal form in the first person singular instead of a form in the third person.

**b*^{h}*leh*$_{1/2}$- or a zero-grade **b*^{h}*l(h*$_{1/2}$*)*-.[491]

A verbal interpretation of βλασκον is far from certain, however (PhL 198). The syntax of the context in which it appears, βλασκον κε τακρις κε, appears more congruent with a nominal interpretation: 'both *blaskon* and *takris*'. As long as inscription °W-11 remains as poorly understood as it is now, the sequence is likely to remain enigmatic. Thus, for the moment, no further analysis is warranted.

An additional two forms have recently been proposed to show the suffix -*ske*-: ουελασκετου ουελασκοννου (Hämmig 2022: 96 *et passim*). Both appear in the apodosis of their respective curse formula and are in the imperative mood. As in *podaskai*, the stem ουελα- seems to be in the full grade, suggesting that the levelling of the full grade was widespread among the *ske*-verbs.

V.3.2 The aorist stem

The Phrygian aorist system presents a considerable interpretative challenge. The number of forms we can securely identify as aorist is small and it appears that the distinction between the active and middle voice played an important part in terms of stem formation, which further complicates the situation. As a heuristic principle, the presence of the augment is a clear indicator that a verbal form refers to the past and is thus likely to be in the

[491] There are two possible candidates in LIV$_2$ that would formally fit this transponate: 1) **b*^{h}*leh*$_{1}$- 'to howl', which developed into Latin *fleō* 'to cry', which would at least be semantically fitting for use in a funerary inscription (LIV$_2$ 87); 2) **b*^{h}*leh*$_{2}$*g*- 'to beat', if we assumed **b*^{h}*lh*$_{2}$*g-ske/o*- > PPh. **blāske/o*-(LIV$_2$ 87-88). Of the two, the latter seems to have formed a *ske*-present in Lithuanian *blaškiù* 'to throw, fling' (*ibid.*).

aorist tense (cf. PhL 103).[492]

The identification of the attested indicative forms as belonging to the aorist tense, rather than some other tense with a past reference, is based on three factors: 1) the element *-s-* in the active suffix *-es-* is usually assumed to originate in the characteristic *s*-suffix of the PIE sigmatic aorists (cf. PhL 104); 2) the augmented medial root formations show no suffix (cf. PhL 105) and are so far known in verbs which formed root aorists in PIE; 3) the verbal form *e-park-es* reflects the root in the lengthened grade (**pērk-*) (PhL 103, 227), which is a characteristic feature of PIE sigmatic aorists (CIEL 263).

V.3.2.1 The root and sigmatic aorist active

Examples: *ebaes* 'he spoke'*, edaes* 'he placed'*, eparkes* 'he inscribed'*, estaes* 'he erected'*,* εδαες 'he placed', εκανες 'he dug', εσταες 'he erected'

The active aorist verbal formations in Phrygian are only attested in the 3rd person singular, where they are characterized by the addition of a desinence *-es-* to an augmented verbal root (cf. PhL 103-104). The ablaut grade of the root appears to be based on the type of the aorist formation which a specific verbal root used prehistorically. *en=eparkes* 'to inscribe' was originally a sigmatic aorist, as is suggested by the root appearing in lengthened grade, **e-pērk-s-* (PhL 227, LL 1827; *contra* Lejeune 1969b: 291-292).[493] *ebaes,*

[492] All Phrygian indicative aorist forms currently identified have an augment. That is not to say, however, that the augment is necessarily limited to verbal forms in the aorist or that a verb in the aorist-stem must necessarily appear with an augment.
[493] For the root, cf. Lith. *peršti*, *peršéti* 'to hurt sharply'.

edaes, and *estaes* were originally root aorists where the verbal root was in the full grade, **h₁e-bʰeh₂-*, **h₁e-dʰeh₁-*, and **h₁e-steh₂-* (cf. LL 1827),[494] and preserve this state of affairs in the root ablaut.[495]

The origin of the desinence *-es-* in the active aorists is a highly disputed matter and a number of explanations have emerged over the years (PhL 104). Most authors assume that *-es* is an aorist-forming suffix (at least in the active voice) and proceed to analyse it as such. The various explanations given so far will be presented and examined in an effort to provide the best account possible at our present state of knowledge.

An important point to note is that *-es* has so far only been found in 3sg active aorist verbal forms due to the fact that no other active aorist verbal forms have been identified in the corpus at this point. We must thus also reckon with the possibility that *-es* was not an aorist-forming suffix, but rather the verbal ending of the 3sg active aorist. Of the accounts presented, only Kortlandt adopts the interpretation of *-es* as a verbal ending. The ramifications of interpreting *-es* as a verbal ending will be more fully explored after the previously given accounts have been examined.

The accounts assuming *-es* to be an aorist-forming suffix all agree that the

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[494] Cf. examples: Gr. ἐθη-, ἐστη-, Skt. *ádhāt*, *ásthāt* (LIV_2 136-138, 590-592).

[495] One may argue that *ebaes, edaes,* and *estaes* likewise show the reflex of a lengthened grade, since we would not be able to tell the difference (PhL 103, LL 1827), and that, as a result, the lengthened grade of the root could be a characteristic of Phrygian (active) aorists in general. While we may not be able to disprove this hypothesis on the basis of and for *ebaes, estaes,* and *edaes*, the existence of a middle voice root aorist *eke-* < **h₁e-kʷei-* precludes the possibility of a lengthened grade being generalized throughout the entire aorist system. On this basis, it is better to be cautious for the moment and simply acknowledge the possibility that all active aorists may have been formed with lengthened grades in the root, but not assert this possibility until further unambiguous evidence is found. As a related matter, consider the denominal verbs in the sigmatic optatives, which, while historically *s*-aorists, never seem to have showed an ablaut grade different from that found in the nominal form from which they were formed.

expected 3rd person singular secondary active ending *-*t* was lost in accordance with the rules of final cluster simplification (i.e. *-*es*-*t* > -*es*-*Ø*).

1) Gorbachev (2005) suggests that the suffix -*es*- originally emerged from a secondary sigmatization of the thematic aorists. In this scenario, the thematic aorists would have, at an early stage in Proto-Phrygian, become a productive category alongside the also productive sigmatic aorists. Once the system stabilized and the two most prominent categories were the thematic (*R-*e*-; R = root) and the sigmatic (*R-*s*-) aorists, with the two presumably having some kind of a distribution, the thematic aorists would be seen as insufficiently characterized (specifically, in their opposition to the thematic presents, especially the imperfect formations) and would be additionally characterized by the exclusively aorist-marking suffix *-*s*-. At this mid-stage, the two suffixes *-*es*- and *-*s*- would have directly competed, but even if there was originally a distribution between the thematic and sigmatic aorists, it would now be less salient as a result of purely sigmatic aorists made to roots ending in *-*h₁*- (i.e. **Rh₁-s*- > **Res*-), which would be indistinguishable from the newly-minted de-thematic *-*es*- aorists. Of the two competing variants, *-*es*- won out, likely reinforced by the need for a continuous re-creation of purely sigmatic aorists to roots ending in more than one consonant.[496]

In this account, the original active root aorists *eba*-, *eda*-, and *esta*- would have either become thematized first and then extended with the *-*s*- of the sigmatic aorists, or they would have remained root aorists until such a time

[496] The attested επαρκες may serve to illustrate this point: the cluster *-*rk-s*- appearing in the sigmatic aorist stem could not have survived into Old Phrygian and would need to have been simplified in some manner. While we cannot be certain how such a cluster would be simplified, the end result would not have been a clearly transparent formation. The adoption of the aorist allomorph -*es*- would then have solved this problem entirely.

when the *-es*-formant was so productive as to be extended to every existing aorist.[497]

Chronology:

	root aorist	thematic aorist	sigmatic aorist	
				root ending in *-Ch_1-
Stage 1 (PIE)	*R-Ø-*	*R-e-*	*R-s-*	*Rh_1-s-*
Stage 2 (PGPh.)	*R-Ø-*	*R-e-*	*R-s-*	*Re-s-*
Stage 3 (EPPh.)	*R-Ø-* or *R-e-*	*R-e-s-*	*R-s-*	*Re-s-*
Stage 4 (LPPh.)	*R-es-*	*R-es-*	*R-es-*	*R-es-*

Table #51: The chronology of the creation of the *es*-aorist in Phrygian, option 1.

2) Ligorio & Lubotsky (LL) argue that the suffix *-es-* is descended from an earlier *-*ses*- in an intervocalic environment. In their account, most (if not all) aorists, including especially the root aorists, would have first received the sigmatic aorist suffix *-*s*-, then become thematic, and then be resigmatized, after the first *-*s*- would be lost in an intervocalic position, to re-characterize vowel-final roots as being aorist. After this point, the post-vocalic allomorph *-*es*- would be adopted as the regular aorist marker. This scenario has an embedded crucial problem: since the **s* > **h* sound

[497] One may also wonder whether at some point, thematic presents in Phrygian began forming their associated *s*-aorists not by the replacement of the thematic vowel, but by the addition of the sigmatic marker on top of the thematic present stem: original pres. *R-*e*- ~ aor. *R-*s*- >> later pres. *R-*e*- ~ aor. *R-*e*-*s*-. If such a development took place, the spread of the suffix *-*es*- as the primary aorist marker would be greatly facilitated by the very high frequency of thematic presents in the language.

law is securely established as Proto-Graeco-Phrygian, and we can be certain that a sigmatization of root aorists did not occur in Proto-Graeco-Phrygian (as is clearly evidenced by Greek preserving active root aorist formations), we would need to assume a second development of **s* > **h/Ø,* independent from the Proto-Graeco-Phrygian one, to have taken place in Proto-Phrygian after the spread of the sigmatic marker, for which no evidence exists and which appears to be directly contradicted by the preservation of *-s-* in an intervocalic environment in the sigmatic aorists, unless we assumed that **-h-* was at the time still understood as an allomorph of the "sigmatic" aorist marker. We would then have to assume that it was in fact also these *h*-aorists that became thematized and subsequently sigmatized,[498] after which point the allomorph *-(h)es-* would have displaced the allomorph *-ses-* of consonant-final roots. This is a comparatively convoluted scenario based on the somewhat attractive idea that the highly productive PIE *s*-aorists spread throughout the aorist system at an early stage.

[498] In practice, then, a root aorist **eda-* would have become an *h*-aorist **edah-*, which would then be thematized (on the basis of the category of thematic aorists) into **edahe-,* which would then be re-sigmatized into **edahes-* on the basis of consonant-final roots, which would need to have remained unthematized in order to preserve a simple aorist-forming suffix **-s-*.

	root aorists		them. aorists	sigmatic aorists	
	root ending in *-C-	root ending in *-V-		root ending in *-C-	root ending in *-V-
Stage 1 (PIE)	*-C-Ø-*	*-V-Ø-*	*R-e-*	*-C-s-*	*-V-s-*
Stage 2 (EPPh.) *sigmatization*	*-C-s-*	*V-s-*	*R-e-*	*-C-s-*	*-V-s-*
Stage 3 (MPPh. I) *thematization*	*-C-s-e-*	*-V-s-e-*	*R-e-*	*-C-s-*	*-V-s-e-*
Stage 4 (MPPh. I) *s > h / V_V*	*-C-s-e*	*V-h-e-*	*R-e-*	*-C-s-*	*-V-h-e-*
Stage 5 (MPPh. II) *re-sigmatization*	*-C-s-e-s-*	*V-(h-)e-s-*	*R-e-s-*	*-C-s-*	*-V-(h-)e-s-*
Stage 6 (LPPh.) *generalization of -es-*	*-C-es-*	*V-es-*	*R-es-*	*-C-es-*	*-V-es-*

Table #52: The chronology of the creation of the *es*-aorist in Phrygian, option 2.

3) The account provided by Kortlandt (2016: 120ff.) supposes that the desinence *-es* is in fact the 3rd person singular aorist ending which derives directly from the enclitic nominative form of the pronoun **h₁i/e-*, which he takes to have been **es*. He cites ενεπαρκες and εκανες as examples, interpreting both as underlying root aorists: (ενε)παρκες < **pērk=es* and (ε)κανες < **kēn=es*.[499]

According to this scenario, this ending would have emerged by the

[499] Kortlandt takes the lengthened grade of the vowel to be the result of monosyllabic lengthening.

univerbation of syntagms like **pērk es*.[500] Once the *-es* was re-analysed as the 3rd person singular aorist ending, it would have spread to other aorist types as well.

Let us now attempt to account for the development of the aorist form εκανες within this framework. In formal terms, this aorist form must be derived from a PIE root **k^{w}enh$_{1}$-*. Due to the lengthened grade of the root vowel, we may assume it was an original *s*-aorist, so its 3sg active aorist form was **ekēne-s* > **ekānes*.[501] It would need to develop according to one of these two scenarios: 1) the syntagm **ekānes es* > **ekāneses* underwent haplology to εκανες; 2) when the *es*-ending began to spread through the system, the original desinence *-es-* < **-h$_{1}$-s-t* was reinterpreted as the ending *-es*, preserving the form later seen in εκανες, with no need for an addition of enclitic **es*.

Kortlandt's account requires a particular set of additional assumptions. Stop-final codas were phonotactically prohibited in Proto-Graeco-Phrygian and early Proto-Phrygian, so a form like **pērk* could not have existed at either of those stages. One possibility is that a syntagm with a sigmatic aorist like **epērks=es* would have undergone cluster reduction -CCs- >

[500] Since no examples of original thematic aorists in the active voice are forthcoming, it is unclear how the sequence **-e.e-* would contract, if at all; depending on the relative chronology of this development, it might have contracted into **ē* > **ā*, or into **e̯ē* > <e/i>. The sequence **-ās-/-e̯ēs-* would probably be ousted by, or extended with, the unmarked variant **-es-*, once that had become fully productive.

[501] If one assumed, on the other hand, that the root was actually simply **ken-*, which seems to be quite clearly contradicted by *keneman* < **k^{w}enh$_{1}$-mn̥,* as well as the Skt. comparandum *khan^{i}-,* the 3sg aorist form would not work within Kortlandt's scenario, since **ekēn-s(-t) es* would have rather developed into **ekēis es*.

-CC-.[502],[503] If that was not the case, a form like **epērk* could only have come into being once the restriction against stops in codas was lifted and: a) the final consonant was analogically restored;[504] or, more likely, b) if the pre-form was **epērks*, the **-ks* > *-k* sound law became operational. In the latter scenario, this would suggest that the univerbation took place comparatively late in Phrygian prehistory.

Kortlandt's account, while possible, is problematic, since the identification of **es* as a clitic variant of the nominative singular of the anaphoric pronoun **h_1i/e* is entirely speculative. It is quite clear that the nominative singular of that pronoun must have been **is* from the Proto-Graeco-Phrygian era onward (see §IV.2) and we would rather expect this form to appear before a verbal form, possibly with syncopation. In general terms, there is no evidence for the subject of a verb appearing after the verb, since Phrygian seems to follow SOV word order rather strictly and the only elements known to appear after a verb are never subjects. This, of course, need not entirely apply to clitics, but is nonetheless quite indicative of the syntactic structure of the language. More problematic is the fact that the enclitic form of the pronoun would need to be an entirely new creation based on the oblique pronominal stem **h_1e-* > PPh. **e-,* apparently with its own full paradigm, which is entirely absent from the entire Phrygian corpus.[505]

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[502] Roots ending in a single consonant could in principle surface as either **-C-es* or **-C-s-es*, depending on whether the **-Cs* > *-C* sound law was already operational.
[503] This would then suggest that sigmatic aorists to vowel-final roots (i.e. ones originally ending in a laryngeal) should have the desinence *-ses* < **CV-s=es*.
[504] If one argued that the final consonant was restored on the basis of the present stems, the continued presence of the lengthened grade of the root vowel is somewhat unexpected.
[505] Absence of evidence is, of course, not evidence of absence, but it is conspicuous that this hypothetical enclitic pronoun **e-* is not found anywhere in the Phrygian corpus. It does not appear even alongside nouns, which are far more likely to be attached to clitic elements, while this construction with verbs would need to have been so pervasive as to result in as far reaching a reinterpretation as to be mistaken for morphological affixation.

A clear confirmation or dismissal of this scenario will be possible once an active aorist form in something other than a 3rd person singular is identified. If any other aorist form shows the presence of the marker *-es-*, Kortlandt's scenario will have been conclusively disproven.[506]

In summation, while this scenario cannot be dismissed on formal grounds, it relies on assumptions that strain credulity within the framework of what is known about Phrygian syntax and its pronominal system at this time.

4) Diakonoff and Neroznak (1985) have argued that there is no *es*-aorist at

[506] Do note that a modified version of Kortlandt's account could still serve to explain the data even if such a form were found, though the required developments would be quite convoluted. Since the 3rd person singular of the active aorist would have originally been identical to the aorist stem in the vast majority of cases after the loss of final **-t* in PGPh. (where EPGPh. act. aor. stem **CēC-s-* ~ 3sg act. aor. **CēC-s-t* > **CāC-s-* ~ **CāC-s-Ø*), the entire paradigm of the active aorist could have been analogically rebuilt on the basis of the 3rd person singular forms, assuming that the univerbation of the clitic **es* did not happen simultaneously for all 3sg active aorists. Since no other active aorist endings are known, there are many possible variations on such a scenario. Purely as a means of illustrating such a possibility, let us presume that in Proto-Phrygian the 1sg act. aor. ending was **-an* < **-m̥* and that the enclitic **es* first became univerbated in the sigmatic aorists as a pragmatic means of distinguishing between the 2sg and 3sg active aorist forms, which would have been identical after the loss of final **-t* in PGPh. In that case, a sequence of analogies between a root aorist (R) stem **CeC-* and a sigmatic (S) aorist stem **CēC-s-* > **CāC-s-* (where, for the sake of simplicity, we shall take C to be a plosive throughout this footnote) would be quite possible. While a stem does not exist as such in actual spoken or written language, it is a useful abstraction in the sense that it functions as a fundamental building block in the mental grammar of a speaker that can be extracted from various related formations. From the starting state of R stem **CeC-* ~ R 1sg **CeC-an* ~ R 3sg *CeC-Ø* : S stem **CāCs-* ~ S 1sg **CāCs-an* ~ S 3sg **CāC-es* (from earlier **CāC-s es* with simplification of final clusters), the active aorist stem of the sigmatic active aorists would become identical to the 3sg form: R 3sg **CeC* : R stem **CeC-* = S 3sg **CāCes* : S stem X; X = *CāCes-*. Subsequently, the *-es-* formant could spread in the sigmatic aorist system: R 3sg **CeC-Ø* : R 1sg **CeC-an* = S 3sg **CāCes* : 1sg X; X = **CāCes-an*. Finally, with the **-es-* affix now being firmly understood as being the defining feature of the aorist tense, the paradigms of the root aorists would be rebuilt on its basis: S 1sg **CāCesan* ~ S 3sg **CāCes* >> R 1sg **CeCesan* ~ R 3sg **CeCes*. The reader is hereby reminded that this scenario is in no way supported by any actual data, but is given merely as a demonstration of principle.

all and that the spellings *edaes*/εδαες and *estaes*/εσταες actually reflect a simple sigmatic aorist, with the spellings OPh. <*ae*> and NPh. <αε> representing a single vowel, probably [æ]. This is based on their interpretation of Phrygian vocalism that has not been met with much acceptance. To dismiss their proposal of spelling *[æ] as OPh. <*ae*> and Nph. <αε>, we may note here that it would be quite unlikely for speakers of Phrygian to adopt the exact same consistent strategy for spelling a native vowel two independent times, the latter after a centuries-long hiatus in writing their language. This proposition is especially dubious in light of New Phrygian, where native sounds that could not be consistently written with the Greek alphabet commonly show vacillation in spelling, but the supposed *[æ] would be consistently written as <αε> without exception, even in (probably) dialectal inscriptions or in those where the scribes evidently adopted quite idiosyncratic strategies for spelling Phrygian.

5) We would be negligent in our analysis if we did not acknowledge the possibility that the vowel in the *-es-* suffix emerged as an anaptyctic vowel when the *s*-suffix of the sigmatic aorist came in contact with one or more consonants, which is the solution preferred by Sowa (2007). It is certain that an anaptyctic vowel could not have emerged from the addition of the sigmatic aorist marker **s* to a root ending in a single consonant. Clusters of *-Cs-* do not receive an anaptyctic vowel in Phrygian: the form *vanak* < **u̯anaks* quite clearly shows that in word final position, an original cluster **ks* did not go undergo anaptyxis, but was simplified.[507] Unfortunately, the reflex of **Rs* clusters is unknown in Phrygian, though **ns* clusters, at least

[507] There is likewise no evidence for word-internal anaptyxis in *Cs clusters: consider *eveteksetey, Muksos,* and possibly *de*Ψ*eti* and *aniva*Ψ*eti,* if they show reflexes of original **ks*.

in final position, develop into *-i̯s-*. One might argue that at least the 3rd person singular form of the sigmatic aorist actually ends in two consonants, i.e. **-s-t*, whereby every root ending in a single consonant would end in **-C-s-t* in the sigmatic aorist, thus bypassing the restriction of a simple **-Cs-* cluster not undergoing anaptyxis.[508] The loss of final stops had already taken place in Proto-Graeco-Phrygian and it is known that this anaptyxis did not happen in the prehistory of Greek, so it would need to be exclusive to Phrygian. Phrygian, however, would not have retained the final stop from the earlier stage and so the *s*-aorists of roots ending in a single consonant would not have had a sequence of three consonants required for this vocalic epenthesis to take place. One could try to salvage this scenario by suggesting that the 3sg ending **-t* of the aorists was restored in the Phrygian *s*-aorists from other formations taking secondary endings. This would need to be comparatively late, since the secondary *-t* ending in Phrygian was created entirely anew through analogical processes and is not a preservation of the PIE ending **-t* in any environment.[509] This would then require the spread of the innovative *t*-ending to the *s*-aorists, the epenthetic process **-CCC- > *-CeCC*, a possible spread of the sigmatic allomorph *-es-* throughout the aorist system (though we may also suppose that it could have been limited to the 3rd person singular), and the subsequent simplification of final clusters that is known to have affected the language. There are two major problems with this account: 1) the chronology is incredibly strained, especially in light of the recreation of the ending *-t* needing to have taken quite some time to even exist in the system, much less becoming a productive marker, which would subsequently be lost all

[508] So, something akin to: **-C-s-t > *-C-V-s-t > *-C-V-s,* with vocalic anaptyxis appearing in tri-consonant clusters: **-CCC > *-CVCC*. No examples of this happening are known.
[509] See §V.2.2.

over again in all aorists; 2) the required rule of vocalic epenthesis has no corroborating evidence.

Of the scenarios outlined here, it is clear that Gorbachev's and Kortlandt's accounts are the most parsimonious. Nevertheless, a crucial question has not yet been answered: whether the desinence *-es* is actually an active-aorist-forming suffix or an active aorist ending.

A quick look at the Phrygian aorist system suggests the latter interpretation: the active 3sg aorist forms *edaes* and *estaes* have middle counterparts *edatoy* and *estatoi.* This suggests that *eda-* and *esta-* were the underlying aorist stems, with *-es* and *-toy* being the 3sg active and middle endings, respectively. Such an analysis is congruent with the comparative data: the PIE roots *$*d^heh_1$-* and *$*steh_2$-* did form root aorists. Still, any analysis identifying *-es-* as an aorist-forming suffix acknowledges the fact that it would have been limited to the active voice only, so it cannot be said that this unusual state of affairs was not taken into consideration by the authors proposing the suffixal analysis. Unfortunately, no other active and middle aorist pairs that could help further clarify the matter are known in the corpus. The piece of evidence most incongruent with an analysis of *-es* as a verbal ending is the form *eparkes*. As the lengthened grade suggests, we are dealing with an original sigmatic aorist. In that case, if *-es* were simply the ending, we would expect the form to be **eparkses,* though a cluster *-*rks*- could have hypothetically been simplified into simply *-rk-*, which would then explain the attested form *eparkes.*

One factor that would have impacted the shape of the 2sg and 3sg forms of the sigmatic aorists would have been the characteristic early Proto-

Phrygian prohibition against the presence of final stops. The addition of the aoristic formant *-*s*- would have been a good strategy to avoid the deletion of a final consonant in the 3sg active aorist form in every consonant-final root aorist: e.g. **CeC*- : 3sg **Ce-Ø* >> **CeC-s*.[510] At the initial stage, it is quite possible that this adoption of *-*s*- was perceived less as the addition of a suffix and more as the addition of an ending. The proportion would have been the following: sigmatic aorist 2sg *-*s* :: 3sg *-*s* = root aorist 2sg *-*s* :: 3sg X, X = *-*s* with root-final consonant.[511]

Some aorist stems would have presumably generalised this secondarily added sigmatic marker at least in the active voice. Conversely, middle aorist forms such as *epaktoy* (its middle aorist stem evidently being *pak*-), whose meaning is currently unknown, suggest that the sigmatic marker was not generalised in the middle voice. It is possible to imagine some verbs escaped this generalisation, though none are known at the moment. At least in the middle voice, it would be quite expected for some middle forms to be re-made on the basis of the sigmatic active aorist stem.

Nevertheless, the need for adopting *-*s* as an ending in the 3sg active aorist would have been present in all the consonant-final root aorists; whether this means that in some limited classes of verbs it remained restricted to the 2sg and 3sg active aorist forms where it was interpreted as an ending and never spread into the rest of the forms of the active voice, or whether it was adopted throughout the active voice, but did not penetrate the middle, is currently impossible to answer.

[510] Proto-Greek, on the other hand, would deal with the problem of the deletion of a final consonant in the 3sg active aorists by adopting the secondary vocalic ending *-ε < *-*et;* cf. ἔθηκε.

[511] As will be further discussed below, the creation of the imperative ending -*tōs* would have likewise taken place at this stage.

The first stage in the development of the Phrygian aorist system after the disintegration of PGPh., then, was likely marked by the continuing productivity and expansion in the use of the suffix *-*s*- as a means of repairing the "defective" forms of consonant-final root-aorist paradigms.

With *-*s*- being originally adopted as an aorist ending, how can we imagine the origin of the desinence -*es*? It is most likely that the element -*s* did originate in the sigmatic aorists. Whence, then, could the -*e*- have originated?

The most likely possibility is that the -*e*- originated in the thematic aorists. Indeed, such a scenario is functionally identical to Stage 3 in Gorbachev's account (as previously seen in Table #51):[512]

	them. aorist	sigmatic aorist	root aor.		them. aor.	sigmatic aor.	root aor.		aor.
2sg	-*e*-*s*	-*s*	-*s*	>	-*e*-*s*	-*s*	-*s*	>	-*es*
3sg	-*e*	-*s*	-*Ø*	>	-*e*-*s*	-*s*	-*s*[?]	>	-*es*

Table #53: The sigmatization of the thematic aorists. The underlined form is innovative.

In light of our identification of synchronic thematic aorists in Phrygian (for which see §V.3.2.3 further below), which show no trace of *s* in the middle aorist stem, and the root middle aorists, which likewise show no *s*-formant, it is best to conclude that what we are dealing with here is not the expansion of a stem-forming suffix, but rather the extension of a 3sg aoristic

[512] Any scenario attempting to connect the -*e*- of Phrygian -*es* to the Greek 3sg aorist ending -ε cannot be valid; the Greek -ε was clearly a synchronic ending that was appended to sigmatic aorist stems.

desinence, which was functionally interpreted as an ending, into the thematic aorist system.
This would have certainly taken place before the innovative secondary 3sg ending *-*t* was created.

Later on, one known phonetic development in question that would have majorly complicated the suffix-ending combinations, i.e. the desinences, of the Phrygian sigmatic aorist forms was the late Proto-Phrygian rule of final cluster reduction: *-C_1C_2 > -C_1.
This phonetic development would have effectively resulted in the deletion of the aoristic suffix/ending *-*s*- in every 2sg and 3sg active form of the sigmatic aorist when preceded by another consonant:

	sigmatic aorist		thematic aorist		sigmatic aorist		thematic aorist
	C-final root	V-final root	thematic		C-final root	V-final root	thematic
aorist stem	*-C-*s*-	*-V-*s*-	*-R-*e*-	>	*-C-*s*-	*-V-*s*-	*-R-*e*-
2sg	*-C-*s*	*-V-*s*	*-R-*e*-*s*	>	*-C	*-V-*s*	*-R-*e*-*s*
3sg	*-C-*s*	*-V-*s*	*-R-*e*-*s*	>	*-C	*-V-*s*	*-R-*e*-*s*

Table #54: The phonological development of sigmatic aorists in Phrygian. The defective forms are underlined.

The system in this state would have effectively seen the 2nd and 3rd persons singular in consonant-final roots showing a different verbal stem than the actual aorist stem found in the other forms, most obviously by its lack of

the aorist marker *-*s*-.[513]

Morphologically realigning the highly irregular active aorist system in light of the prohibition against two consonants in coda would have necessarily resulted in a sub-optimal solution. Obviously, adopting the 3sg active aorist stems (which would have essentially looked like bare roots in a specific ablaut grade) as new aorist stems would have left the aorist stem under-characterized and in some cases effectively indistinguishable from the present stem. The only other recourse could have been to adopt the thematic active aorist 2sg and 3sg desinence *-*es* into the sigmatic active aorist system.

It is when this adoption of the desinence would have happened that the usual distinction between a word-final stem-forming suffix and an ending becomes obscured; *-*es* in the 2nd and 3rd person singular active aorist of consonant-final roots that formed sigmatic aorists would not have been analysable as either a proper ending or a proper suffix, and it would have competed with the suffix/ending *-*s* found in the vowel-final roots that formed sigmatic aorists.

[513] The original root aorists at this point in time would have behaved identically to consonant-final and vowel-final sigmatic aorists in the 2sg and 3sg active aorist forms, depending on whether the root ended in a consonant or a vowel, respectively.

	sigmatic aorist		them. aorist	root aorist[514]	
	C-final root	V-final root		C-final root	V-final root
stem	*-C-*s*-	*-V-*s*-	*-R-*e*-	*-C-	*-V-
2sg	*-C-*es*	*-V-*s*	*-R-*es*	*-C-*es*	*-V-*s*
3sg	*-C-*es*	*-V-*s*	*-R-*es*	*-C-*es*	*-V-*s*

Table #55: The distribution of the aorist desinences in Proto-Phrygian.

As is suggested by *ebaes, edaes,* and *estaes*, the *-V-*s* type desinence of the 2sg and 3sg where the vowel was not **e* was replaced in favour of a -V-*es* desinence; the same process would have presumably affected all the old sigmatic aorists formed to roots with a final vowel. Those *-V-*s* type desinences where the vowel was **e* to begin with would have remained unchanged (e.g. εκανες < **ekānes* < **kēnh₁-s-t*).

	sigmatic aorist		thematic aorist	root aorist[515]	
	C-final root	V-final root		C-final root	V-final root
stem	*-C-*s*-	*-V-*s*	*-R-*e*-	*-C-	*-V-
2sg	*-C-*es*	*-V-*es*	*-R-*es*	*-C-*es*	*-V-*es*
3sg	*-C-*es*	*-V-*es*	*-R-*es*	*-C-*es*	*-V-*es*

Table #56: The adoption of the aorist desinence *-es-* in the 2sg and 3sg active forms. The underlined forms are innovative.

How Phrygian would have proceeded from this eclectic stage onward is unclear. It is clear that *-es* would have been the synchronic desinence in the 2sg and 3sg active aorist forms, but whether it was interpreted as a proper suffix, rather than an ending, and supplied the stem for the rest of the active

[514] The root aorists are given in this table to account for the possibility that they had not adopted the sigmatic marker into their stem at this point. If they had, they would have behaved identically to the sigmatic aorists and the final two columns are to be ignored.
[515] The same consideration as in the previous footnote applies.

aorist paradigm or whether the paradigm remained fundamentally irregular is impossible to say without evidence of active forms other than in the 3sg indicative. The fact that the neither the *-es-* nor the *-s-* suffix ever penetrated the middle aorist paradigm of the thematic and root aorists, the latter option seems more likely.

As far as the imperative ending -τους is concerned, it seems to have added an element -ς to an otherwise regular present imperative ending. This -ς quite likely originated in the desinence of the sigmatic aorists. The ending would most likely have emerged through agglutination of the 3sg aorist desinence *-*s* to the present imperative ending of the sigmatic and thematic aorists. This would be the same process that created the 3sg aorist active indicative ending *-es* from the thematic system in the first place, and the fact that a second phenomenon can now be explained through the same mechanism of the spread of *-*s* lends credence to our previous analysis.
For the development of the ending, we may propose the following proportion: 3sg act. ind. imperfect *-*Ø* : 3sg act. ind. aorist. *-*s* = 3sg act. imperative present *-*tō* :: 3sg act. imperative aorist X; X = *-*tōs*. This then also suggests that the creation of the 3sg secondary ending -*t* was later than the creation of the imperative ending -*tōs*; otherwise, the proportion would be *-*t* : *-*s* = *-*tō* : X; X = **-*sō*. This in turn gives credence to the idea that the extension of *-*s* to 3sg active aorist ending took place before the creation of the secondary ending *-*t.*

Summary

The successive stages of the developments in the 3sg active aorist desinence as suggested above are summarized in the following table:

	sigmatic aorist		them. aorist	root aorist	
PPh.	C-final root	V-final root		C-final root	V-final root
Stage I	*-C-*s*-Ø	*-V-*s*-Ø	*-*e*-Ø	*-Ø	*-V-Ø
Stage II	*-C-*s*	*-V-*s*	*-*e-s*	*-C-*s*	*-V-*s*
Stage III	*-C	*-V-*s*	*-*e-s*	*-C	*-V-*s*
Stage IV	*-C-*es*	*-V-*s*	*-*e-s*	*-C-*es*	*-V-*s*
Stage V	*-C-*es*	*-V-*es*	*-*e-s*	*-C-*es*	*-V-*es*

Table #57: The development of the 3sg indicative active aorist desinence. The underlined forms developed analogically.

V.3.2.2 The root aorist middle

Relevant examples: *edatoy* 'he caused to be placed', *egertoy,* εγερετοι[?], *(od=)eketoy* 'she caused to be made', *epaktoy, estatoy* 'he caused to be erected'

A verbal form in the middle voice and the aorist tense can be identified by the presence of the augment before the verbal root and the use of primary medial endings (-*toi* in the case of 3sg.) (cf. PhL 103, 105, cf. LL 1827). The forms thus identified seem to show the verbal root in full grade (cf. PhL 105, LL 1827).

Only two attested aorist middles, both of them root aorists, have attested

counterparts in the active voice: *edatoy* ~ *edaes* (PhL 159) and *estatoi* ~ *estaes* (PhL 232). The structure of both of these is consistent with what we know of middle root aorists in Indo-European terms in the sense that there is no suffix and in their receiving medial endings (cf. CIEL 262), but the root is unexpectedly in full grade, as opposed to in the expected zero grade (CIEL 270) – presumably, it would have been levelled from the active stem. The middle aorist stems can be transposed as **h₁e-dʰeh₁-* and **h₁e-steh₂-*. The fact that neither of the two stems have received any additional aorist-marking suffixes suggests that the category of root aorists in the middle voice must have remained stable for a considerable period of time.[516],[517]

The example *egertoy* has no clear etymology, but the morphological analysis is fairly straightforward (cf. PhL 105, 217-218): initial *e-* is the augment, the ending *-toy* is the medial secondary ending, and the root element *ger-* can hardly be in anything else than the full grade.[518] The lack of a suffix suggests that this too is a root aorist. The root itself, if inherited,

[516] As is argued more extensively in §V.3.9.3 below, the verbal root originating in PIE **dʰeh₁-* must have formed two aoristic paradigms in the singular in PGPh. already, using the stems **dē-* and **dēk-*, with Phrygian subsequently extracting a neo-root **dēk-* and providing it with its own accompanying present stem. *edatoy* would have originally been an aoristic form utilising the PGPh. stem **dē-*.

[517] The case of the OPh. aorist stem *sta-* (< PIE **steh₂-*) is somewhat more complicated. The Greek aorist stems derived from this verbal root (i.e., the root aor. στη- and σ-aorist στησ-) show no evidence for a PGPh. aorist stem **stāk-* comparable to a PGPh. aorist stem **dēk-*. Whether **stāk-* actually existed as an aorist stem in PGPh. is uncertain. If one assumes that the *k*-element of **dēk-* is the result of a regular sound change **-H-C* > **-k-C vel sim.*, the lack of an aorist stem **στηκ-* in Greek is either due to the replacement of the κ-marker with the more productive σ-marker or due to the root **steh₂-* not forming a split paradigm at all (in contrast to **dē-/dēk-*) by generalizing the κ-less aorist stem **stā-*, and only then secondarily forming a separate transitive stem **stās-*. Alternatively, if the κ-marker of the κ-aorists is understood to have been adopted from some other source, the original aorist stem **stā-* never adopted this extension for some reason, as opposed to θηκ-, δωκ-, and ἠκ-.

[518] For a fuller analysis and a comparison with (ε)γερετ and (ε)γερετοι, see §V.3.2.1.

can thus only represent PIE **ǵʰ/gʷʰer-*.[519]

Another good example of an aorist middle form in Phrygian is *(od=)eketoy* °B-07. [520] The inscription suggests that *odeketoy* is coordinated with the previous verb *estaes* and thus refers to an event in the past: *Manes ... estaes*, *va knais ... odeketoy* = 'Manes ... placed, his wife ... caused it to become X'. The form should then be internally segmented as *e-ke-toy*, i.e. augment - aorist stem - secondary ending. Since there are no other known attestation of this verbal stem or root, the precise meaning cannot be determined. We may note that the initial consonant most likely descends from a PIE **kʷ* or **gʷ*, since it is not palatalized.[521] We are almost certainly dealing with a root aorist since there is obviously no suffix present, which suggests that the root element was in full grade.[522] Since no PIE root could end in a vowel, the aorist stem *ke-* must then evidently reflect some original **CeC(C$^{?}$)-*. The final consonant can hardly have been anything other than **j*: a phonological sequence /-ejt-/ could easily be spelt <-et->,

[519] With **ǵʰ* only being possible if we assume that there existed associated zero-grade formations with **ǵʰr-* > PPh. **gr-* whence the unpalatalized velar could have been adopted.
[520] The form has generally not been segmented as a combination of a preverb and an augmented verb, i.e. *od=eketoy* (cf. *en=eparkes*), except by Obrador-Cursach (PhL 159), who rejects the possibility out of hand, and Simon (2015), who notes the possibility we may be dealing with *od-e-ket-toy*. Obrador-Cursach (PhL 159) interprets the form as a combination of a preverb and some zero-grade formation of the verbal root *dāk-* (as seen most commonly in full grade NPh. αδδακετ), i.e. as *o=deketoy*, following Gusmani and Polat (1999: 158) and Brixhe (2004: 80-81), even though the form itself is quite unexpected, as already noted by himself (PhL 159).
[521] Since no other verbal form belonging to this root has been identified, however, it is possible that the unpalatalized *k* is the result of levelling from some unknown derivation of the root where the conditions for palatalization were not present.
[522] In PIE terms, a root aorist in the middle voice would have shown zero-grade. Phrygian, however, had most likely levelled the full-grade of the active voice into the middle parts of the paradigm. Compare *edatoy* and *estatoi.*

at this time in Phrygian history most likely reflecting a phonetic [-ẹ̄t-].[523],[524] No other consonant following a full-grade *e*-vowel could have resulted in an *e*-timbre vowel or a spelling *ke-*.[525]

Combining these points of analysis, the aorist stem *ke- /kej-/* is most likely a reflex of PGPh. **k^{w}ei-* or **g^{w}ei-*. The former of these would regularly derive from the PIE root **k^{w}ei-* 'collect, gather', which formed a root aorist in PIE (as evidenced by Skt. *ácet* 'he gathered' < **h$_{1}$e k^{w}eit*), as it seemingly does in Phrygian, and whose iterative **k^{w}oi-eie-* underlies Greek ποιέω 'to do, make' (LIV 378-379),[526] which fits well in terms of meaning and is thus by far the best candidate for the ultimate origin of this Phrygian aorist stem.[527]

The form *epaktoy* also likely represents a root aorist, being prefixed by the augment *e-* and having a middle secondary ending (cf. PhL 105). The vowel

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[523] While the diphthong directly reflecting PGPh. **ei* is commonly written as <ey> and was still phonetically a diphthong /ei/ through most of the Old Phrygian era, it had likely merged with /ẹ̄/ fully in non-final position by New Phrygian, and later in final position as well (see §II.2.3.1.2). Since inscription °B-07 is one of the latest Old Phrygian inscriptions, it is hardly a stretch to suggest that old *ey* in non-final position had already phonetically merged with *ẹ̄* by this time at least dialectally if not everywhere. Compare also *ituv* of the late Old Phrygian inscription °B-05, where <i> is used to spell the reflex of an earlier *ey*.

[524] Incidentally, the spelling <e> for /ẹ̄/ in this inscription is independently confirmed in its final line by *anivaΨeti*, where the /-sẹ̄-/ < **-s-ih$_{1}$-* suffix is spelt as <-se->.

[525] As always, if the aorist stem in question had undergone extensive remodelling through analogical processes or if it is not of IE origin at all, this analysis would no longer be valid. Speaking against this hypothesis is the fact that we are apparently dealing with a root aorist, evidenced by the lack of a suffix, which is unlikely to have been newly created either through borrowing or re-creation.

[526] If we assume that a semantic shift from 'to gather, collect' to 'to do, make' took place in PGPh. itself, the first two clauses of inscription °B-07 make perfect sense: *Manes ... estaes, va knais ... odeketoy* = 'Manes ... placed, his wife ... had (it) made'.

[527] If this identification of the underlying root is correct, we should also note that the meanings and the etymological origins of the roots meaning 'to do, make' and 'to place' are highly intertwined between Greek and Phrygian. Old Phrygian *edaes* 'he placed' < **d^{h}eh$_{1}$-* is related to New Phrygian δακε- 'to do' < **d^{h}eh$_{1}$-*, which is translated into Greek as ποιέ- '(should) do, make' < **k^{w}oi-eie-* (in the bilingual inscription °96^{W}), whose root is the same as that of *eketoy* 'had it made' < **k^{w}ei-*.

of the root element is ambiguous: the *a* can be a reflex of a lengthened grade **pē(h₁/₂)K-*, a full grade **peh₁/₂K*, or a zero grade **ph₂K-*. Since, once again, there does not seem to a suffix present, the likeliest explanation is that we are dealing with a root aorist, and the other Phrygian data suggests that the root is in full grade. Thus, *pak-* most likely reflects a PIE root **peh₁/₂K-*.

In all the examples given so far, the verbal root appears in full grade, whereas the root aorists in the middle voice were formed with the zero grade in PIE and PGPh. (as is suggested by Greek). We may conclude, then, that the full grade of the active voice was adopted into the forms of the middle paradigm.

V.3.2.3 The thematic aorist

Relevant forms: *lakedo* 'may he be seized'*, ektetoy* 'she caused to be acquired'

The 3sg mid. impv. form *lakedo* 'may he be seized' (its ending < **-e-sdʰō(d))* is best interpreted as originating from a thematic stem *lak-e-*, its root element *lak-* being descended from the PIE root **sleh₂gʷ-* 'to take hold of, grasp, seize'. The Greek reflex of this root formed an *n*-infixed present λαμβάνω, as well as a Homeric *je*-present Hom. λάζομαι; its associated aorist was the thematic ἔλαβον.
The PIE root **sleh₂gʷ-* is only known from Greek and Phrygian, its PGPh. shape being **hlăgʷ-*;[528] it forms a pure thematic stem in both languages, and in Greek the thematic formation was aoristic. It is very likely, then, that

[528] The presence of initial **h-* in Proto-Graeco-Phrygian is confirmed by the perfect εἴληφα, Homeric ἔλλαβον, Aiginetan λhαβών, and Attic λhαβΕτο (EDG 828-829).

a Phrygian thematic stem derived from the same root is likewise aoristic. *lakedo*, then, would seem to imply the existence of a synchronic thematic aorist system, at least in the imperative mood.

One outlier among the middle aorist forms that can be identified is *ektetoy* (cf. PhL 105). The context in which the form appears seems to require an analysis of the form as belonging to the aorist system: *s[i] bevdos [...] edaes etovesniyo matar kubeleya ibeya duman ektetoy* 'this statue he-placed *etovesniyo*, Mother Kybele herself/for-herself religious-community caused-to-be-acquired'.
Obrador-Cursach (PhL 105, 226) follows Ligorio and Lubotsky (LL 1827) in assuming that *ektetoy* shows a reflex of the PIE root *$tkeh_1$- 'to rule, gain, acquire' (cf. Gr. κτάομαι 'to acquire, win', in the perfect 'to possess'). Semantically, Obrador-Cursach suggests the following readings: *matar kubileya ibeya duman ektetoy* '(the statue of) Mother Kubele was acquired by the *duman* for themselves' or 'Mother Kubele has acquired (her) *duman*'.
The issue with this identification of the root is that it hinges on the assumption that a PIE *TK-cluster underwent metathesis in PGPh., which is actually an unlikely proposition.[529]
Before proceeding further, we must make a note of the vocalism in this form; since no PIE root could end in a vowel, *ektetoy* can reasonably only be interpreted in two ways: either the vowel of *kte*- reflects an old *h_1, or it is the thematic vowel.[530] If the former, we are dealing with a root aorist in the middle voice that unexpectedly appears in the zero grade, and if the latter, the formation must be thematic (with the root appearing in zero

[529] Compare *d^hg^hemelo- > ζεμελο-, which was unlikely to have undergone metathesis. See further in §II.3.1.2.2.
[530] For this chronological stage of Phrygian, we would not expect <e> to be a spelling for /ei/.

grade).

The former option is unlikely in light of the other root aorists in the middle voice, all of which appear with a full grade in the indicative mood. The latter option, then, is preferable, but presents an issue of its own: morphologically, we would except the thematic vowel in a preterite form to appear in either a thematic aorist or an imperfect derived from a thematic present stem, the existence of the former being suggested by *lakedo*. In formal terms, it is in any case unclear whether we would even be able to differentiate between the two without knowing at least one other principal part of the verbal root underlying the formation.

The root underlying *kt-* must have apparently had the shape **Ket/d(h₁)-* to account for the voicelessness of the cluster.[531] A fitting candidate is the PIE root **gʰed-* 'to seize', which is also reflected in Greek χανδάνω 'to hold, include, contain' (but cf. also the meanings of OIr. *ro-geinn* 'to find place in', Alb. *gjëndem* 'I am found', or ON *geta* 'to reach, produce') (EDG 1613). Indeed, this root is semantically quite close to **tkeh₁-* 'to rule, gain, acquire'. With a minimal semantic shift required for **gʰed-*, i.e. 'to seize' > 'to acquire', we can mostly follow Obrador-Cursach's alternative reading of this inscription, only amending the syntax to account for the use of the transitive middle voice as a causeeless causative: 'Mother Kubele herself caused the *duman* to be acquired'.

One may note that the root **gʰed-* originally formed a nasal present **gʰ-ne-d-* ~ **gʰ-n-d-ˊ* and a root aorist **gʰed-* ~ **gʰd-ˊ*, so we would not generally expect the Phrygian aorist stem to be thematic. Greek nasal presents of this type (including χανδάνω) formed thematic aorists, however;

[531] We may note that the cluster *kt* is comparatively rare in Phrygian; one word in which it does appear is *ktevoys*, a nominal form appearing in the same inscription as *ektetoy*. *ktevo-* is apparently an *evo*-type nominal form.

indeed, we have already treated an example of a thematic formation in Phrygian whose cognate in Greek forms a nasal-infix present: Gr. pres. λαμβάνω and Gr. aor. ἔλαβον 'to take, grasp' as compared to Ph. thematic *lak-e-* '*id.*'. The existence of this pair of cognates suggests that the situation with *ektetoy* can be analysed in the same manner: Gr. nasal pres. χανδάνω and Gr. aor. ἔχαδον 'to take, hold' ~ Ph. thematic *kt-e-*.
With *kte-* corresponding to a Greek thematic aorist, we may now reasonably conclude that it is itself also a thematic aorist stem. The use of the zero grade in Ph. *kt-e-* then also suggests that Ph. *lak-e-* likewise reflects an original zero-grade formation, i.e. **slh₂g*^{w}*-*.

V.3.3 The perfect stem

Relevant forms: δακαρεν 'they have placed', γεγρειμενο- 'written', (οπ)εσταμενο- '~ erected', (τιγ)γεγαριτμενο- 'cursed', (τιτ)τετικμενο- 'condemned', αργμενο-[?]

The perfect verbal stem is found almost exclusively in a specific nominal formation, the middle perfect participle (PhL 105-107).
The basic way of forming a perfect stem was through reduplication of the verbal root with the vowel *-e-* in the reduplicated syllable and the root element in zero-grade (PhL 107): ROOT *CeC-* >> PERFECT STEM *Ce-CC-*.

This process appears to have been very productive in Proto-Graeco-Phrygian, as evidenced by its use in denominal **g*^{h}*e-g*^{h}*rHit-meno-* > Phr. γεγαριτμενο-, Gr. κεχαρίτμενος (from the PGPh. noun **g*^{h}*arit-*, found in Gr. χάριτ-, but unattested in Phrygian). The reduplicating process must have remained productive in Phrygian for a considerable amount of time,

possibly until its extinction. At the very least, it must have remained productive until after the Phrygian palatalization had run its course, in order to account for γε- in γεγαριτμενο- and γεγρειμενο-. This non-palatalized γε- must have been restored in the perfect stem (otherwise the attested forms would be **ζεγαριτμενο- and **ζεγρειμενο-), which would only be possible if the reduplicated nature of these formations was still synchronically understood by the speakers.

Whether the root appeared in zero-grade throughout the synchronic historical Phrygian perfect-stem system is a question that is currently impossible to answer. The example τετικμενο- (**de-dik-meno-*, from the PIE root **deiḱ-* 'to point', with the meaning 'condemned'; cf. Germanic **teihan* 'to accuse' (Nikolaev 2021)) suggests that it appeared in zero-grade at least with this root (cf. PhL 363).[532] σεσταμενο- and (οπ)εσταμενο- are uninstructive in this regard, since the reflexes of both a zero-grade **se-sth₂-* and full-grade **se-steh₂-* would have been spelt identically in both Old and New Phrygian. The same holds for γεγρει-, from the root **gʰreiH-*, which could theoretically reflect both **gʰe-gʰreiH-* or **gʰe-gʰriH-* (cf. Gr. χρίω) (cf. Haas 1966: 86-87). Even αργ-, if we are indeed correct in interpreting it as a reduplicated perfect stem to the root **h₁ergʰ-*, could reflect either **h₁e-h₁ergʰ-* or **h₁e-h₁rgʰ-*.[533] The ablaut grade appearing in denominal

[532] Since we have identified the PPhr **ę̄* as being occasionally spelt as <ι> in New Phrygian, one could argue that the canonical τικ- could actually reflect a full-grade **deiḱ-* > PPh. **tę̄k-* > NPh. <τικ>. The reflex of PPh. **ę̄,* however, shows pervasive inconsistency in spelling and actually tends to appear as <ει> more often than <ι>. The participle τετικμενο-, extremely common in New Phrygian malediction formulae, is only spelt with <ει> a single time, in °19^{N}. Thus, a full-grade seems to be entirely out of the question. The only aberrant spelling of this participle is τετουκμενο-, which can hardly support a full-grade interpretation.

[533] The former with contraction: PIE **h₁e-h₁ergʰ-* > PGPh. **e-ergʰ-* > Late-PGPh./PPh. **ērgʰ-* > αργ-.

perfect stems (such as γεγαριτ- from the noun $^{+}$γαριτ- (cf. PhL 201)) is unlikely to shed any light on the expected ablaut grade when forming a perfect stem from a verbal root itself.

In PIE terms, the strong and weak variants of the perfect stems show **o* and **Ø* ablaut grades in the root, respectively (CIEL 265). In the pre-history of Greek, the medial participles appeared with the weak variant of the stem (cf. Rix 1992: 236). Since the forms under discussion are all medial participles, it is best to conclude that Phrygian likewise preserves the zero-grade in the weak variant of the perfect stem, at least as far as the nominal forms are concerned.

One crucial outlier in the preceding analysis of the perfect that has been disregarded so far is δακαρεν, a verbal form that seems to preserve an original 3pl perfect ending **-ēr,* later extended with 3pl secondary *-en:* **-ēr* + **-en(t)* > **-ēren* > -αρεν (LL 1828, PhL 105). If we interpret this form as a perfect, as seems most plausible, it shows at least two unexpected features: 1) it is not reduplicated; 2) it is in the full ablaut grade (*ibid.*).[534] Its full ablaut grade is in line with the strong-weak **e*~**Ø* ablaut we find in a number of Greek perfect stems (and which presumably replaced the original **o*~**Ø* ablaut) (Rix 1992: 220), including τέθηκα from the same root, **$d^{h}eh_{1}$-*. Thus, the innovation of this ablaut pattern in certain perfect stems must have been a process that took place in PGPh. already. [535] Crucially, this ablaut pattern in the perfects originated in the root aorist

[534] Historically, the 3rd person plural should have retained the weak variant of the perfect stem, but it is quite trivial to assume the full grade was generalized from the strong stem variant throughout the paradigm in Phrygian (cf. PhL 105). Rather, the peculiarity is in its use of the *e*-, rather than the *o*-, grade.

[535] Since Greek shows this same **e*-**Ø* ablaut in the reflexes of a number of PIE laryngeal-final roots, it is quite likely we should expect to see this pattern in many, if not all, of their Phrygian counterparts as well.

ablaut **e* ~ **ø* (Rix 1992: 222-223). In Greek, the full-grade became generalised in the active voice of some perfects of original laryngeal-final roots that formed root aorists (most obviously in τέθηκα, ἕστηκα, δέδωκα).

The unreduplicated nature of a perfect form δακαρεν is puzzling, however. It is difficult to imagine how this specific stem, if perfect, would have undergone de-reduplication. We have clear evidence that the synchronic perfect stems in Phrygian were formed with reduplication of the root syllable even in clearly late post-PIE denominal verbs (cf. γεγαριτ-).

The usual assumption for the presence of a full grade in those Greek perfects that show it is that it is the result of a perfect stem that was constructed from an aorist stem through simple reduplication; i.e. aor. stem **d^heh_1- = *$d^hēk$-* ~ perf. stem **d^he-d^hoh_1- >>* perf. stem ** d^he-d^heh_1- = $d^hed^hēk$-*.[536]

The Phrygian stem δακ-, however, suggests an alternative: in a certain subset of PGPh. roots, specifically those ending in a laryngeal and forming a root aorist, the old reduplicated perfect stem with **o* ~ *ø* ablaut was entirely substituted by its corresponding aorist stem, ostensibly likewise preserving its **e* - *ø* ablaut.[537] In those roots, the aorist and the perfect would then have only differed in the set of endings they adopted and, likely, in the presence or absence of the augment. The verbal endings of the aorist

[536] Or, alternatively, by a mechanical replacement of the **o* ~ *ø* ablaut with the **e* ~ *ø* ablaut on the basis of the aorists, though the aoristic **k* would then need to be secondarily adapted.

[537] Or, as I am reminded by Stefan Norbruis, some verbal roots may not have had a perfect stem or aorist stem to begin with. In such instances, because of a shared past-tense reference, the aorist stem may simply have been copied as a perfect stem in PGPh. as a means of filling out the paradigm.

and the perfect would have differed sufficiently at this point as to clearly delineate the aorists from the perfects.
At this stage, the perfect and the aorist stems of certain roots would have been identical; in the case of the PGPh. root originating from PIE *d^heh_1-, the aorist and perfect stems would have been *$dēk$- in the strong grade.

The subsequent developments of these de-aoristic unreduplicated perfects would have differed in Greek and Phrygian, based in a large part on further phonological changes and the development of their respective verbal systems.

The Greek developments would have quickly produced an ambiguous state of affairs; as Greek adopted a new 3sg verbal ending *-ε for the aorist and the reflexes of syllabic nasals developed fully into *α, the aorists and the unreduplicated perfects would have become indistinguishable in the 1st and 3rd persons singular, save for the augment.
In such a situation, some forms would need to be additionally characterised. Greek would have adopted the systemically trivial solution of re-characterising the perfects through reduplication, producing 1sg *$t^het^hēka$ > τέθηκα and 3sg *t^het^heke > τέθηκε.
The following example uses *d^heh_1- as a representative for this class of verbs:

	PGPh.		EPGr.		PGr.
aorist 1sg	*(e) $d^hēk$-$n̥$ (< *-$m̥$)	>	*e $t^hēk$-a	>	*e $t^hēk$-a
perfect 1sg	*$d^hēk$-a (< *-h_2e)	>	*$t^hēk$-a	>>	*t^he-$t^hēk$-a
aorist 3sg	*(e) $d^hē$ (< *-t)	>>	*e $t^hēk$-e	>	*e $t^hēk$-e
perfect 3sg	*$d^hēk$-e (*-e)	>	*$t^hēk$-e	>>	*t^he-$t^hēk$-e

Table #58: The Proto-Greek development of *θηκ- in the aorist and perfect

systems.

The Phrygian situation would have been quite dissimilar as a result of its own developments. Phrygian never adopted a 3sg ending *-*e* for the aorists, but did likely adopt the *s*-marker of the sigmatic aorists to characterise consonant-final root aorists. At the same time, the reflex of a vocalic nasal would not be identical to the perfect ending *-*a* < *-*h₂e*. To once again use the example of *d^heh_1-:

	PGPh.		PPh.
aorist 1sg	**e $d^hēk$-n̥ (< *-m̥)*	>	**e dēk-s-an*
perfect 1sg	**$d^hēk$-a (< *-h_2e)*	>	**dēk-a*
aorist 3sg	**e $d^hē$ (< *-t)*	>>	**e dēk-s*
perfect 3sg	**$d^hēk$-e (*-e)*	>	**dēk-e*

Table #59: The Proto-Phrygian development of **dā-* and **dāk-* in the aorist and perfect systems.

With root aorists of this type becoming hyper-characterised through the addition of the aorist-forming marker *-*s*- and no ambiguous forms, there would have been no pressing need to additionally characterise the unreduplicated perfects of this type.

Nevertheless, an additional characterization of the perfects through reduplication may well have taken place in some cases. Most suggestive in this respect are σεσταμενο- and (οπ)εσταμενο-, belonging to the descendant of the PIE root *$steh_2$-.

Most likely, if all laryngeal-final roots that formed root aorists had their perfect stems supplied by their corresponding aorist stem, the reduplication found in the perfect participle σεσταμενο- must be innovative. Why, then,

would the perfect stem δακ- have remained unreduplicated? While the attestation of a perfect stem of another laryngeal-final root would quickly resolve this question, we have no choice but to adopt the assumption that the unreduplicated stem δακ- is the outlier. In this case, the rest of the category it originally belonged to would have presumably innovated a reduplicated perfect stem on the basis of productive perfect reduplication. This specific treatment of δακ- would have been the result of two factors: a) as is known, the root *$d^{h}eh_{1}$- split into the PPh. neo-roots *$dē$- and *$dēk$-, resulting in a plethora of semantically and morphologically similar paradigms that could not be regularly related to each other, allowing the persistence of an idiosyncratic perfect stem; b) the Phrygian-specific reduplicated perfect stem *$dedĕ(k)$- would have been too similar to the associated reduplicated present stem *$dedĕ$- < *$də_{2}dĕ$-,[538] with the best means of retaining differentiation being through the preservation of an unreduplicated perfect.

V.3.4 The sigmatic optative

The sigmatic optative is an important element of the Phrygian verbal system. The defining feature of this formation is the presence of a *-se/i-* formant in the verbal stem. It has been dubbed a future (Sowa 2007: 84, Orel 1997: 399), a sigmatic future (CIPP2 24 *et passim*), a subjunctive (LL 1828), a (reduplicated) *-se-* ~ *-si* subjunctive (PhL 100-101), or a *set(i)-* form/Subjunctive II (Hämmig fthc.).

[538] Indeed, in some cases, the present and the perfect would have been indistinguishable. For example, the middle participle would have been identical in both the perfect and the present: **dedemeno-*.

The relevant forms are: *aniva*Ψ*eti* °B-07; *da*Ψ*et* °W-01b; *dedasitiy* °B-05; *de*Ψ*eti* °NW-101; *egeseti* °P-04a; *isini* °P-101; *kesiti* °B-01; *tekiseton* °W-14; *umniset* °B-05; δεδασσιννι °130^{NW}; εγεσιτ °58^{E}; ομνισιτους °W-11; τοτοσσειτι °99^{NW}, °18^{W}.

Whether the forms of the sigmatic optatives are derived from what must be analysed as a separate principal part of a verbal root is uncertain. As seems to be the case, the *si*-suffix can be simply added to the present stem of a verb;[539] the de-presentive sigmatic optatives are thus predictable from the form of the present stem.[540]

When the *si*-suffix is not directly added to the present stem, the situation becomes less clear. The following analysis will show that the sigmatic optatives are derived from old sigmatic aorist optatives. We are unable to securely determine, however, what shape the actual synchronic (active) aorist stems had in historic Phrygian, since the question hinges on whether the 3sg active aorist desinence *-es* is more properly analysed as a verbal ending or an aorist-forming suffix, and if the latter, whether it might simply be an allomorph of a suffix $^{+}$*-s*. For this reason, we cannot ascertain whether the *si*-stems *da*Ψ*e-, umnise-*/ομνισι-, and *tekise-* are better analysed as synchronically still parseable as composed of aorist stems allomorphs *da*Ψ-, *umnis-*/ομνισ-, and *tekis-* with an added element *-i-,* or whether the developments of the aorist had rendered the attested forms synchronically unparseable and thus only analysable as separate principal parts.

[539] As can be surmised from the forms *egeseti* and εγεσιτ. See §V.3.1.2.

[540] This is the result of the fact that the sigmatic optatives emerged from old aorists. Their use with the present stem is due to a latter grammaticalization, where the present stem of the verb would not be in any way modified by a simple addition of *-si-*.

Purely for the sake of convenience, even if the de-presentive sigmatic optatives appear to be predictable, this work will treat both the de-presentive and the de-aoristic sigmatic optatives as a unit under a single name. This is not to be taken as a judgement on the actual state of affairs in the language.[541]

The distribution between the primary ending *-ti* and the secondary ending *-t* in the sigmatic optatives is unclear (PhL 101). Ligorio & Lubotsky (LL 1828) have suggested that the forms with secondary endings are middles, but since the 3rd person middle endings in Phrygian are well known, this analysis is unlikely to be correct.[542] Hämmig (fthc.), on the other hand, has suggested that the distribution is syntactically conditioned, but her analysis is based on several assumptions not shared in this work.[543] More likely is the assumption that the primary and secondary endings encode some modal nuance.

[541] We may note that if one were to be entirely consistent, we would need to treat the sigmatic optatives as belonging to two verbal stems, one de-presentive and predictable and one de-aoristic and possibly unpredictable, provided that a single verbal root could form both. Since no verbal root has yet been identified where both of these formations are attested, we will for the time being limit ourselves to only referring to a single sigmatic optative stem belonging to a root. If further specification should be needed for purposes of analysis or due to the discovery of a verbal root that forms two sigmatic optatives, the nomenclature of "de-presentive sigmatic optative" and a "de-aoristic sigmatic optative" ought to be sufficiently clear.

[542] See also above in §V.2.3.

[543] The readings of °B-07 and °W-01b provided in this work are incompatible with the assumptions made by Hämmig. Specifically, I disagree that *eveteksetęy* °W-01b is a verbal form and assume *daΨet* is the main verb of the protasis (PhL 223; for an analysis of *eveteksetey* see §III.3.10.1.2). Furthermore, I remain unconvinced that *me* is a prohibitive particle descended from PIE **meh₁* (see §VI.1.5). Even if that were so, however, *mekos* °B-07 'greatly' should be read as a single word, not as ***me=kos* 'not=someone', in which case *anivaΨeti* would be expected to have a secondary ending in Hämmig's framework.

The origin of the formant *-si-* has so far not been satisfactorily elucidated (cf. PhL 101). Sowa (2007: 84) assumes that the Greek sigmatic futures and the Phrygian sigmatic optatives are both derived from PIE desideratives built with the suffix **-se/o-*. Hämmig (fthc.) argues that the suffix of the Phrygian *se*-formations derives from PIE **-sḱe/o-*.[544]

Both of these proposals fail to account for the crucial fact that Phrygian sigmatic optatives cannot be thematic formations. This is most clearly evidenced by the 3pl form δεδασσιννι °130^{NW} < **-e/inti*: the thematic vowel in the 3rd person plural in Phrygian is known to be *-o-*, not *-e-*, as seen in the 3pl thematic imperative ending -ουννου < **-o-ntōd*. One may argue that the *-e-* vowel of the sigmatic optatives is analogical, though it is difficult to see why the levelling of the thematic vowel would not also affect the imperatives, where the original **-e/o-* opposition between the 3rd persons singular and plural is preserved. More important, however, is the pervasive vacillation in spelling between *e* ~ *i* and ι ~ ει found in the forms. There is no known phonetic law in Phrygian which could account for a development of the thematic vowel **-e-* into some other vowel that would be spelt with a vacillating *e* and *i* (i.e. *e̯*),[545] and if we assume that this new vowel emerged by the agglutination of some other formant to the thematic vowel, the construction is no longer thematic in any meaningful sense.

[544] As noted by Obrador-Cursach (PhL 101), the reflex of the suffix **-sḱe/o-* is preserved unchanged in *podaskai* °G-02, so its palatalization into ***-s(s)e/o-* would be unexpected. As additional examples, one may also add βλασκον and now ουελασκετου and ουελασκοννου (cf. Hämmig 2022).

[545] Hämmig (fthc.) acknowledges this "*somewhat enigmatic long vowel*", but provides no scenario for how it could have come into being.

To determine the origin of the *si*-suffix, we need to consider the following:
1) The sigmatic element appears either as simple <σ> or as geminated <σσ> in New Phrygian. There are spellings with Ψ in Old Phrygian.
2) The vocalic element is spelt as <*e*> or <*i*> in Old Phrygian, and as <ι> or <ει> in New Phrygian.
3) The suffix -*si*- is appended to a verbal stem, not the root, at least in some cases: *deda-si-*/δεδα-σσι-, τοτο-σσει-, *ege-se-*/εγε-σι-.

V.3.4.1 The consonantal element

The spelling of the suffix -*si*- with both a single <σ> and geminated <σσ> in New Phrygian is not entirely unexpected, since geminated consonants are commonly simplified in New Phrygian,[546] which suggests that the original value was *-*ss*-. New Phrygian does distinguish gemination in nasals, however, so we must acknowledge the possibility that we are dealing with two allomorphs of the same suffix: -σει- and -σσει-.[547]
This is confirmed by the fact that there is a distribution between the single and double spelling: εγεσιτ and ομνισιτους show a single <σ> following an original short vowel, whereas τοτοσσειτι and δεδασσιννι show a geminate <σσ> following an original long vowel (cf. PhL 58).[548] That the second vowel of δεδασσι- was long at some point in its prehistory is beyond

[546] See §II.2.3.2.2.
[547] These, if already separate then, would not have been graphically distinguished in Old Phrygian, which does not mark consonantal gemination.
[548] Hämmig (fthc.: §3.2) has suggested that the distribution is: <σ> after front vowels and <σσ> after back vowels, ultimately a result of the cluster *-*ske/o*- undergoing progressive palatalization. We have already discounted the possibility of the *se*-suffix deriving from *-*ske/o*-, and the assumption that Phrygian underwent progressive palatalization is not supported by any other examples and seems unlikely to begin with. Nevertheless, her proposal that a distribution does exist launched a line of inquiry that ultimately led to the proposal given here.

reproach (PhL 158); it originated in **$d^{h}eh_{1}$-* > **$d\bar{e}$-* > **$d\bar{a}$-* > δα-, otherwise, we would expect NPh. **δεδε- < **-$d^{h}h_{1}$-*. In τοτοσσει-, however, the second vowel appears to have been short (PhL 367), otherwise we would expect NPh. **τοτου- < **-$t\bar{o}$-* < **-deh_{3}-*. Since the roots **$d^{h}eh_{1}$-* and **deh_{3}-* both formed reduplicated presents in PIE and in PGPh. (as seen also in Gr. τίθημι and δίδωμι) (LIV$_2$ 105-106, 136-138), it seems imprudent to consider them structurally separate.[549] Thus, we may consider the original forms to have been **$ded\bar{a}(s)s$-* and **$tot\bar{o}(s)s$-*. The vowels in this environment would then need to have been shortened, as required for the purposes of accounting for τοτο-, ultimately giving *$ded\breve{a}ss$-* and *$tot\breve{o}ss$-*. The development between vowels was then:

pre-Old Phrygian -*$\breve{V}(s)sV$-* >> New Phrygian -*$\breve{V}sV$-* <VσV>;

pre-Old Phrygian -*$\bar{V}(s)sV$-* >> New Phrygian -*$\breve{V}ssV$-* <VσσV>.

Since Old Phrygian did not mark either consonantal gemination or vowel length, the absolute chronology of this development cannot be established, but must have, in relative terms, preceded the development of PPh. **$\bar{o}$* > NPh. *$\breve{u}$* <ου>.[550]

The question now turns to which of the two allomorphs found in the sigmatic optatives was original, the one that gave rise to -σει- or the one that gave rise to -σσει-. Since we are dealing with a sibilant that surfaces as

[549] One cannot claim that that δεδα- is a reduplicated present stem with a full grade (< **-$d^{h}eh_{1}$-*) and that τοτο- is a reduplicated perfect stem with a zero grade (< **-dh_{3}-*), since the latter does not show the characteristic *e*-reduplication of the perfects. At best, one could propose the opposite, i.e. that δεδα- is the perfect and τοτο- is the present, but in that case the reduplication vowel of τοτο- would still require an explanation, and the ablaut grades of both forms would be precisely the opposite of what one would expect based on comparative data. Also note that the Phrygian perfect stem of the root originating in PIE **$d^{h}eh_{1}$-* was δακ-, as argued for in §V.3.3.

[550] Otherwise, we would expect **τοτουσει- or **τοτουσσει-.

geminated in some environments, the two basic options are *-*si*- and *-*ssi*-.

If we assume that the original allomorph was *-*si*-, the allomorph -*ssi*- must have developed its geminate due to a long vowel preceding the sibilant. This can be understood as a simple case of mora reassignment: *-$V_{\mu\mu}$$sV- >*-$V_{\mu}s_{\mu}$$sV-.[551] Since Phrygian only has two stable word-internal geminates, -*ss*- and -*nn*-,[552] it is possible that this development only affected sequences of *-*V̄sV*- and *-*V̄nV*-.

If we assume that the original allomorph was *-*ssi*-, we must assume two developments: 1) in a sequence *-*V̄ssV*-, the long vowel was shortened (as in τοτοσσειτι); 2) in a sequence *-*V̆ssV*-, the geminate was simplified (as in εγεσιτ). The shortening of a long vowel before a geminate can be understood as a way of avoiding a super-heavy (i.e. trimoraic) syllable, though we would then expect the same development to take place in any *-*V̄C$C*- environment. There is no evidence that this development took place, though it would be difficult to find examples of confirmation in any case.[553] On the other hand, the conditioned shortening of a geminate after a short vowel, i.e. *-*V̆ssV*- > *-*V̆sV*-, is difficult to explain phonetically; any attempt to provide a motivation in terms of syllable weight is

[551] A similar development is the *littera*-rule in Latin, where the shortening of a long vowel results in the gemination of a following consonant.
[552] The other instances of New Phrygian gemination result from assimilation across word boundaries and subsequent univerbation. See §II.2.3.2.2.
[553] The only evidence that would unambiguously confirm the shortening of a long vowel in a trimoraic syllable would be a word which we could unambiguously etymologize as having the vowel *$\bar{o}$ before a consonant cluster in Old Phrygian or before that surfaces with a New Phrygian <o>, rather than <ου>. Needless to say, such a specific example is not forthcoming.

convoluted and unintuitive, so the rule would simply need to be taken at face value.[554]

Of the two possibilities, the first clearly requires fewer assumptions and is easier to explain in structural terms. We may thus assume that the original allomorph of the suffix of sigmatic optatives was $^{+}$*-si-* and not **-*ssi-*.

The interpretation of spellings with Ψ in Old Phrygian obviously greatly depends on our reading of the sign. As has been argued in §II.1.1.4 above, the canonical phonetic value of <Ψ> was most likely that of a sibilant. We find the spellings with <Ψ> in *da*Ψ*et, aniva*Ψ*eti*, and *de*Ψ*eti*. These forms thus almost certainly belong to the sigmatic optatives.

*da*Ψ*et* itself has been convincingly analysed as a sigmatic optative form belonging to the root *da-* 'to put' by Oreshko (2022: 152-154). The fact that the sibilant element is spelt with Ψ suggests that we are not dealing with a simple /s/ sound. Oreshko (2022: 154) suggests that Ψ rendered a geminate /ss/, but it seems most probable that the geminate sibilant was actually retracted and had the value /ʃʃ/ (for which see §II.1.1.4). What the form does show is that the gemination of the sibilant took place early in Phrygian history, earlier than attested Old Phrygian.

*aniva*Ψ*eti* and *de*Ψ*eti* must certainly be sigmatic optatives as well, though they are themselves quite uninformative in giving us any clues as to how the sibilant of the morpheme developed. Elsewhere in this work, we assume that a prehistoric cluster of a velar and a sibilant developed into the sound represented by Ψ (see section §II.1.1.4), and etymologize them accordingly.

[554] One possibility would be that all non-final heavy and superheavy syllables were shortened by one mora, if possible. This would result in the loss of gemination after long vowels, but in that case, we would expect NPh. εγουννου °130^{NW} < **-ŏnnō* < **-ontōd* to surface as **εγονου.

V.3.4.2 The vocalic element

The vowel of the sigmatic optatives is spelt as either <*e*> or <*i*> in Old Phrygian and as <ι> or <ει> in New Phrygian.[555]

The Old Phrygian vacillation in spelling suggests that we are dealing with a mid-high vowel [ĕ̞], whose quality was neither that of <e> nor of <i>, both of which are spelt consistently, with the exceptions being few and restricted to specific environments (none of which apply here). Since Old Phrygian does not mark vowel length, the length of the vowel is indeterminate based on Old Phrygian alone.

The spellings ι and ει in New Phrygian in a vacuum suggest that the vocalic segment was some version of [ī].[556]

In New Phrygian inscriptions, the spelling <ει> is primarily reserved for representing what were originally different segments:[557] the long vowels *$\bar{\imath}$ and *$\bar{e}$ (cf. γεγρειμεναν 'written', ζειραι 'by hand', respectively) and the diphthong [ei] (though the latter seems restricted to final position). In word internal environments, it seems possible that these segments were merged (Lubotsky 1998: 414-415; §II.2.3.1.2). While the quality of the vowel resulting from this merging is ambiguous from the New Phrygian

[555] There is no temporal distribution between the different spellings (*contra* Hämmig *apud* PhL 101): *aniva*Ψ*eti*, for instance, is extremely late, yet still spelt with <e> in contravention of a framework that supposes a development *se* (early) > *si* (late).

[556] Do note that the etymologically improper use of <ι> for expected <ει> is far more common that the reverse. Such a distribution makes sense in terms of Koiné Greek phonology and spelling at the time, where <ι> could be used for both /ĭ/ and /ī/, whereas <ει> was reserved exclusively for /ī/. As such, the use of <ι> for /ī/ has precedent in the alphabet the Phrygian scribes used, whereas the reverse could only have been the result of hypercorrection and would, as such, be less common.

[557] There are some rare instances where <ει> is incorrectly used instead of <ι> [ĭ]; these cases can usually be identified due to the words in question being far more commonly spelt with <ι>.

perspective, there can be no doubt that the spelling <ει> was reserved for what was originally a long vowel. Whether this vowel was still phonemically long in synchronic terms is difficult to determine; it may just as well have been determined by quality alone.[558]

Combining these insights into the Old and New Phrygian values, the vowel of the sigmatic optatives must have been: 1) long; and 2) either [ī], [e̯ī] or [ei].

The length of the vowel is indisputable, whereas the question of its quality may have a few possible solutions:

1) The original value being [ei] is unlikely, since there is no evidence to suggest that Old Phrygian would have ever spelt [ei] with a vaccilating <*e*> and <*i*> and there is no evidence for a prehistoric merger of **ei* with any other segment.

2) The original value being [e̯ī] is possible, if Old Phrygian spelt this intermediate vowel with <*e*> or <*i*> and the reflex of this vowel merged with that of [ī] and non-final [ei] by New Phrygian.

3) The original value being [ī] is possible, if the realization of /ī/ in Old Phrygian was lower than that of /i/ (i.e. /ī/ = [i̯ī], but /i/ = [i]), which would explain the spellings with vaccilating *i* and *e*, and if /ī/ merged with the reflex of /ei/ by New Phrygian.

We cannot clearly decide between options 2 and 3 in light of the sigmatic optatives alone, but taking into account the example of ↑*ira*-/ζειρα-, most likely from **ǵʰesr*- > **dze̯ī̯r*-, and πεννιτι, from **pent-eie*- > **penn-e̯ī̯*-, the answer is actually something in between: in Proto-Phrygian, **e̯ī̯* and **ī*

[558] Compare the development of *-*ōis* > OPh. -*ois*, usually spelt as -ως in New Phrygian, whose synchronic length is likewise indeterminate.

merged into a single phoneme, which is represented as either <*e*> or <*i*> in Old Phrygian and, after it too had merged with non-final *ey* before New Phrygian, as New Phrygian <ει>. The phonetic value of this segment in Old Phrygian would have likely been [ē̯], which accounts for the spellings with <*e*> and <*i*>. In New Phrygian, the spellings with <ι> suggest a value closer to [ī], though it may well have been the somewhat lower [ī̯]. Phonemically, however, it would have been understood as the long counterpart to short /ĭ/, at least as long as some length distinction still existed.

The Proto-Phrygian phoneme **ē̯* is only known to have emerged as a result of compensatory lengthening or contraction, neither of which would have been possible in the stem-final environment of the *se*-formations.[559] Thus, in etymological terms, the vowel must have originally been **ī*.

V.3.4.3 The origin of **-sī-*

We may first note that the suffix *-si-* is appended to a verbal stem in some instances, not necessarily a verbal root.[560] Such a derivational state of affairs cannot be of PIE age, suggesting that the suffix was secondarily generalized from an initial subset of verbal formations.

It is also clear that it is not a primary suffix, but rather a combination of at least two primary suffixes: there is no unitary stem-forming **-s/Kī-*suffix in PIE (LIV$_2$ 10-25).

[559] If we assumed that the vowel of the *se*-formations emerged as the result of a contraction, **-ej-e-* > *-ē-*, we again run into the issue of the *se*-formations not being thematic. We cannot assume **-ej-o-* > ***-ē-* to explain 3pl. -ιννι (as if from ***-ej-onti*), since the reflex of that sequence is known to be *-ejo-* (in γλουρεος < **ǵʰlh₃-r-eio-*). Once again, positing a levelling of **-ej-e-* throughout the paradigm runs into the problem discussed in §V.3.4.

[560] Specifically, the *si*-suffix can be appended to present stems. The situation with de-aoristic sigmatic optatives is somewhat more complicated.

As far as the possible antecedents of the two elements of the suffix *-sī-* are concerned, we should note the following: 1) The element *-s-* can derive from PIE *-*k*-, *-*g*-, or *-*s*-.[561] Of these, *-*g*- does not exist as a verbal suffix, *-*k*- may have been an extremely marginal present-forming suffix (for Greek, cf. Risch 1974: 279), and *-*s*- is a highly productive suffix used for forming aorist stems (LIV$_2$ 20-21) and (possibly) a very marginal present-forming suffix (as found in Hitt. *paḫš-* 'to protect' (Kloekhorst 2008: 707-708). 2) An athematic element that would have developed into *-*ī*- only appears as a zero grade of the ablauting optative suffix *-*ieh*$_1$-/-*ih*$_1$- and in no other verbal formations (Meier-Brügger 2010: 310; cf. LIV$_2$ 14-25).

Thus, the solution of the origin of the Phrygian *si*-suffix presents itself: it originates directly in the PIE zero grade *-*s*-*ih*$_1$- complex of the optatives of sigmatic aorists. In the sigmatic aorists, which had a static accent, the otherwise ablauting optative suffix only appeared in a zero-grade variant (Kortlandt 1992: 238). As the category of sigmatic aorists in Phrygian was extended to more verbs, the corresponding sigmatic optative would have replaced older aorist optative formations (such as the root aorist optatives).

In Greek, the only remnants of the sigmatic aorist optative suffix *-*sih*$_1$- that were not affected by the alphathematization of the sigmatic aorist suffix are in the so-called Aeolic optatives: 2sg δείξειας, 3sg δείξειε, 3pl δείξειαν (Kortlandt 1992: 238ff., Willi 2018: 11). The precise mechanism of the introduction of -ε- into the Greek suffix -σει- << *-*sī*- is disputed, but the existence of a sigmatic aorist optative that has not been

[561] In an intervocalic environment, the latter would need to have been initially generalised from a post-consonantal position.

alphathematized in a Greek dialect is clear evidence in favour of reconstructing the existence of a Proto-Greek, and by extension, a PGPh. sigmatic aorist optative suffix *-*sī*-.

Interpreting the Phrygian sigmatic optatives as original *s*-aorist optatives has an important ramification for the relative chronology of the development of the Phrygian -*es* aorist. If the possible generalization of -*es*- as an aorist marker preceded the grammaticalization of the -*sī*- marker, we would have expected the *se*-formations to have the shape **-*esī*-, which is evidently not the case. Rather, it is clear that the *si*-suffix was extracted as a productive grammatical marker very early in Proto-Phrygian. Unfortunately, the number of examples of the sigmatic optatives is currently rather small, so we cannot be certain which (if any) of the attested forms actually represent a direct inheritance of the sigmatic aorist optative and which were newly built once the *si*-marker had become productive.
The most likely candidates for original sigmatic aorist optatives that remained fundamentally unchanged into the period of attested Phrygian are: *da*Ψ*et*, *tekiseton, umniset,* and ομνισιτους.
We can be certain that the expansion of the category to the thematic present was comparatively late, since the suffix is added after the thematic vowel (in, e.g., *eg-e-si*-), which would not have originally been the manner in which sigmatic aorists appearing alongside thematic presents were formed (cf. Gr. pres. λυ-ε/ο- ~ aor. λυ-σ-) (cf. Rix 1992: 216-217).

V.3.5 Denominal verbs

The verbal form *kakoioi,* a 3sg present optative, shows that denominative presents of the **oje/o*-type existed in Phrygian. We may conclude from the case of *kakoje/o-* 'to do bad', which was derived from a thematic adjective *kako-* 'bad', that one way of forming a present verbal stem to a thematic nominal stem was by attaching the suffix **-je/o-* to it (cf. PhL 265-266). The class of -οω (< **-o-je/o-*) presents in Greek is innovative from a PIE perspective (cf. Chantraine 1984: 242, García Ramón 2017: 674). On the basis of Phrygian, we may now propose that this category already emerged in Proto-Graeco-Phrygian.

An older denominal formation, that of the **-e-je-* denominal presents formed to thematic nominals (reflected in Greek in parts of the -εω class of contract verbs) (Risch 1974: 308-309, Chantraine 1984: 241), also appears to have been preserved in Phrygian.[562]

Obrador-Cursarch (Obrador-Cursach 2020: 42ff.) has made an attractive proposal that πεννιτι is the verb of the protasis of a curse formula, πεννιτι ιος κοροαν δετουν °W-11 'whoever passes the interred girl', with the verb, πεννιτι, appearing in initial position as a result of poetic diction. While not every specificity of this analysis is endorsed here, his identification of πεννιτι as the verb of the protasis is very convincing.
Obrador-Cursach has interpreted the form as a thematic present built to a reflex of the PIE root **pent-: *pent-e-ti* > PhL πεννιτι. He suggests that the

[562] How the de-thematic **-o-je-* and **-e-je-* verb-forming suffixes would have differed in meaning, if they ever even existed at the same point in time, is unknown.

spelling of the thematic vowel with <ι> may be the result of a post-nasal allophonic raising of /e/ to [ę], spelt as <ι>. This is unlikely to be the case, however; no such assimilative process is known to exist in Phrygian.

The suggestion that πεννι- originates from PIE **pent-* is certainly appealing and makes perfect semantic sense.[563] Nevertheless, a pure thematic derivation of the type found in Gothic *findan* < **pent-e-* (LIV$_2$ 471-472) is questionable in terms of the spelling; no good examples are known where a pure thematic **e* would have been spelt as <ι>.

The spelling <ι> is only likely to reflect /i/ or /ę̄/,[564] so we need to explain what this suffix -ι- actually was.

The category of athematic *i*-presents did exist in PIE (see, e.g., de Vaan 2011), but its preservation in Phrygian, with the category being comparatively rare to begin with, is unlikely.

The interpretation of this form as an optative, originally with an ablauting suffix **-iéh$_1$- ~ *-ih$_1$-',* with subsequent leveling of the allomorph **-ih$_1$- > *-ī-*, is possible, though one usually expects to find optatives with secondary, not primary endings (CIEL 275) (cf. the thematic optative *kakoioi* < **-o-ih$_1$-t*).[565]

Our identification of the Proto-Phrygian phoneme **ę̄* provides us with another possible scenario that would explain this form from a PIE point of view. If we assume that a Proto-Phrygian sequence **-eię-* contracted into

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[563] For further discussion of this form, see also §IV.3.2 and §V.2.1.

[564] The latter a reflex of earlier **ī* and **ę̄*, the second of which only arose after the PGPh. **ē* > PPh. **ā* sound law had run its course. See §II.1.1.1.

[565] A valid objection to this point is that the sigmatic optatives, original *s*-aorist optatives, which historically only appeared with secondary endings, appear with primary endings in Phrygian. We know that sigmatic optatives became a grammatical category of their own entirely divorced from their origin in the aorist, which allowed them to be functionally reinterpreted in such a way as to allow them to use both primary and secondary endings. It is entirely possible that optatives could have likewise evolved in such a way as to allow both sets of endings, especially if the primary-secondary distinction began to encode some semantic nuance that is currently unrecoverable to us.

PPh. *-*ḛ̄*-, the suffix may be a regular reflex of the PIE suffix *-*e̯je,* which was used to form denominative verbs from thematic nominal stems in PIE and PGPh (Chantraine 1984: 241). In this case, πεννι- is a verbal stem derived from a nominal form like $^{+}$πεννο- *vel sim.*
Assuming that πεννι- is a reflex of a denominal verbal stem **pent-eje-* is appealing in light of the fact that the PIE root **pent-* was widely used as the basis of nominal forms, whereas a direct verbal derivation is only found in Germanic (LIV2 471-472). On the other hand, if πενν-ι- were an optative stem (< **pent-ih*$_1$-), the root would need to have been used verbally in Phrygian as well and it would have formed a root present, which is the less likely of the two options.

The forms OPh. *mederitoy* °B-05 and NPh. ριδιτι °115^{W} are best analysed in the same manner.

For *mederitoy*, we may note that the verb appears in the first of two coordinated main clauses, which function as the apodoses, where the latter clause uses the verb *a=bre-toy* (< **b*^{h}*reiH-* 'to break' with the prefix *a*(*d*)), a root present with a primary middle ending *-toy*: *nevos mederitoy, koris ke abretoy nun oynev* °B-05. The coordination of these two clauses suggests that *mederitoy* may well be a present stem form as well.
A similar set of two clauses appears a few lines above, also functioning as apodoses: *tubetiv oy n̥e̯vos deraliv, mekas key koris abretoy nun* […] °B-05. In these two clauses, the verbal forms *tubeti* and *abretoy* are once again formed with the present stem (thematic in *tub-e-ti* and root in *a=bre-toy*) and utilize primary endings. This parallelism suggests even more strongly that *mederitoy* is a simple present stem formation with a primary ending. If that is the case, the *-i-* can hardly be interpreted as anything other than a

present stem suffix of some kind, and the only viable candidate is the suffix *-ē̯-* < **-eje-*; the phoneme /ē̯/ is already known to have been spelt as both <*e*> and <*i*> in this inscription.[566]

The form *mederitoy* shows the presence of a prefix *me-* 'with, together', whereas the root element is likely to be a reflex of **dʰer-* 'to fix, fasten'. Due to the presence of the suffix *-i-* /ē̯/, we are presumably dealing with a denominal verbal stem.

As far as the form ριδιτι is concerned, the primary ending -τι does strongly suggest that ριδι- is a present verbal stem (Brixhe and Neumann 1985: 173; PhL 99, 339). The context is unfortunately poorly understood, so the form is difficult to analyse. Most likely, it should be internally decomposed as composed of a root-like element ριδ- and a suffix -ι-, in which case the suffix is again most likely to be understood as a reflex of **-eje-*, suggesting the possibility that we are once again dealing with a denominal verb.

The perfect stem of a denominal verb was formed through reduplication of the first syllable, as is evidenced by the perfect medio-passive participle γεγαριτμενο-. While the original noun **γαριτ- is not known in Phrygian, it has a cognate in Greek χάριτ- 'charity, thanks'. The noun originates from a PIE verbal root **ǵʰerH-* (PhL 201), which was extended with an *i*-suffix and a dental suffix (Chantraine 1999: 1248). Thus, the Proto-Graeco-Phrygian nominal for was **ǵʰarit-*.[567] Presumably, the PGPh. present stem of its associated denominal verb would have been **gʰarit-je/o-*.

[566] Cf. *umniseṯ* ~ *dedasiṯiy*.

[567] An **-i-t-* derivative of this root is not known in any other branch, though *i*-derivatives are found in Sanskrit *háryati* and Latin *horitor* (PhL 201), as well as CArm. *jir* < **gʰēr-i-* (Chantraine 1999: 1248). See §III.3.10.1.2 and further below here.

There is some additional evidence for the development of denominal verbal stems that can be gleaned from three sigmatic optative verbal forms: OPh. *tekiseton, umniset*, NPh. ομνισιτους.

umnise-/ομνισι- and *tekise-* are both sigmatic optative stems. While the inscription in which *tekiseton* appears was not yet known to her, Hämmig (fthc.) concluded on the basis of *umnise-*/ομνισι- that the verbal suffix *-si-* had an allomorph *-isi-*. This is seemingly supported by the existence of a nominal stem *umnota-*, which shows no traces of this element *-i-*.[568] The discovery of *tekiseton* only appears to bolster the argument in favour of an allomorph *-isi-*. The problem with this proposal is that it is difficult to determine where this *-i-* could have originated. Sigmatic optatives, broadly speaking, are athematic sigmatic optatives, i.e. they originate in a suffix conglomerate **-s-ih₁-*, which originally only appeared with aorist stems, until it became fully grammaticalized and could be used with present stems as well. One must then wonder which kinds of verbal stems would have actually ended in **-i-*, whence this hypothetical allomorph **-isi-* could have spread to begin with.[569]

An origin in the optative suffix **-ih₁-* is difficult to imagine: the **-isi-* allomorph would then in essence be a double athematic optative,

[568] For which, see §III.3.1.10 and §III.3.10.1.2.

[569] Hämmig interprets this *-is-* as originating in an old suffix **-iske/o-*, which she sees reflected in Greek -ισκω verbs and the Armenian subjunctive suffix *-ic'-*. The issue with this analysis is that the Phrygian sigmatic optatives are not thematic, meaning it is impossible for the *-s-* element to be derived from **-ske/o-*, which is preserved in Phrygian as -σκε/ο- in any case (§V.3.1.4). The Greek -ισκω verbs might be more closely compared, but the only commonality between this Greek suffix and a hypothetical Phrygian **-isi-* would be in this "intrusive" *-i-*. Greek, however, had a highly productive verb-forming suffix -ιζω, so the origin of *-i-* in -ισκω may be traced as originating there; i.e. simple thematic presents with a suffix -ιζω would have become iterative through the replacement of -ζω with the iterative suffix -σκω, with the *i*-element metanalysed as belonging to the root.

-ih_1*-s-*ih_1*-*.

If we dispense with the assumption that *-i-* must necessarily be a verbal suffix, the consequence is that *-i-* must be interpreted as an originally nominal suffix, i.e. *umnise-* and *tekise-* are actually denominal verbal stems. One may first recall πεννιτι*, mederitoy*, and ριδιτι and offer the suggestion that the *-i-* used in *tekise-* and *umnise-*/ομνισι- is the reflex of the suffix *-*eje-* used to form a denominal verb from a thematic noun. This is quite unlikely to be the case, however. Consider that, in that instance, we would have two examples of two directly succeeding identical vowels being spelt differently: <*umniset*> **[-*ę̄sę̄t*] and *tekiseton* **[-*ę̄sę̄tōn*]. This is exceedingly unlikely; for the same vowel appearing twice in close succession, the scribe would surely use the same strategy in spelling.[570],[571] Thus, the *-i-* element is unlikely to have originated in an old de-thematic denominal present derivation in *-*eje*.

Based on a comparison with Greek, we may suppose that the formation of denominal verbs in Phrygian from athematic bases probably took place through the addition of a thematic verbal suffix *-*je/o-*. If we assume that the associated aorists to **je/o*-presents simply saw the present suffix *-*je/o-* replaced with the aorist suffix *-*s-*, as in Greek, we may conclude that **umnis-* and **tekis-* may have been original PPh. denominal sigmatic aorist stems formed to original nominal stems **umni(C)-* and **teki(C)-*. The Phrygian nominal formations that could have underlied *umnis-* and *tekis-*

[570] And, additionally, even if one argued that /*ę̄*/ < **eje* and /ī/ < **ī* were still different phonemes in Old Phrygian, the *i-e* spelling is precisely the opposite of what we would expect.

[571] One may rightly point to the spelling *dedasitiy* [-*sę̄ti*] as showing a spelling with <*i*>, whereas *umniset* [-s*ę̄*t] in the same inscription uses the spelling <e> for the vowel of the *si*-suffix. Those two forms are nowhere near each other, however, so an inconsistent spelling strategy may have been adopted by the scribe for the respective forms once they came up. On the other hand, it is difficult to see how or why a scribe would have decided to spell two successive identical vowels differently.

would have been either dental stems, *s*-stems, or *i*-stems.

A common class of Greek denominal verbs where the aorist stem was in fact formed by the replacement of the present suffix with the aorist suffix are the verbs in -ζω: -άζω, -όζω, and, most importantly for our purposes, -ίζω. The latter, while eventually becoming productive on its own, is originally the result of a PGPh. sequence *-*id/g-je/o-* (cf. Chantraine 1984: 231-232, 235-236), found when a stem ending in *-*id/g-* was used as the base for the creation of a verb: e.g. nominal stem PGPh. *-*id-* ~ present denominal stem PGPh. *-*id-je/o-* > Gr. -ίζω ~ denominal aorist stem PGPh. *-*id-s-* > Gr. -ισ-. In Phrygian, then, a PGPh. denominal aorist stem ending in *-*id-s-* would have surfaced as ending with *-is-*, precisely what we find in *umnis-*/ομνισ- and *tekis-*.

Greek has grammaticalized -ίζω as a verb-forming suffix to such a degree that the verbs showing the suffix need not have actually originated in an old *-*id-je/o-* denominal derivation (Chantraine 1984: 235-236); the suffix was commonly used as a means of forming a generic denominal verbal stem. This opens the question of whether **umnit-* and **tekit-* need ever have been nominal stems at all: if the verbal formation type underlying Greek -ίζω (< *-*id-je/o-)* was already grammaticalized in PGPh., the nominal stems underlying the aorist stems *umnis-* and *tekis-* may well have been thematic **umn-o-* and **tek-o-*. Unless examples of nominal stems **umnit-* and **tekit-* are found, this question cannot be conclusively answered. It has little bearing on the analysis of the verbal stems of the attested forms, however.[572]

[572] In any case, if PGPh. had already grammaticalized the *-*id-je/o-* verbal formation as a means of forming denominal verbs, this nevertheless suggests that there must have existed a common association between a simple nominal stem and a nominal stem suffixed with

In the case of *umniset* and ομνισιτους, a related nominal stem can also be found in the purely nominal form *umnotan.* Since *-ta-* is unlikely to be anything other than a nominal suffix of some kind (most likely the agentive suffix *-*teh₂*-) (cf. Risch 1974: 31-38), it would appear that its base was in fact a thematic nominal stem **umn-o-*.

If we assume that the *-n-* derives ultimately from the thematic suffix *-*no*-, we are presented with an attractive explanation. In Greek, we may note that simple o-stem nouns can appear in tandem with nouns with the suffix -ιδ-. If a similar pattern exists in Phrygian, **um-no-* would be the basic noun and **um-n-it-* its abstract counterpart. The verbal forms *umniset*/ομνισιτους would then be derivations from an abstract noun **umnit-*. In that case, an abstract noun **umnit-* would form the basis for a denominal *s*-aorist stem **umnit-s-* > **umnis-*. Since the simple *s*-aorists likely disappeared as a category some time in Proto-Phrygian, *umniset*/ομνισιτους would then actually represent an archaism, as fully regular reflexes from their ancestral *s*-aorist optative form **umnit-sih₁-*.

V.3.6 The imperative mood

Forms: *ituv* 'may he become'*, lakedo* 'may he be seized'*, tekiseton,* ειδου 'may he become', ειτου 'may he become', εγεδου 'may he hold', εγουννου 'may they hold', ομνισιτους

Verbal forms in the imperative mood are comparatively copiously attested in Phrygian.

*-*id*-. As such, even if **umnit-* and **tekit-* were only secondarily absorbed into this class, the pattern itself must have existed in order for that to be possible.

The primary distinctive marker of the imperative mood is the use of a special set of endings exclusive to it, for which see §V.2.4 (cf. PhL 102).

The majority of the clearly understood attested examples show the verb in its present stem with the addition of the imperative endings. Historically, the imperative mood could appear with other stem types as well as a means of conveying aspect, and it seems this was the case by the historical era as well, since we seem to have at least one example of an aorist imperative. In addition, there appear to exist two forms with imperative endings that belong to the sigmatic optative stems.

εγ-ε-δου 'may he hold' and εγ-ου-ννου 'may they hold' belong to a verbal root *eg-* that formed a thematic present (cf. §V.3.1.2), so these thematic imperative forms certainly belong to the thematic present class as well.
i-tuv 'may he come/become', ει-του 'id.', ει-δου 'id. (middle voice)' and ει-ννου 'may they come/become' belong to the root present system (§V.3.1.1).
lak-e-do 'may he be seized' has been attractively proposed to derive from the PIE root *$*sleh_2g^w$- 'to seize, grasp' (Lubotsky 2004: 234-235), meaning that it must be a thematic formation of some kind. In addition to Phrygian, the root itself is only found in Greek (LIV_2 566),[573] where it forms a nasal-infixed present λαμβάνω and a thematic aorist ἔλαβον, along with a *je*-present λάζομαι (Chantraine 1999: 616). In light of the Graeco-Phrygian hypothesis, then, it is most likely that the Phrygian thematic form belongs to the aorist system as well.[574]

[573] And potentially in Old English *læccean* 'to grab'.
[574] See also §V.3.2.3, where the form *ektetoy* is argued to belong to the thematic aorist system.

For ομνισιτους and *tekiseton*, we apparently find the imperative endings used with the sigmatic optative stem (§V.3.4). It is unclear how a modally marked stem would have interacted with the imperative endings, though the general meaning would presumably still encode deontic modality.

We have previously (§V.2.4) suggested that the 3sg imperative ending -τους, if it does in fact exist as a separate ending, adopted its final -ς from the sigmatic marker of the aorist when interpreted as an ending. If this is indeed the case, the use of this aoristic imperative ending was likely to have encoded some semantic function.

V.3.7 The optative mood

The only securely identifiable "plain" optative form appears twice in Phrygian: *kakuioi* and κακοιοι (PhL 265). We are fortunate in having the related adjective *kakos*/κακος 'bad' copiously attested in the corpus, allowing us to more easily understand this verbal form (*ibid.,* PhL 102). In terms of structure, it is a thematic optative in the 3rd person singular built to a denominative *oje/o*-present, its desinence *-oioi* faithfully reflecting the expected outcome of PIE *-*o-i-oih₁-t* (cf. *ibid.*).

Since denominative **je/o*-presents were thematic, the optative suffix appears in its expected shape as *oi* < *-*oi(h₁)*- (CIEL 275).[575] We may also note the apparent lack of an ending; this is the result of the previously used secondary ending *-*t,* which was mandatory in PIE (*ibid.*), being regularly

[575] Cf. Greek thematic optative suffix -οι- in e.g. 1sg λύοιμι, 2sg λύοις, 3sg λύοι.

lost through a regular phonetic development which deleted final stops in Proto-Graeco-Phrygian.[576]

While this example clearly confirms the existence of a simple optative mood well into the New Phrygian era, we have no indication how optative forms would have been formed to non-thematic present stems or, indeed, to non-present stems as well. Likewise, since Phrygian seems to have expanded the use of primary and secondary endings beyond those formations to which they were originally limited, it is unclear whether an innovative optative with primary endings would have been a possible formation.

The original PGPh. *s*-aorist optatives developed into the highly productive sigmatic optatives, which spread far beyond their point of origin in the *s*-aorist stems into present-stem formations through extensive resegmentation and grammaticalization. By the historical era, the sigmatic optatives are structurally entirely separate from the "plain" optatives of the *kakoioi*-type, and are thus treated separately in §V.3.4. How these two types of optatives synchronically differed in terms of semantics or syntactic specifics is currently unknown.

[576] This development would not have affected a hypothetical **o-i-oih₁-ti*, however, which would have surfaced simply as ***-oioiti*.

V.3.8 The subjunctive mood

Forms: *podaskai* 'may he be trampled upon[?]', *aey* 'may he be'

The only sufficiently clear example of a subjunctive in Phrygian is the verbal form *podaskai.*[577] With the presence of a primary ending and a suffix that appears to be descended from PIE *-*ske*-, the form is best understood as being in the present tense and, by extension, built with a present stem. Another possible subjunctive form is *aey,* deriving from the reduplicated perfect of the PIE root *h_1*es*- 'to be'.

Since there are no other examples of subjunctives, it is somewhat precarious to make any generalizations, but *podaskai* and *aey* are apparently formed in a manner consistent with the formation of subjunctives in Greek and PIE: the tense-aspect stem was extended by the addition of the thematic vowel and was conjugated with the primary (or, rather, thematic) endings (cf, Meier-Brügger 2010: 309-310).[578]

podaskai is best parsed as arising from these Proto-Graeco-Phrygian elements:

preverb	root	present-forming suffix	subjunctive-forming suffix	3sg active thematic ending
po=	*dē-*	*-ske-*	*-e-*	*-i*

Table #60: A decomposition of the verbal form *podaskai.*

[577] For an analysis, see §V.3.1.4.
[578] In cases of already thematic tense-aspect stems, the thematic vowel would be lengthened, as is the case in *podaskai.* Compare also Greek 2nd and 3rd sg thematic subjunctives ending -ῃς and -ῃ, respectively.

Such a **podēskēi* would regularly develop into the attested *podaskai*. This is not to say, of course, that **podēskēi* ever actually synchronically existed in Proto-Graeco-Phrygian, simply that all the constituent elements of *podaskai* must have already existed at that stage and that the compositional process underlying *podaskai* remained fundamentally unchanged since then.

aey serves as an example of the athematic type, here used with the perfect stem: the ending *-ey* would have been the regular reflex of a PGPh. thematic ending **-ei*, which was later used for the subjunctive mood in Phrygian. The stem *ā-* is a regular reflex of a reduplicated perfect of the PIE root **h₁es-* 'to be': **h₁e-h₁s-* (cf. Ved. *ās-*).

One apparent innovation of Phrygian is the repurposing of the PGPh. 3rd person singular active thematic ending **-ei* for exclusive use in the subjunctive, while a new 3rd person singular active thematic primary ending was created for use with other present-stem associated formations (specifically, the indicative mood and the sigmatic optatives).[579] Whether any other endings were similarly repurposed for exclusive use in the subjunctive currently remains unclear.[580]

[579] See §V.2.1.

[580] One may speculate that the subjunctive escaped the spread of thematic **-eti* at the expense of inherited **-ei* as a result of the characteristically Phrygian development **ē > ā*, which would have obscured the subjunctive's association with other thematic formations, in effect producing an "alpha-thematic" subjunctive in place of more transparent subjunctives with a long thematic vowel.

V.3.9 The root *dā-/dāk-*

Relevant verbal forms: *daΨet* 'would place'*, dedasitiy* 'would place'*, edaes* 'he placed', *edatoy* 'he caused to be placed'*,* δακαρεν 'they have placed', δακετ 'would place', δακετορ 'would cause to be placed', δεδασσιννι 'they will[?] place', ~~*deΨeti*~~ 'would burn[?]'
Relevant nominal forms: *daker-* 'part of the monument'*,* δετο- 'monument'

There are a large number of attested Phrygian forms whose root element ultimately derives from PIE *d^heh_1- 'to put, to place'. The primary issue when analysing these forms is that the root element can appear as either *dā-* or *dāk-*. Thus, the first necessary task is to establish a distribution between what appear to be the two allomorphs of the same underlying root *dā(k)-*.

V.3.9.1 The stem *dā/e-*

The bare stem *dā/e-*, which is simply the regular reflex of the root *d^heh_1- in the full and zero-grade, respectively, is used in three types of formations. The first of these is the root aorist, represented in the Phrygian corpus by the 3sg act. aor. *edaes* and the 3sg mid. aor. *edatoy* (PhL 158). Both of these appear to be regular formations in Phrygian terms and are directly comparable to *estaes* and *estatoi* (which belong to the PIE root *$steh_2$-); the root aorist forms are augmented, with the active aorist showing the desinence *-es* characteristic of active aorists in general (PhL 103). The behaviour of the root element itself is in line with what is generally reconstructed for root aorists in PIE (LIV$_2$ 20). Derived from the root aorist stem is the de-aoristic sigmatic optative stem *daΨe-*, created by adding the suffix *-si-* to the aorist stem *da-* (for which see §V.3.9.1.2).

The stem **dā/e-* also appears in Phrygian in the verbal adjective which has the meaning of a past passive participle. δετο- 'monument', originally *'(that which is) placed' (PhL 212), originated in PIE, showing the root element, δε- < **dʰh₁-*, in zero-grade and seeing it suffixed with the adjective-forming suffix -το- (< PIE **-to-*), declined like a thematic adjective (NIL 102-103).

V.3.9.1.1 The stem *deda-*: *dedasitiy* and δεδασσιννι

The stem *deda-*/δεδα- appears twice in the Phrygian corpus, once in Old and once in New Phrygian, both times as part of a sigmatic optative: *dedasitiy* and δεδασσιννι (PhL 157-158).

The stem is clearly reduplicated, though its presence in sigmatic optatives precludes us from knowing on the basis of phonetic developments whether the root element being reduplicated was *da-* or *dak-*. Based on the fact that we may identify the present and perfect stems which must derive from a synchronic Phrygian root *dak-* (for which see §V.3.9.2), this reduplicated formation does likely seem to be derived from the *k*-less root *da-*. The fact that the stem is reduplicated immediately precludes *dedasi-*/δεδασσι- from being in any way an archaic de-aoristic *si*-stem.[581]

Most likely, *deda-* is the reduplicated present stem belonging to the synchronic root *da-*. This would mean that the grammaticalized *si*-suffix was appended to the present stem of the root, which is entirely consistent with our understanding of how the *si*-suffix functioned synchronically. In

[581] A reduplicated *s*-aorist would be an extremely unexpected type of formation for this root. Also note that no reflex or derivation from the PIE root **dʰeh₁-* used reduplication as the marker of an aorist stem.

etymological terms, this interpretation is very attractive: the Greek reduplicated present stem τιθη-, which unambiguously derives from the PIE verbal root *$d^{h}eh_{1}$-, would be a perfect morphological parallel to Phrygian *deda-*, corresponding in both reduplication and the ablaut grade in its formation of a reduplicated present stem. Even in terms of other IE languages, the PIE verbal root *$d^{h}eh_{1}$- unambiguously formed a reduplicated present in Indo-Iranian (i.e. Skt. *dádhāti*) (LIV$_2$ 136-138).
Interpreting *deda-* as a synchronic perfect stem is a highly dubious proposition (*contra* Avram 2015: 209). As is evident from τοτοσσειτι, where τοτο- was not a perfect stem, we have clear evidence that reduplicated presents could form an associated sigmatic optative. It is thus more parsimonious to interpret *deda-* as a present stem.

V.3.9.1.2 The stem *daΨe-*

The interpretation of the form *daΨet,* most likely /*daʃʃ*ę̄*t*/ < */*dāsę̄*t*/ (cf. Oreshko 2022: 154ff.),[582] hinges on an understanding of the sigmatic optatives and their pre-history.
In this form, the synchronic verbal root in question is *dā-*, whose present stem is δεδα-/*deda-*; **dē-* was its original root aorist stem in early Proto-Phrygian. We may analyse *daΨet* in two ways, depending on when the form was created:
1) If we assume that *daΨet* represents an archaism, i.e. an original sigmatic optative that we can transpose as *$d^{h}eh_{1}$-s-ih_{1}-, the aorist stem formed to the root **dā-* must have been sigmatic: **dā-s-*.

[582] The geminate in the sigmatic marker is a result of the sound law *V̄sV > *V̆ssV (§II.3.2.3.11).

2) If we assume that *daΨet* is a late creation of a sigmatic optative stem based on an aorist stem, that underlying stem could have been either **dā-* or *dā-s-*.

Based on the forms 3sg act. *edaes* and 3sg mid. *edatoy*, it seems more likely that the root *da-* formed a bare aorist stem without a sigmatic marker. As such, *daΨet* is more likely to be a comparatively late form. Since the root synchronically still formed a root aorist in the historical era, at least in the middle voice, we are dealing with a late addition of the *si*-suffix to the aorist stem (thereby creating a de-aoristic sigmatic optative stem).

V.3.9.1.3 The stem daske/o-

The present stem *daske/o-* appears in the apodosis of the curse formula in °G-02: *ios oporokitis kakoioi tovo, podaskai* 'whoever *oporokitis* would-do-bad of-him, may-he-*podaske*'. We have already identified the form *podaskai* as being a 3sg active present subjunctive, the ending being the thematic subjunctive *-ai*, and the *sk*-element deriving from the PIE iterative/inchoative thematic suffix **-ske/o-* (§V.3.1.4).
The beginning of the verbal form, *poda-*, must now also be explained. Since *poda-* cannot be a direct reflex of a verbal root,[583] we are quite clearly dealing with a combination of a verbal stem and a prefix. The most reasonable segmentation is into *po=da-*. Lubotsky (2004: 232) has already proposed a division into those two elements, with *po* being the preverb

[583] The only possibility for assuming an inheritance of *poda-* from a single PIE root is to assume the presence of an *o*-grade and transpose the root as **bed^{h}h$_2$-* (in order to account for the root constraints). Such a proposal cannot be endorsed. Not only is the presence of an *o*-grade in a *ske*-formation unexpected, reconstructing a PIE root with **b* is very suspicious in and of itself.

$^{+}$*po(s)* and *da-* originating in the reflex of the PIE root *$d^{h}eh_{1}$-, which seems to be the correct approach (cf. also Kloekhorst 2015: 117).[584]

With *po(s)* being the preverb, the actual verbal stem must then have been a thematic present inchoative/iterative *daske/o-*, composed of the suffix -*ske/o-* and the root *dā-* in full grade. The full grade of the root is somewhat unexpected; in PIE, *ske*-forms were formed with the root in zero-grade (LIV_2 19), whereas in Phrygian, they appear to have levelled the full grade (§V.3.1.4).

The exact meaning of this verbal form is not known. Kloekhorst (2015: 117) has proposed a meaning related to the prominent image of feet depicted next to the artifact, suggesting a meaning "to be trampled upon". Indeed, a similar meaning of the form is indeed likely: if *po-* does mean something like 'below, under',[585] the sequence *poda-* would mean something like 'to put under'. Since the verb appears to have no direct object, it was evidently intransitive and may have adopted a passive meaning 'to be put under'; if the suffix *ske/o-* did have an iterative function, the resulting meaning of *podaske/o-* 'to be put under repeatedly' can easily be compared to Kloekhorst's 'to be trampled' with minimal semantic change.

V.3.9.2 The neo-root *dāk-*

The stem *dāk-,* which appears to be descended from the PIE root *$d^{h}eh_{1}$- with an added element -*k*-, appears in a number of forms which are best analysed one by one.

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[584] As an example of another branch combining these two lexical elements, he adduces Proto-Slavic **podъ* 'under', though the word in question is ultimately a denominal preposition (acc. sg. **po-$d^{h}h_{1}$-om*).

[585] Cf. Proto-Slavic **podъ* 'under' < **po-$d^{h}h_{1}$-om,* but also Greek ὑπό, Latin *sub*, which, while the onsets do not match, may nevertheless be somehow related.

In Greek, the PIE verbal root *d^heh_1- appears to have been extended (at least in synchronic terms) with *-*k*- in the transitive aorist stem ἔθηκ- (< *h_1e-d^heh_1-*k*-) and in the perfect stem τέθηκ- (< *d^he-d^heh_1-*k*-). The situation is somewhat more complex in Phrygian; while the Greek data makes it quite clear that the -*k*- element did not originate in the present stem, we should strongly consider the possibility that the entire stem *$d^hēk$- was extracted (from the transitive aorist or the perfect) as a neo-root separate from *$dē$-. The plethora of forms with -*k*- do suggest that this is indeed what happened.

δακαρεν

The ending of this form, -αρεν, is best analysed as ultimately deriving from the PIE 3pl perfect ending *-*ēr* > Phr. -*ār* agglutinated with the PIE 3pl secondary ending *-*ent* > Phr. -*en*.[586] The presence of the perfect ending *-*ēr* as the initial element in this conglomerate of desinences and the presence of the element -*k*-, which also appears in the Greek perfect stem θηκ-, has led Ligorio & Lubotsky (LL 1828) to argue that the form δακαρεν itself must be a perfect.

The fact that the form is not reduplicated suggests that reduplication was not present in this verbal root as a means of producing a perfect stem at the Proto-Graeco-Phrygian era and, later, in the Phrygian era. It seems to be the case that the perfect stem *$dĕ(k)$- shared a great affinity with the aorist stem *$dĕ(k)$- in PGPh., possibly being copied from it, with the perfect and the aorist verbal forms only being differentiated by verbal endings and the presence or absence of the augment. Both Greek and Phrygian eventually

[586] See §V.2.5.

adopted strategies for marking a clearer differentiation between the two: Greek utilising reduplication to additionally characterise the perfect, and Phrygian by splitting the *dā-* and *dāk-* roots. See also §V.3.3.

δακετ

The form δακετ can be directly compared to βερετ, which is a thematic imperfect in the 3rd person singular. If we take this comparison at face value, δακ- would be the root element, -ε- the thematic vowel, and -τ the secondary ending, with δακ-ε/o- functioning as the present stem. In light of the parallel usage found in βερετ, this does indeed seem to be the best interpretation. Thus, in New Phrygian, there would have existed a present thematic stem δακ-ε-.[587]

δακετορ

This form can be analyzed in the same way as δακετ, i.e. as a thematic imperfect, with the distinction being that this form encodes the middle voice and, as such, takes the imperfect middle 3sg ending -τορ. The use of

[587] Another interpretation must be briefly explored for the sake of completeness, if for no other reason. In light of δακαρεν, which is evidently a perfect form, the same analysis can theoretically be applied to δακετ, i.e. that it is inherently a form of the perfect. The δακ- element is, of course, identical to the δακ- in δακαρεν, while the agglutination of the secondary ending to a perfect ending (**-ēr* + **-ent*) would be perfectly paralleled if one were to assume that -ε was the 3sg perfect ending extended with the 3sg secondary ending -τ.
While such an analysis is formally possible, the use of a perfect in a conditional clause is semantically highly suspect. It would require a series of steps where the syntactic function of the perfect would need to have developed practically identically to that of the imperfects. Even further, the existence of δακετορ would then also require one to assume that this perfect could have been agglutinated with imperfective endings as well. In light of this, an analysis of δακετ as a perfect is quite problematic and requires a number of unnecessary and dubious assumptions.

the imperfect ending -τορ affirms the status of δακ-ε- as an imperfect stem.

V.3.9.3 The split of **dā-* and **dāk-*

In synchronic historic Phrygian, it is very likely that *dā-* and *dāk-* were treated as separate, if somewhat related, roots with their corresponding principal parts. This is suggested by the existence of different present stems: the root *dā-* formed a reduplicated present stem *deda-* (alongside an aorist stem *dā(-es)-*),[588] whereas the root *dāk-* formed a thematic present stem *dak-e/o-* (alongside a perfect stem *dak-*).

Both of these synchronic roots, however, originate in a single PIE root, **d^{h}eh$_{1}$-* 'to put, place'. Clearly, we must be dealing with a case of an original split paradigm that eventually resulted in a split into two neo-roots. The Greek data likewise shows a presence of two allomorphs of the reflex of PIE **d^{h}eh$_{1}$-,* i.e. θηκ- and θη-/θε-, the former appearing in the active singular of the aorist stem and the active perfect paradigm, and the latter elsewhere.
Since Phrygian appears to have more fully split the two stems, whereas both allomorphs are still present in the same, active aorist, paradigm in Greek, the Greek distribution is likely to preserve a more archaic state of affairs.

In Greek, the stem θηκ- is used in the indicative of the aorist and in the perfect (albeit with reduplication in the latter). The stem θη- and its ablaut variant θε- are used everywhere else; while it does not appear to exist in the

[588] Depending on the analysis of *-es.* See §V.3.2.1 above.

indicative active singular of the aorist, it does appear in the dual and plural active indicative aorists, as well as in the middle aorist.

Limiting ourselves to the aorist and the present, we may attempt to determine an original distribution. Since the root *d^heh_1- was ablauting in PIE, whereas the stem θηκ- is not, the middle and dual/plural θηκ- forms in Greek must be innovative; originally, then, the stem θηκ- must have existed only in the singular of the indicative active aorist. This is corroborated by the fact that the stem θη/ε- appears everywhere, except precisely in the forms that θηκ- was originally limited to.

With Phrygian providing no clues as to the original PGPh. state of affairs beyond simply confirming the existence of an allomorph with *-*k*-, the Greek data suggests the following paradigm for the PGPh. root *$d^hē$-:

	aorist active indicative	present	aor. middle, non-indicative, ...
1sg	*$ed^hēkm̥$	*$d^hid^hēmi$	*$(e)d^he$-
2sg	*$ed^hēks$	*$d^hid^hēhi$	...
3sg	*$ed^hē(k)$	*$d^hid^hēti$	...
1pl	*ed^heme-	*d^hid^heme-	...
2pl	*ed^hete	*d^hid^hete	...
3pl	*ed^hen	*d^hid^hen	...

Table #61: The Proto-Graeco-Phrygian paradigm of the verb *$d^hē$-.

As for the perfect, we may propose that the aorist stem *$dēk$- was adopted entirely in PGPh. as the perfect stem.[589]

[589] If a previous perfect stem existed, it would have presumably been *$d^hed^hŏ$-. Its replacement would have been motivated by the synchronic opacity of the perfect forms resulting from a clash of a vowel-final perfect stem and the perfect endings, many of which

Since the full grade κ-stem of the aorists is present in the relevant perfect plurals of Greek, it is possible that a non-ablauting aorist stem *$d^hēk$- was used in PGPh. in the entire active perfect paradigm, even the plurals, where we would generally expect zero-grade formations.[590]

The Phrygian reduplicated present stem *deda-,* with levelling of the ablaut grade throughout at least the indicative active, and the perfect stem δακ- can be unproblematically understood as direct reflexes of PGPh. *$d^hid^hĕ$- and *$d^hēk$-, respectively, with innovative vocalism in the reduplicated syllable.

Evidently, the original split between Phrygian *$d^hēk$- and *d^he- must have begun in the aorists. The form most clearly facilitating the creation of a split paradigm would have been the 3sg indicative aorist active *$edē$, where a form-final *-k would have been prohibited by phonotactic restrictions. As one can see in table #61 above, this form would have stood out in the singular by not preserving the final consonant of the stem.
One attractive possibility is that as the restriction against stops in coda was lifted in Proto-Phrygian, a new 3sg form *$edēk$ was created, giving rise to an aorist paradigm with *k throught the singular, on the basis of which, alongside the perfect, the remainder of the paradigm would have been reworked. At the same time, on the basis of 3sg *$edē$ and associated formations without *k (i.e. the reduplicated present and the zero-grade formations in the aorist), new k-less aorist forms would have developed in 1sg and 2sg, cementing a singular root aorist stem *$dē$- > $dā$- that would

would have been vowel initial. The adoption of the aorist stem would have regularised the perfect paradigm and done away with vowel-vowel sequences.
[590] This seems corroborated by the Phrygian 3pl perfect form δακαρεν, which may be inherited from this stage, rather than a result of later inner-Phrygian levelling.

be associated with the present stem **dedē-* > *dedā-*.[591]
The thematic present stem *dāk-e/o-*, found in the copiously attested δακετ, would have emerged once the neo-root **dēk-* fully established its aoristic paradigm with the stem **dēk-*. With a prominent aoristic stem having no corresponding present stem, in contrast to **dē-* which would have been associated with the old reduplicated present **dedē-*, one would need to be newly created. The thematic presents were an extremely productive present category in general, so it is not surprising that a stem **dēk-* would form an associated thematic present stem **dēk-e/o-*.[592] With this development, the neo-roots **dē-* and **dēk-* would have been fully split.

One uncertainty in this scenario concerns the regularization of paradigmatic ablaut alternations. The forms *edatoy,* δεδασσιννι, and *(po)daskai* originate in what would have originally been zero-grade formations, yet they show a full ablaut grade, which must then be secondary. If the adoption of the full-grade throughout the entire finite verbal complex of the reflex of PIE **dʰeh₁-* preceded the split between **dē-* and **dēk-*, the split may have been facilitated by there only existing two allomorphs of the root: **dēk-* in the indicative aorist active and **dē-* in a variant 3sg indicative aorist active form and elsewhere. The variant **dēk-* would have proliferated at the expense of **dē-* within its own paradigm, since all the forms in **dē-* would have become re-analysed as belonging to the emerging neo-root **dē-*, whereas it itself would not need to undergo any additional shifts in any grammatical form.

[591] It is also possible that the creation of the aorist desinence **-es* resulted in the existence of two 3sg aorist forms: the extended **edēes* and an analogical **edēkes*. The crucial point remains that there would have been two competing 3sg aorist forms which would ultimately cause a split into two different paradigms, each utilizing some of the preserved forms and innovating others.
[592] An innovative athematic present stem would be an unlikely creation.

The alternative view is slightly less appealing. With an original ablauting scheme still persevering after the two neo-roots had split, the weak-stem of both **dē-* and **dēk-* would have been simply **de-*. In this case, both neo-roots would have needed to level their full-grade variant independently. This is still possible, of course, though slightly more complicated.
This analysis is of course predicated on the assumption that no finite verbal forms with the vowel **e* actually exist in Phrygian. This certainly seems to be the case for the neo-root *dā-*, whereas the neo-root *dāk-* is not attested in any form that would have originally used a zero-grade. It is possible in principle, then, that a form appearing with the stem **dek-* may yet emerge. Should this come to pass, we would have no recourse but to acknowledge that only **dē-* levelled its full grade, whereas **dēk-* did not.[593]

A form commonly cited as belonging to the reflex of the PIE root **dʰeh₁-* is *de*Ψ*eti*. As Obrador-Cursach (PhL 159) notes, the form appears in an unclear context: *de*Ψ*eti [:] to*↑*iatiei* | *asnaisnou* (with unclear word division). Analysing this form as verbal and as belonging to this root is questionable: its stem form ends in -Ψ, meaning we would expect its vowel to be **a* (cf. *da*Ψ*et*). Thus, for the time being, it is better to assume that this verbal form is not related to the *dā-* ~ *dāk-* complex.[594]

[593] One candidate commonly included in this category is the form *odeketoy* in °B-07. The usual segmentation is *o=deketoy*, with *o* being the preverb and *deketoy* showing this zero-grade stem. As we argue in §V.3.2.2 and §VI.1.6, the absence of an augment makes this interpretation unlikely, and the form should rather be parsed as *od=eketoy* < **h₁e-kʷei-toi*.
[594] The form appears on a terracota disk: °NW-101 *de*Ψ*eti to*↑*ia tiei as naisnou*. If we interpret *de*Ψ*eti* as a verbal form, a far better semantically fitting candidate in Indo-European terms than **dʰeh₁-* would be **dʰeg⁽ʷ⁾ʰ-* 'to burn', refering to the burning of an offering or even the disk itself, with **dʰegʷʰ-sī-* regularly developing into *de*Ψ*e-*.

How the two neo-roots **dē-* and **dēk-* would have semantically differed is uncertain. Oreshko (2022: 152-153) has recently proposed that the root *dā-* had the meaning 'to put, place' (cf. Gr. τίθημι), whereas the root *dāk-* had the meaning 'to do' (cf. Lat. *facio*). The semantic contexts in which the two appear are congruent with this analysis. In the New Phrygian malediction formula, the syntagm κακουν αδδακετ, with the verb derived from the root *dāk-,* is certainly better understood as meaning 'to do a bad thing', rather than 'to put a bad thing'. On the other hand, in the Old Phrygian dedicatory inscriptions, *edaes* is better understood as meaning 'placed', rather than 'made': it is more likely that the texts refer to the placing, rather than the creation, of the inscribed monuments.

We have glossed over the non-finite formations originating in the reflex of the PIE root **$d^{h}eh_{1}$-* in this section for the simple reason of none of them being known; if any are found, they are sure to shed some light on how the ablaut-grades and the stem-variants were being treated.
δετο-, ultimately deriving from a verbal adjective with the suffix **-to-*, is the closest to a non-finite verbal formation known in Phrygian. However, **$d^{h}eto$- < *$d^{h}h_{1}to$-* was lexicalized in PGPh. already (cf. Gr. θετός) and is as such mostly uninformative.

V.4 Non-finite formations

The only non-finite formation that can be securely identified in the Phrygian corpus is the medial participle, which appears in two varieties: as the present medial participle and the perfect medial participle.

V.4.1 The present medial participle

Relevant forms: αιδομενο- ‘blazing, burning’, γαμενο-, αργμενα[

For verbs that form thematic presents, the present medial participle is built from present stem (i.e. the root, the optional suffix and the thematic vowel) which is appended with the participial suffix *-meno-* (< PIE *-*mh₁no-*) (cf. PhL 107). The thematic vowel before this suffix always appears as *-o-*, as is expected. The participial suffix is declined as a typical thematic adjective.[595]

The only unambiguous example of this type is αιδομενο-, which almost certainly derives from the PIE root *h_2eid^h- ‘to burn’ which likewise forms a thematic present in Greek αΐθω ‘burn’ (its present medial participle being the perfectly cognate αἰθόμενος) (CIPP2 20).

The remaining two forms, γαμενο- and αργμενο-?, are most likely present medial participles as well or, at the very least, are medial participles that originate from a de-presential formation (cf. PhL 107). While the meanings and the etymological origins of the two forms remain enigmatic, the fact that the root morphemes are not reduplicated (as is expected in perfect medial participles; see §V.4.2) and the absence of the thematic vowel suggest that these are present medial participles of verbs with an athematic present stem. Thus, the athematic present medial participle appears to simply consist of the verbal present stem suffixed with *-meno-* (< PIE *-*mh₁no-*). The same as the thematic present medial participles, they are declined as thematic adjectives.

[595] For this type, see §III.2.1.

V.4.2 The perfect medial participle

Relevant forms: γεγρειμενο- 'written', (οπ)εσταμενο- '~ erected', (τιγ)γεγαριτμενο- 'cursed', (τιτ)τετικμενο- 'condemned', αργμενο-[?]

The perfect medial participle in Phrygian was built to the perfect stem of a verb which received the suffix *-meno-* (< PIE **-mh₁no-*) (PhL 107). The participle was declined as a thematic adjective (for which see §III.3.1.1) (*ibid.*). In terms of meaning, the formation appeared to express a stative-resultative passive meaning, referring to being in the state of having been subjected to the verbal action (e.g. τετικμενο- 'which has been pointed-at/judged)' = 'in the state of having been judged' = 'condemned').

The formation was always athematic, meaning that the suffix immediately followed the perfect verbal stem without an intervening thematic vowel (as opposed to the thematic present medial participle).
As is obvious from all the attested examples, the perfect verbal stem is always reduplicated, with the reduplicating vowel being *-e-* (PhL 107).

The perfect stems that were suffixed with *-meno-* to produce a perfect medial participle belong to a myriad of roots that would have formed different types of present and aorist stems. The stems we can identify are: γεγρει- (< **ǵʰe-ǵʰriH-*), (σ)εστα- (< **se-sth₂-*), γεγαριτ- (< **ǵʰe-ǵʰrHit-*), and τετικ- (< **de-dik-*). This same pattern reoccurring for all of these verbs suggests that the perfect stems of verbs were uniformly athematic and were reduplicated with the vowel *-e-*. This, in addition to the use of the zero-grade, is identical to the pattern used in the construction of the perfect medial participle in PIE, suggesting that the pattern was inherited entirely.

The status of αργμενο- is uncertain. It is possible it is an athematic present middle participle, but just as likely is the possibility that it is a perfect where reduplication is obscured as a consequence of the root originally beginning with a laryngeal.[596]

V.5 The verb in conditional sentences

Conditional sentences are frequently found in the Phrygian corpus, most notably and extensively in the New Phrygian period, where most inscriptions include, or are assumed to include, a conditional clause of some type.

Simple conditional sentences are comprised of two clauses: a conditional clause (*protasis*; the *if*-clause) and the matrix clause (*apodosis*; the *then*-clause).

The types of conditional sentences we find in Phrygian are generally imprecative, i.e. they express a wish for some negative consequence (in the matrix clause) provided certain conditions are met (laid out in the conditional clause), though we also find a handful of proscriptive/benedictive sentences, i.e. sentences that lay out a condition that, if fulfilled, will result in some positive consequence.
From a pragmatic standpoint, the attested conditional sentences in Phrygian are of the *predictive* type, meaning that the relation between the conditional

[596] For instance *h_1e-h_1rg^h-, which would regularly develop into αργ-.

and the matrix clause is causal: the realization of the event in the matrix clause is contingent on the realization of the event in the conditional clause (cf. la Roi 2022: 269-270 *et passim*).[597] In temporal terms, in these types of conditional sentences the matrix clause is posterior to the conditional clause (*ibid.*).

In the conditional sentences so far identified in Phrygian, both clauses refer to the future with respect to the time of utterance. By their very nature, future conditions are speculative, as they refer to some event that is not factual (i.e. not 'real') at the time of utterance, merely supposed (Horrocks 1995: 154-155). For the sake of brevity, the types of conditional sentences found in the Phrygian corpus, i.e. predictive conditional sentences where all clauses refer to a future time frame and the condition is speculative, will be referred to as future conditional sentences.

Syntactically, attested Phrygian future conditional sentences are peculiar in the sense that the protasis is only rarely expressed with an explicit *if*-clause. While we do on rare occasion find the conjunction αι(νι) 'if' being utilized,[598] the conditional clause is syntactically far more commonly a free relative clause introduced by the relative pronoun ιος 'whoever'. The vast majority of conditional sentences thus have the structure: *whoever does X* $_{protasis}$*, may Y happen* $_{apodosis}$, which we may pragmatically understand as roughly equivalent to: *if anyone does X* $_{protasis}$*, may Y happen* $_{apodosis}$. The conditional meaning of the protasis is apparently carried primarily by the verbal morphology and modal particles.

[597] For the terminology and references, see therein.

[598] For instance, in °18^{W} αινι κος […] κακουν αδδακετ 'if anyone a bad-thing does', […] or °130^{NW} αινι κος κακην αδδακετ '*id.*'.

V.5.1 Protasis

The verb of the subordinated conditional relative clause (the *protasis*) most commonly appears in the imperfect (e.g. ιος [...] αδδακετ), though other verbal formations, most notably the plain and the sigmatic optative, are also used (e.g. *ios kakoioi* °G-02, *ios* [...] *egeseti* °P-04a).

The use of a modally-marked mood such as the optative in a conditional clause with future temporal reference is easy to understand: the fulfilment of the condition is hypothetical, not factual, and is morphologically marked as such.

Some examples include:

°W-01b: *yosesait : materey : eveteksetẹy : ovevin : onoman :* <u>*daΨet*</u> (sec. sigmatic optative)

‘whoever to this Mother *eveteksetey* his-own[?] name would-put’

“whoever would put his name on this Mother *eveteksis*”

°B-05: *yos niy art sint imenan kaka oskavos kakey kan* <u>*dedasitiy*</u> (prim. sigmatic optative)

‘whoever this memorial bad-things *oskavos* badly *kan* would-put’

“whoever would put bad things *oskavos* badly towards this memorial”

°G-02: *ios oporokitis* <u>*kakoioi*</u> (plain optative)

‘whoever *oporokitis* would-harm’

“whoever would harm *oporokitis*”

°P-04a: *ios ni akenan* <u>*egeseti*</u> (sigmatic optative)

‘whoever the *aken* would-hold’

“whoever would hold the *aken*”

°P04b: *ios servot sati* <u>*kakuioi*</u> (plain optative)

'whoever *servot sati* would-harm'

"whoever would harm *servot sati*"

°130^{NW}: αινι ουεβαν δεδασσιννι πατρος σεμουν κορουμανη (sigmatic optative)

'if the monument they-would-put/will-put[?] of-the-father in this burial-plot'

"if they will put the monument of the father in this burial plot"

The imperfects show no diachronically apparent mood-forming suffix and formally appear to be indicative forms,[599] but are evidently modally used. Prehistorically, such forms in main clauses were used to express past imperfective semantics (cf. the Greek imperfects), with the past time reference suggested by their secondary endings.

The use of a formally past tense form in a conditional clause is not typologically unusual (James 1982: 375).[600]

Some examples include:

°B-05: *ivimun inmeney asenan daket torvetun ↑iray* (3sg impf. act.)

'to this memorial *asenan* would-do of-the-trees by-hand'

"(whoever) would do an *asenan* (=cutting[?]) of the trees by hand"

°B-07: *isyos tivun ke devun k(e) umnotan ordoinete(t)* (3sg impf. act.)

'he, who both Ti- and god *umnotan* would-properly-*et*'

"he, who would properly *et* both Ti- and the *umnotan* god"

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[599] *Contra* Obrador-Cursach (PhL 99-100), who takes forms such as αββερετ to be subjunctives. See further in §V.1.1ff.

[600] If a language contrasts imperfective and perfective aspects in the past tense, a modal meaning will develop either from both or from the form that marks the imperfective aspect (James 1982: 399-400). This is indeed the case in Phrygian.

°10[S]: ιος νι σεμουν του κνουμανει κακουν αδδακετ (3sg impf. act.)
'whoever to this grave a bad-thing would-do'
"whoever would do a bad thing to this grave"

°40[W] ιος νι σεμουν κνουμανε κακεν αδδακετορ (3sg impf. mid.)
'whoever to this grave a bad-thing would-cause-to-be-done'
"whoever would cause a bad thing to be done to this grave"

°6[W] [ιο]ς νι σεμουν κνουμανε [κακον] αββερετ (3sg impf. act.)
'whoever to this grave a bad-thing would-bring'
"whoever would bring a bad thing to this grave"

°73[W] ιος νι σεμον κνουμανι κακον αββερετορ (3sg impf. mid.)
'whoever to this grave a bad-thing would-cause-to-be-brought'
"whoever would cause a bad thing to be brought to this grave"

The imperfects in future conditional clauses apparently gradually encroached on the territory of more explicitly modally marked verbal forms. In the earliest Old Phrygian inscriptions we find explicitly modally marked forms in future conditional clauses (*da*Ψ*et* °W-01b, *egeseti* P-04a), whereas in the late Old Phrygian inscriptions, the imperfects already begin to appear in such clauses (*daket* °B-05, *ordoinete(t)* °B-07). By the New Phrygian era, the imperfects are the preferred choice in future conditional clauses (e.g. the ubiquitous αδδακετ).

The use of simple present indicative verbal forms in the protasis of a future conditional sentence is rare in the corpus.

For the active voice, the only clear example is found in the Middle Phrygian inscription, °W-11: πεννιτι ιος […], σουν ομαστα ομνισιτους 'whoever passes-by […], may *omasta omni* him' (cf. Obrador-Cursach 2020). It is

attractive to consider that the relevant distinction of a simple present indicative against the imperfect is to be interpreted along the lines of categories traditionally termed future-more-vivid and future-less-vivid: typologically, the latter is more likely to use a formally past tense form (James 1982: 388ff.).[601] The speaker's notion of the future is quite specific in the conditional sentence in °W-11: whereas the traditional imprecative formula merely supposes a possible state of affairs in the future (i.e. the harming of the grave/monument), the fact that people will pass by the grave with inscription °W-11 is a practical certainty from the standpoint of the speaker. Also notable is the fact that there is no modal particle νι in the conditional clause in °W-11, further suggesting that we are dealing with prediction (i.e. an expression of a high level of certainty) rather than supposition (i.e. an expression of possibility).

For the middle voice, we find four instances of what appears to be a simple thematic present in the protasis of a curse formula:[602]

°91^{W} [ιος νι σε]μον [κνουμανει κ]ακου[ν α]ββερετοι ...

'whoever to this grave a bad-thing causes-to-be-brought'

"whoever will cause a bad thing to be brought to this grave"

°113^{W} [... κακο]υν αββερετοι, ...

'a bad-thing causes-to-be-brought'

"will cause a bad thing to be brought"

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[601] The difference between future-more-vivid and future-less-vivid is one of the mental attitude of the speaker (Smyth 1920: 522-523). In future-more-vivid, the conclusion is perceived as more likely to be realized, or the result may be pictured more vividly. In future-less-vivid, the supposition is less distinct. "*The [...] difference is, therefore, often that of temperament, tone, or style*." (Smyth 1920: 523)

[602] We may perhaps also add *yos isekosos ↑emeney <u>supratoy</u>* °B-05, but it is not entirely clear whether *supratoy* is actually a present tense form. If it is, either the same analysis as below applies or, alternatively, it can be interpreted along the same lines as πεννιτι.

°129[W] ιος νι σα ματ[ε]ρε κακον αββερετοι [...], ...

‘whoever to this mother a bad-thing causes-to-be-brought’

“whoever will cause a bad thing to be brought to this mother”

°131C ιος νι σεμουν κνουμανει κακουν αββερετοι [...], ...

‘whoever to this grave a bad-thing causes-to-be-brought’

“whoever will cause a bad thing to be brought to this grave”

In light of our analysis of πεννιτι, it would seem likely that these are future-more-vivid forms. The fact that the present form was used in these instances rather than the expected imperfect form αββερετορ is puzzling, however, since the use of a future-more-vivid construction in an imprecative conditional clause is seen nowhere else in the corpus. It is striking and unlikely to be a coincidence that these isolated examples are all in the middle voice. If we read these forms as middle causatives,[603] the conditional clause of the curse formula would ostensibly mean “whoever causes something bad to be brought”. The grammatical subject here is not the agent, but rather the causer/inducer of the verbal action. In contrast, in the more common active variant of the clause “whoever would do/bring something bad”, the verb is explicitly modally marked by use of the imperfect, so the subject, while still being the agent, is only potentially involved in the verbal action. In both types of clauses, then, the grammatical subject is removed from the verbal action in terms of agentivity, which may explain why the speakers felt less need to additionally mark the potentiality of the causer’s involvement in the verbal action when using the middle causative construction.

[603] I.e. the causeeless causatives, for which see §V.1.3.

In the Old Phrygian era, modal particles are rarely found in attested conditional clauses; in fact, the only two unambiguous examples are the use of *ni(y)* in °B-05 (*yos niy [...] dedasitiy*) and in °P-04a (*ios ni [...] egeseti*). While the number of actually attested conditional sentences in Old Phrygian is comparably low, it is nevertheless quite remarkable that, in the Old Phrygian period, the only two attestations of this modal particle are paired with the only two attestations of the primary sigmatic optative in a conditional clause. It is possible that this was a syntactic requirement in this stage of the language;[604] on the other hand, this may simply be a coincidence and the use of the particle was optional, perhaps adding some semantic nuance.

In the New Phrygian era, modal particles are much more frequent in conditional clauses. While a number of examples do exist where no modal particle is found (e.g. ιος σεμουν [κ]νουμανε κακουν αδ[δ]ακετ °78^{E}), they are greatly outnumbered by attested conditional clauses with a modal particle. Most commonly, this particle is νι, but we also find κε.[605] This suggests that the use of the modal particle νι in particular, but κε as well, became more closely associated with predictive conditional clauses with a future time reference as a whole, and began moving towards grammaticalization.

[604] The only attested example of a primary sigmatic optative in a conditional clause in New Phrygian likewise shows the presence of νι, albeit as part of the conjunction αινι 'if': αι<u>νι</u> […] δεδασσιννι °130^{NW}.
[605] See further in §VI.2.3.

V.5.2 Apodosis

The verb of the matrix clause of most conditional Phrygian sentences identified so far has some modal meaning and is in a non-indicative mood: the imperative (e.g. *lakedo* °W-01b, ειτου, εγεδου, ...), the sigmatic optative (e.g. *aniva*Ψ*eti* °B-07), or the subjunctive (*podaskai* °G-02).

Some examples include:

°W-01a *yos […], akenanogavos* <u>*aey*</u> (subjunctive)

‘whoever […], *akenanogavos* may-he-be’

“whoever …, may he be the *akenanogavos*”

°W-01b *yos […] da*Ψ*et,* <u>*lakedo*</u> (middle imperative) *key venavtun avtay materey*

‘whoever […] would-put, may-he-be-seized *key* himself by the Mother herself’

“whoever would put …, may he be seized by the Mother herself”

°W-11 πεννιτι ιος [...], σουν ομαστα ομνισιτους (sigmatic optative imperative)

‘(whoever passes-by) [...], him *omasta* may-*omni*’

“whoever will pass by …, may *omasta omni* him”

°B-05 *yos [...] pupratoy, veban ituv* (imperative)

‘whoever causes-to-*pupra*[?], to-the-monument[?] may-he-go’

“whoever will cause/be *pupra* …, may he go to the monument”

°B-07 *isyos* [...] *ordoinete(t)*, *[...] aniva*Ψ*eti* (sigmatic optative) *smanin*

‘he, who [...] would-properly-*et*, [...] will-honour[?] this Manes’

“he, who would properly *et* …, will honour[?] Manes”

°G-02 *ios oporokitis kakoioi tovo,* <u>*podaskai*</u> (subjunctive)

‘whoever *oporokitis* would-harm of-him, may-he-be-trampled-upon[?]’

“whoever would harm his *oporokitis*, may he be trampled upon”

°2[W] ιος [...] αδδακετ, τιε τιττετικμενος <u>ειτου</u> (imperative), υ κε ακαλα <u>οουιτετου</u> (imperative) ουα

‘whoever [...] would-do, by Ti- condemned may-he-become, (and to-him) *akala* may-*ovit* his’

“whoever would do …, may he become condemned by Ti-, and may to him his *akala ovit*”

°32[E] ιος νι [...] αδδακεκ, γεγρειμεναν <u>εγεδου</u> (middle imperative) τιος ουταν

‘whoever […] would-do, written may-he-hold of-Ti- punishment’

“whoever would do …, may he hold the written punishment of Ti-”

°33[E] ιος νι [...] αδδακετ, γεγρειμεναν <u>εγεδου</u> (middle imperative) τιος ουταν, ακ κε οι βεκος ακκαλος τιδρεγρουν <u>ειτου</u> (imperative), αυτος κε ουα κ ε/οροκα γεγαριτμενος ας βαταν <u>τευτους</u> (imperative)

‘whoever [...] would-do, written may-he-hold of-Ti- punishment, and to-him bread *akkalos* inedible may-become, and he-himself and his *e/oroka* cursed by Bas may-*teu*’

“whoever would do …, may he hold the written punishment of Ti-, and may *akkalos* bread become inedible to him, and he himself and his *e/oroka* may go[?] cursed by Bas”

°99[NW] ιος νι [...] αδακετ, τιτετικμενος ας τιαν <u>ειτου</u> (imperative), με κε οι <u>τοτοσσειτι</u> (sigmatic optative) βας βεκος

‘whoever [...] would-do, condemned by Ti- may-he-become, and away his may-give Bas bread’

“whoever would do …, may he become condemned by Ti-, and may Bas give away his bread”

°120^{W} ιος νι [...] αδδακετ [...], τιε τι[ττετικ]μενος <u>ειτυ</u> (imperative), <u>ουελαςκοννου</u> (imperative) κ [...]

‘whoever […] would-do […], by-Ti- condemned may-he-become, and may-they-*velaske*’

“whoever would do …, may he become condemned by Ti-, and may they *velaske*”

There are some instances of a verb in the main clause appearing in a formally indicative formation. The use of indicative forms, specifically the imperfect, in the apodosis is securely established for the New Phrygian era:

°86^{W} ιος […] αδδ[α]κετ […] *protasis*, βα[ς] ιοι βεκος <u>μεβερετ</u> *apodosis 1*, ατ τιη κε τιτετικμ[ε]νος <u>ειτου</u> *apodosis 2*

‘whoever […] would-do […], Bas his bread may-he-bring-away, and by Ti- condemned may-he-become’

“whoever would do …, may Bas bring away his bread, and may he become condemned by Ti-”

°88^{C} ιος […] αδδακετ […] *protasis*, τιγγεγαριτμενο<ς> ειτου *apodosis 1*, πουρ ουανακταν κε ουρανιον <u>ιστεικετ</u> διουνσιν *apodosis 2*

‘whoever […] would-do, cursed may-he-become, and to king heavenly may-he-be-exposed$^{?}$ Dionysos’

“whoever would do …, may he become cursed, and may he be exposed to the heavenly king Dionysos”

°111^{NW} (---)-ος αδακετ *protasis*, Βας [...] <u>μεβερετ</u> (---) *apodosis*

“whoever would do …, may Bas bring away …”

Inscription °111^{NW} is uninformative, since it is damaged and incomplete, but in both °86^{W} and °88^{C} the imperfect is used in a main clause that is

coordinated with another main clause. A sole resultative main clause in New Phrygian conditional sentences most commonly used a verb in the imperative mood, though not exclusively (cf. °18[W]). The fact that the imperfect is attested as conveying a modal meaning in a main clause only when coordinated with another verb that is explicitly modally marked, but not in isolation, suggests that a modal meaning for the imperfects in a main clause has still not been firmly established by the New Phrygian era.

It is likely that formally indicative forms that were not imperfects were used in the apodosis in the Old Phrygian era already:

°B-05 (l. 8-10) *yos* […] *dedasitiy* *protasis*, *tubetiv oy nevos deraliv* *apodosis 1*, *mekas key koris abretoy* […] *apodosis 2*

> "whoever would put …, his *nevos deraliv* will *tube*, and the big *koris* will be broken"

°B-05 (l. 11-12) […] *daket* *protasis*, *nevos mederitoy* *apodosis 1*, *koris ke abretoy* […] *apodosis 2*

> "… would put, *nevos* will be bound, and *koris* will be broken"

The form *tubeti* appears to be a simple thematic present, i.e. not an explicitly modally marked form. We have already seen this formation used with a future-time reference in the conditional clause expressing the notion of prediction and the use of presents as futures in the proper contextual environment is typologically common (Bybee et al.: 275-278). Most likely, then, *tubeti* is a simple present with a future (predictive) meaning.

The form *abretoy*, with its use of the primary ending, whose root most likely originated in PIE **b^{h}reiH-* 'to break' (cf. LIV$_2$ 92-93 'to cut'), is most

likely to be a simple thematic present. The form would have developed as **b^{h}reiH-e-* > **b^{h}rei-e-* (by the laryngeal being **h$_{1}$*) > *brę̄-* <*bre-*>.[606],[607]

Thus, the two verbs, *tubeti* and *abretoy*, are both likely laying out a prediction on what is going to happen should the condition of the subordinate clause be fulfilled: "Whoever would do X (*dedasitiy*), he will Y (*tubeti*) and the *koris* will be broken (*abretoy*)."

The same must hold in the conditional sentence of lines 11 and 12, where both verbal forms of the main clauses again end with a primary ending, expressing prediction. *abretoy* is again a simple thematic present form, whereas *mederitoy* is best interpreted as a present tense verb showing the suffix *-i-* < **-eie-*: *me=der-i-toy* < **d^{h}er-eie-* (cf. LIV$_{2}$ 145-146: **d^{h}er-* 'to fasten, fix') (§V.3.5). The meaning of *mederitoy* would have also likely been predictive: 'he will be bound to' (< *me* 'with' + **d^{h}er-* 'to fasten' + passive).

There are other potential examples of a formally indicative form other than the imperfect being used in the apodosis in the Old and the New Phrygian corpus, but all such instances appear in poorly used contexts or may lend themselves to different analyses as well.[608]

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[606] Compare also the attested New Phrygian βρειτ (ιος κε βρειτ περβεδαν °114^{SW}), where we are almost certainly dealing with an imperfect.

[607] The form could have also evolved from a *je*-present via Pinault's law: **b^{h}reiH-ie-* > **b^{h}reį̂-i̯e-* > **breje-* > *brę̄*.

[608] To illustrate one such example, we could parse the final word, *da*[-]*ati*, in line 5 of inscription °B-01 as the verb of the apodosis of a conditional sentence (l. 4-5: *yos* […] *protasis*, […] *ktevoys ekey da*[-]*ati apodosis*), in which case it might be read as an indicative present formation. We cannot identify clause boudaries, however, so the verb of the apodosis may have already appeared in the damaged first half of line 5 or it may appear in the poorly understood following lines, perhaps being *kesiti* in line 8. *da*[-]*ati* itself could well be the verb of the protasis.

VI Other Parts of Speech

VI.1 Prepositions and preverbs

VI.1.1 The preposition αδ

αδ appears a number of times in New Phrygian, both in the form of a preverb (i.e. in αδδακετ, αββερετ, and αδειτου) and as a preposition (i.e. in α Τιε, ακ κε οι, ακ κολταη) (PhL 108). In its prepositional form, it is used almost exclusively with the dative case (*ibid.*).[609] In the New Phrygian curse formulae, the preposition αδ is most often found with Τιε: με ζεμελως κε δεος κε <u>ατ Τιε</u> τιττετικμενος (αδ)ειτου *'among men=and gods=and <u>by Ti-</u> condemned may-he-become'*. This suggests that one function of αδ was to introduce the agent of a passive clause (cf. PhL 108). The use of αδ in such constructions does not appear to have been mandatory; in many instances, αδ is omitted and the agent simply appears in the dative case on its own (cf. με ζεμελως κε δεως κε <u>Τιη</u> τιττετικμενος ειτου). When used in other types of constructions, αδ seems to function as a preposition used to

[609] There are two exceptions. In inscription °130^{NW}, the sequence αδ μεκαν Τιαν sees the αδ correlated with the accusative case 'by the great Ti-'. In inscriptions °14^{NW} and °2^{W}, the sequence αδ ατεαμας is found, but the syntactic structure is somewhat unclear; the ending -ας of ατεαμας cannot represent the accusative plural desinence (which would have been *-αις). ατεαμας may be in the genitive singular case. While uncommon and clearly substandard, there are other examples of a genitive singular being used in place of a dative singular (cf. ιος νι σεμουν κνομινος κακουν αδδακετ). Perhaps the best approach, however, is to interpret ατεαμας as a form in the dative plural case. See §IV.3.3 for the ending -ας appearing as a feminine dative plural ending in the pronouns.

reinforce the function of dative case: ακ κε οι βεκος ακκαλος τιδρεγρουν ειτου 'to=and him bread inedible may-become'.[610]

When used as a preverb, the function of αδ is somewhat easier to ascertain. We are fortunate to have access to inscription °96^{W}, where the protasis of the curse formula is written in Greek, while the apodosis is written in Phrygian. Since the characteristic protasis is known to us from other inscriptions, we may directly compare the verbal forms: the usual αδδακετ is translated as προσποιήσει. Since the verbal forms quite likely correspond to each other, it appears that Phrygian αδ was equated with Greek προσ-, which is used to indicate vicinity to or motion towards the verbal object. This does, in essence, agree with the syntactic function that αδ has in its prepositional form. Nevertheless, while the Greek preposition πρός has different directional and locative functions depending on the grammatical case of the forms it modifies, αδ is used with datives, and is, as such, presumably used in a more general locative meaning or, at best, as directional towards the indirect object (i.e. beneficiary) of a clause. This corresponds perfectly to the syntax of the New Phrygian protasis of a malediction formula: the indirect object in the dative case (most commonly κνουμαν) is where the verbal action is directed (i.e. αδδακε- 'to do to', αββερε- 'to bring to'). In terms of translation, Phrygian αδ is to be equated with Greek πρός when the latter is coordinated with a nominal form in the dative case.

[610] It is difficult to say whether ακκολταη in °30^{S} ought to be segmented as αδ=κολταη, since the syntax is somewhat unclear and the preceding part of the inscription is fragmentary: ... οι ακκολταη κε ταν ειννου 'him to-*kolta*=and that/her(?) may-they become' = 'for him and for the *kolta* may they become that/thus'(?). See also §III.3.6.1 for the derived term κολταμαν.

While the prepositional and preverbal forms (ατ Τιε, ακ κε οι, αδδακετ, αββερετ) suggest that the final consonant of this preverb was assimilated to the following consonant (PhL 156-157), αδειτου shows without question that the final consonant of this preverb was -δ. This final -δ appears to have been assimilated to a following stop.[611]

The usual etymological connection has seen *ad* as being a reflex of a PIE **h₂ed* (which can be directly compared to Latin *ad*) (PhL 108). This identification is very difficult, however. Proto-Greco-Phygian lost its final stops, meaning that a simple preposition **h₂ed* could not have surfaced with a final consonant. Even it if did, however, Phrygian underwent the *Lautverschiebung,* which would have seen an etymological *d* devoiced.[612]

The *-d-* of the preposition can likely only stem from an earlier **dʰ* which must at some earlier stage not have been word-final. Since prepositions do not tend to be individually accented, the behaviour of prepositions is best compared to that of the proclitics; a vowel that is explicitly known to have

[611] See Šorgo (2019) and §II.2.3.2.1 for more details on this phenomenon. It appears that final stops that re-emerged through various processes during the development of Phrygian, after having first been lost in early Proto-Graeco-Phrygian, underwent a weakening at some point during the Old and New Phrygian periods and became phonetically unreleased. This facilitated their assimilation to following segments and produced the characteristic geminate stops of New Phrygian. These geminates were then subsequently simplified into single stops, a process which is likely to have run its course by the very last New Phrygian inscriptions. The majority of new word-final stops would have, for all intents and purposes, been lost through this process, though it seems likely that New Phrygian (at least while the language was still written) never fully phonotactically prohibited their existence, as suggested by the continuing spelling of the 3sg secondary ending as -τ.

[612] The only way to salvage this idea is to propose that we are dealing with a generalized sandhi variant from before voiced stops, similarly to how the reflex of Proto-Slavic **otъ* ends in *-d* in some daughter languages. Against this possibility, we may note that comparatively fewer Proto-Phrygian verbs would have begun with a voiced stop than in Proto-Slavic (due to the reflex of initial laryngeals and due to the plain voiced stops developing into voiceless stops in Phrygian).

been lost in final position when part of a prosodically dependent element was *-i*.[613] If we combine these two points of data, we may, for the time being, assume that the preposition/preverb αδ is a reflex of an earlier sequence **ad^{h}i*. In Indo-European terms, a final element **-d^{h}i* may, of course, be recognized as a suffix used to impart a locative meaning.

Following this assumption, what antecedent could the preceding *a-* represent? Probably the most appealing option is to follow the usual etymological connection with the PIE preposition **h$_2$ed* and simply reconstruct a Proto-Graeco-Phrygian locative preposition, which has been reinforced by the addition of a productive locative marker: **h$_2$ed-d^{h}i*,[614] which then regularly developed into PGPh. **adzd^{h}i* > PPh. **azd^{h}i* > PPh. **azdi* > PPh. **adi* > NPh. αδ.[615] This suggests that the treatment of a double dental cluster in Phrygian was *-TT- > *-*sT*-.[616],[617]

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[613] This is not to say, however, that some other vowels would necessarily not have also been lost in this environment.

[614] While true that a reflex of this particular combination is not attested in any other Indo-European language, there is no reason to doubt the possibility of its existence. The use of *-d^{h}i* to form locative adverbs is well established; compare particularly Greek -θι, where this locative marker was certainly productively used at some point in its prehistory.

[615] The development *sC^{h} > PPh. *C^{h} is regular, as seen in 3sg mid. impv. *-*esd^{h}ō* > OPh. *-edo*.

[616] It is usually assumed that *-TT- developed into *-*sT*- in Greek as well, which would push this development into the Proto-Graeco-Phrygian period. Stefan Norbruis (2023), however, convincingly argues that the regular Greek reflex of a double dental cluster behaves differently from a cluster composed of **s* and a dental: PIE *-*TT*- > PGr. *-st^{h}- (cf. PIE **uoid-th$_2$e* > Gr. οἶσθα), with PIE *-*sT*- sufacing as *-*sT*- (i.e., without aspiration). If the Phrygian interpretation is valid, this would mean that the two clusters still had distinct reflexes in Proto-Graeco-Phrygian (presumably *-*TsT*- vs. *-*sT*-, as would have also been the case in PIE), with Phrygian subsequently merging both of them, while Greek independently developed the distinctive aspiration in the original double dental clusters.

[617] This is assuming that the creation of αδ predated the loss of final stops. It might well have been the case that PIE **h$_2$ed* regularly developed into a PGPh. preposition **a*, which was only then extended with a synchronically productive suffix **-di* that originated in PIE **-d^{h}i*.

Alternatively, one could imagine that the feminine stem of the demonstrative pronoun, i.e. **h₁eh₂-* > PGPh. **ā*, was extended with the adverbial suffix **-dʰi*. We may be reasonably sure that both the feminine and masculine locative singular forms of the demonstrative pronoun **h₁e-* were grammaticalized in Proto-Graeco-Phrygian as adverbs meaning 'where' or 'when', which developed into the conjunction 'if', i.e. **h₁ei* > Gr. εἰ 'if', **h₁eh₂(e)i* > dialectal Gr. αἰ 'if', OPh. *ay=ni*, NPh. αι=νι 'if, when' (cf. Chantraine 1999: 316; §VI.2.1). It is not impossible then, that a new locative adverb could be created from a feminine stem **h₁eh₂-* + **-dʰi*, which might have been subsequently grammaticalized as a preposition.

The reconstruction of the pre-form of αδ as **h₂ed-dʰi* is still preferred here for the simple reason that, while both options are formally compatible with the attested data, the assumption of a derivation from **h₂ed* requires one to only assume that the preposition was reinforced, but underwent no other changes in its syntactic behaviour, while a derivation from a pronominal **h₁eh₂-* requires the creation of a new adverbial form divorced from its point of origin and its subsequent re-interpretation as a preposition.[618],[619]

VI.1.2 The preposition αϛ

The preposition αϛ appears to occupy a syntactic niche very closely related to that occupied by αδ. In the clearly understood examples we have, αϛ is used as a preposition that introduces the agent of a passive clause; in

[618] A similar set of considerations apply to the directional preposition αϛ, for which see the following section.

[619] One may note the similarity of early Proto-Phrygian **adʰi* to Sanskrit *ádhi* 'over, above' of uncertain origin (Mayrhofer 1992: 67). The semantic mismatch would in any case require these to be independent creations.

contrast to αδ, the agent introduced by ας is in the accusative case (PhL 108).[620] The examples of this use that we find in the corpus are: ας Τιαν 'by Ti-', ας Βαταν 'by Bas' (*ibid.*). We should note that, in contrast to αδ, the use of ας when introducing the agent of a passive clause was not optional.

The sequence we find in inscription °31^{S} is more puzzling: ας σεμουν κνουμαν αδιθρερακ ξεινεοι [...]. The preposition ας is used to introduce a prepositional phrase in the accusative case (ας σεμουν κνουμαν '*as* this grave'), but since κνουμαν 'grave' refers to some part of the grave complex and the syntactic construction does not appear to be passive, the prepositional phrase clearly cannot indicate the agent. Most likely is that the ας should be understood as imparting some locative information, most likely directional in light of its use with the accusative: *'*towards this grave Adithrerak for-Xeune*'*. For an analysis of this inscription, see further in §IV.6.

The preposition ας appears not to have been used as a preverb. Since it was used with the accusative case, it is a reasonable proposition from the Indo-European perspective that it was generally used in an allative function, i.e. indicating movement towards. The use of ας in a prepositional phrase

[620] There is one example of ας being used with the dative case: ιος νι σαι κακουν αδδακεμ μανκαι <u>ας ανανκαι</u> 'whosoever to-this stele something-bad does by-force' (PhL 108). Most likely, we are dealing with an instance of case syncretism in spoken language; the inscription formula itself is non-standard, and the spelling αδδακεμ suggests we are dealing with a scribe who was not very familiar with the writing tradition of Phrygian and presumably simply wrote the language as spoken, as opposed to following the "literary" version of the language. We may also note that the entire phrase has an instrumental meaning 'by force' and does not actually introduce a verbal agent.

indicating the verbal agent must have been an outgrowth of this initial function.

As far as the etymology of αϛ is concerned, the same arguments that have been made for αδ apply. It is quite clear that, due to its association with the accusative case, the -ϛ of the preposition was originally some type of a directional marker (cf. Gr. εἰϛ < **en-s*).[621] For the time being, it is probably for the best to simply note that -ϛ could be used to impart an allative meaning to a form at some point in Phrygian pre-history.

The origin of the element *α*- is presumably the same as in αδ (PhL 183, §VI.1.1). All the considerations pertaining to the stem of that preposition apply equally to αϛ. We may note, however, that the argument for deriving αδ from **h₂ed* (cf. PhL 108) is bolstered by the addition of αϛ: if αδ and αϛ were both originally de-pronominal adverbs originating in the stem **h₁eh₂*- , both would need to have lexicalized into a purely prepositional role, whereas assuming a starting point with a preposition **h₂ed* > **a*, αδ would simply be the product of reinforcement with the reflex of *-*dʰi*, and αϛ would be the result of extension with a directional marker; their syntactic roles as prepositions would not need to have changed at all.

VI.1.3 The preverb *en*

en appears a handful of times as a preverb in a verbal formation: e.g. *eneparkes =en=e-park-es*- (PhL 109). Most likely, this preverb originated

[621] The -ϛ of Greek πρός, while directional in conjunction with the accusative, is, of course, derived from *-*ti* (Chantraine 1999: 941). Phrygian never underwent the *-*ti* > *-*si* change that took place in some dialects of Greek.

in a preposition *en* (cf. *ibid.*, PhL 227), which would have been regularly descended from PIE **h₁en* 'in, inside' (cf. Gr. ἐν, Lat. *en*, Goth. *in,* etc.) (*ibid.*). In the few verbal forms where a preverb *en* can be identified, *eneparkes* is likely to confirm the semantic identity between PIE **h₁en* and Phrygian *en-*. In this verbal form, the element *park-* is most likely originally a lengthened grade variant, **pērk-,* as would be expected of an original sigmatic aorist, of a verbal root originating in PIE **perḱ-* 'to scratch' (*ibid.*). The form *eparkes* then means 'he scratched', with the preverb *en-* modifying this verbal meaning, the resulting *en=eparkes* 'to scratch in' being used in a sense of 'to inscribe, to incise, to carve in' the inscription into the stele.[622]

VI.1.4 The preposition ις

The preposition ις likely functioned as a preverb the verbal form ιστεικετ (Lubotsky 2004: 235). It appears in a clause that expands on the malediction formula: πουρ ουανακταν κε ουρανιον ιστεικετ διουνσιν 'for/to king=and heavenly *isteiket* Dionysos' = 'and may he *isteike* for Dionysos, the heavenly king'.

From a purely formal perspective, it is appealing to segment *isteike-* as composed of a preverb *is*, a verbal root *teik-*, and the thematic vowel *-e-*. Certainly, in an Indo-European perspective, the initial *is-* can hardly be anything other than a preverb, which likely modifies the meaning of the verbal construction. Lubotsky (2004: 235) has interpreted the root as being identical to τικ- < **deiḱ-* and compared the construction of the verbal form to Gr. ἐνδείκνυμι 'to declare oneself to, (be responsible to)' or ἐκδείκνυμι

[622] For the semantics, compare Gr. γράφω 'to write' < PIE **greb^{h}-* 'to carve'.

'to expose', which would be fitting semantically, the whole clause in which it appears meaning something like 'may he be responsible to/exposed before Dionysos, the heavenly king'.

It is possible that ις originates in PGPh. **eks* (> Gr. ἐξ), in which case ιστεικετ- would be almost identical to Greek ἐκδείκνυμι 'to expose'. While we would generally expect Proto-Phrygian **eks* to develop into ***ik* due to the reduction of final clusters, prepositions do not appear in isolation, but are apparently accentually dependent on the following word, which explains why we do not find the expected word-final development of **ks* > *k*. We have already proposed that a Proto-Phrygian cluster **ks* underwent a special development into /ʃ/. The following relative chronology would produce the attested form ις:[623] 1) reduction of unaccented **e* before two consonants; 2) **ks* > ʃ.

The preposition ις as part of a prepositional phrase is only known to appear a handful of times in the Phrygian corpus.

The following attestations appear in °116[W]:

πινκε τας δακερης ονομανιαις μιρου ικ κναικαν εδαες | ις αργμεν[-] οπαρικο οαν οε αυται ις κε εν τοισνιοι κνουμαν τιαν τε[ ]μαρδι ιδετοι οινις

The first clause has been proposed to mean: πινκε τας δαρερης ονομανιαις μιρου ικ κναικαν εδαες 'five these (acc. pl.) pieces (acc. pl.) named (acc. pl.) of-*miros* (gen. sg.) for-the-sake-of/to wife he-put' = 'he placed these previously named five pieces of the *miros* for (his) wife' (Lubotsky 1993: 130-131).[624]

The following clause or clauses are unfortunately not understood well and can provide little further insight.

[623] We have already suggested that Old Phrygian ʃ develops into New Phrygian σ.
[624] In the same inscription, five pieces of the funerary plot were previously listed.

Orel (1997: 133) assumes that the prepositions appearing in °116^{W} as ικ and ις, as parts of prepositional phrases ικ κναικαν and ις αργμενα[-], are identical on an underlying level and that the spelling ικ is the result of assimilation of -ς to a following κ-. At first glance, this is somewhat suspect: we have positive evidence that a word-final -ς, even in a clitic, does not undergo assimilation when followed by a stop. There are numerous examples of -*s* followed by a velar (specifically *k*-) existing, both in Old and New Phrygian, that do not suggest an assimilation of the sibilant would have taken place. Nevertheless, Orel's proposal can still be salvaged if we assume that the preposition actually ended in /ʃ/: in that case, the assimilation to a following velar would be limited to this segment, while the more common /s/ would not undergo assimilation. See further in §II.2.3.2.1.

If the phrase ικ κναικαν does use an assimilated form of ις, it would suggest that this preposition was used with the accusative case; the use of a preposition ending in an original *-*s* pairing with the accusative is also found in the preposition ας and possibly πουρ, if it originated from **por-s*.

VI.1.5 The preposition *met*/με

με is primarily used as a preposition (PhL 296), but also appears as a preverb, once in the form *met=ebaes* °G-12 'he spoke with[?]' and most commonly modifying the verb βερ-ε- (*contra* PhL 296-297).

The preposition με is generally understood rather well and appears with the dative case (PhL 108, 296). Most commonly, it appears as part of the phrase

με ζεμελως (κε) δεως (κε), translated conventionally as '*among men and gods'* (*ibid.*). The interpretation provided by Lubotsky (1998: 419-420) seems to be entirely valid with regards to this phrase: the preposition με has the meaning 'among' (clearly comparable with Greek μετά when used with a dative nominal form).

In the sequence *metebaes* °G-12, *ebaes* is most likely a 3sg aorist verbal form *ebaes* 'he spoke' (< *h_1e-b^heh_2-) and *met* seems to be the preverb meaning 'with' (cf. Gr. μετάφημι 'to speak among'). This suggests that the discussed preposition/preverb originally ended with *-t*, at least in the Old Phrygian era.

Etymologically, *met*/με derives from a PIE preposition **me*, a prepositional form of which is still attested unextended in Greek μεχρί 'until' < **me=g^hsr-i* 'by-hand' (Chantraine 1999: 692). Since Greek preserves this archaism, it seems clear that the PIE preposition **me* did not originally end in a consonant. A comparison of the Old Phrygian preverb *met* and Greek μετά suggests that **me* was extended with a final **-t* in Proto-Graeco-Phrygian already.[625] Phrygian then preserved **met* unchanged, whereas Greek innovated a new preposition μετά, likely on the basis of κατά *vel sim.* (Chantraine 1999: 690)

Recently, Obrador-Cursach (PhL 108, 112, 296-297 *et passim*) and Hämmig (*apud* PhL) have proposed that, while Phrygian did possess a preposition *me* (which is seen in the με ζεμελως δεως phrase), some

[625] This would have evidently only been possible when **met* was used as a proclitic and attached itself to the following word. In isolation, word-final stops were not permitted in Proto-Graeco-Phrygian.

instances of the sequence *me* actually represent a prohibitive particle descended from PIE **meh₁* (cf. Gr. μή, Skt. *mā́*). This proposal requires further discussion.

The primary and most convincing evidence for this assertion is supposedly to be found in phrases that appear in the apodosis of some curse formulae: με κε οι τοτοσσειτι βας βεκος and the similar βας ιοι β(ε)κος μεβερετ. So far, we have followed the analysis given by Lubotsky (1997: 126), who translates Βας ιοι βεκος μεβερετ °86^{W}, °111^{NW} as '*Bas will take his* (i.e. the perpetrator's) *bread away*', interpreting με as a prepositional element meaning '*away'*.[626] Since the enclitic pronominal form (ι)οι appears to be undeclinable and is known to be used as a genitive singular pronoun 'of/from him' (synchronically used as a possessive pronoun '*his'*) and as a dative singular *'to him, ...'*, we may in principle take (ι)οι as part of a nominal phrase (ι)οι βεκος meaning '*his bread'* or as an independent sentence element in the genitive case: '*and away from-him ought-to-bring Bas bread'* (i.e. not *'to him'*). The same principle applies for βας ιοι βεκος μεβερετ: '*Bas his bread ought-to-bring-away'* or '*Bas from-him bread ought-to-bring-away'*. Semantically, the differences are minor.

Obrador-Cursach and Hämmig argue that this interpretation of με is incorrect: they rightly point out that a sequence of a preverb and a verb in Phrygian is never separated. As such, the verb cannot be με=το- 'to give away'. They also point out the semantic problem that the verbal stem το-

[626] 'Give' and 'take' have diametrically opposite meanings, but both are, for instance, expressed with the same verb, *dádāti,* in Sanskrit. In any case, both translations would essentially mean the same in this context: if Bas is to 'give away' someone's bread, it is pragmatically clear that this is in essence a redistribution, taking from the perpetrator to give to someone else.

means ‘to give’, whereas the clause is supposed to describe the negative consequences that ought to befall anyone who damages the grave; since the basic meaning of the verb is not modified through a pre-verbal element, the conclusion they draw is that there must be a particle of negation somewhere in the clause. They identify this particle of negation as με < PIE **meh₁*. The clause under discussion can then be translated as *‘and may Bas not give him bread’*.

The primary issue with this interpretation, and one both authors clearly point out, is that PIE **meh₁* should surface as Phrygian **mā/μα. Both argue that, on this basis, the traditional assumption that older **ē* becomes Phrygian *ā* ought to be re-examined and that this development might have been conditional; presumably, in word-final position, then, **ē* > **e*.[627] We must concede that we do not have any other potential examples of what word-final PGPh. **ē* (either from PIE **ē* or **eh₁*) could have developed into in Phrygian, simply by the virtue of such a desinence being exceedingly rare to begin with. Taking into account the broader vocalic system of Phrygian, however, there is no evidence whatsoever that a final long vowel was ever shortened; indeed, while we have no clear example of what the development of a final **-ō* would have been (again, simply due to the fact that such a desinence would be rare), we can unambiguously see that the long diphthong **-ōi* was not shortened before the Old Phrygian era, which holds for **-āi* as well (since the treatment of **-ai* and **-āi* is

[627] Hämmig argues further that it was actually **ē* > **ā* that was the less common reflex of **ē*. Since no conditioning factors are provided, it is unclear why **dʰeh₁-* > **dʰē-* would regularly develop into *dā-* (e. g. *daket*, *dedasitiy*, δακαρεν, …) or **meh₂tēr* into *mātār*. Hämmig bases her reasoning on interpreting βερετ as being a subjunctive, i.e. **bʰer-ē-t*. This is hardly tenable: there is no necessary reason to assume a synchronic subjunctive at the expense of an imperfect, and even if there were, it would be more parsimonious to assume that the -ε- element was levelled from athematic subjunctives.

generally different in New Phrygian). In systemic terms, then, *-*ē* > *-*e* is unlikely. One may sidestep this argument by proposing that the shortening of **mē* to **me* was not unconditioned. Rather, what springs to mind are the vocalic reductions found in clitics: *si* > *s,* **adi* > αδ, etc. One could then assume that **mē*, being a particle bound to a verbal form, would not have been accented, which resulted in a shortening of the vowel, producing *me.* Unfortunately, the clitic elements we can identify do not end in what would have been an etymologically long vowel, so we cannot ascertain how a clitic reduction would have affected those.[628] Do note that the PIE particle **meh₁* was accented on its own and did not function as a clitic at all, though we may, for the sake of argument, assume that it might have become cliticised at some point. A more pressing problem is that the clitic reductions we find are actually comparatively late, likely only taking place during the Old Phrygian era, whereas the **mē* > **me* reduction would need to have preceded the early **ē* > **ā* development.

Even if we were to concede to shortening and the very strained chronology, however, the rest of the argument is not convincing. The verbal root meaning 'to give' is not actually semantically problematic if we include some element meaning 'away', as proposed by Lubotsky; in that case, we are dealing with a redistribution, i.e. 'giving away' pragmatically meaning 'taking to give away', as is argued in footnote #626 above.

The argument that a preverb and verb are never separated anywhere else in the corpus remains relevant, however. It is clear that the verbal form is not

[628] One could argue that the clitic (ι)οι, ostensibly an original dative, shows a shortening of the vowel if its declension was thematic: **h₁iōi* > **jōi* > **joi* > NPh. (ι)οι. This seems not to be the case, however; the enclitic dative of this type actually had an ending *-*oi*, i.e. with a short vowel, as clearly seen in Skt. *me, te* < **h₁moi*, *toi*. See §IV.9.

με=το- that is separated by intermediate elements. There is, however, no good reason to assume that these two elements must belong to a single lexical item. με was likely a preposition simply modifying the enclitic pronoun (ι)οι: με κε οι τοτοσσειτι βας βεκος 'from him ought-to-give Bas bread'. Alternatively, and less likely, με might have been used adverbially in this context, simply meaning '*away from':* με (...) οι τοτοσσειτι βας βεκος 'away his ought-to-give Bas bread'.

The analysis of με as **meh₁* by Obrador-Cursach and Hämmig, while raising some interesting questions, is ultimately rejected in this work, since the proposed development **meh₁* > με simply cannot be endorsed.

There is no need to interpret the sequences μεβερετ and με [...] τοτοσσειτι as being syntactically equivalent. Rather, in the case of μεβερετ 'may-bring-away' we are dealing with an actual preverb, whereas in the sequence με [...] οι τοτοσσειτι 'away from-him may-give', με is used as a preposition modifying the pronoun οι. In this light, the preposition με is best understood as meaning 'from, away from' when paired with the genitive case.

VI.1.6 The preverbs οδ and οτ

The preverb οδ is rare (cf. PhL 109, where it is listed as *o*), only appearing a single time, in *od=eketoy* °B-07. There is one additional example that can be interpreted as showing this preverb: οττιττετικμενος °124^{C}. As a preposition, οδ may appear in the sequence οτ τιαμα °18^{W} (cf. PhL 321).

The verbal form *odeketoy* is usually interpreted as consisting of the preverb *ot* (i.e. the preverb assumed to be present in οτεκτει[) and a conjugated form of the verb *dāk-* (as most famously found in (αδ)δακετ): **ot=deketoy* (PhL 157-159). This interpretation is far from satisfying, however: the desinence

-e-toy would mean that this is a thematic middle form with a primary ending, which is hard to reconcile with the zero grade of the root, *dek-*. Not only does the verbal root *dāk-* never appear in zero grade, even if this absence were simply due to chance, we would not expect a thematic verb to exhibit different ablaut grades in the active and middle voices.[629] In addition to this issue, *o=deketoy* would need to be analysed as a simple present, which is used for expressing a future time reference or prediction.[630] This does not fit the context in which it appears: *Manes [...] estaes, va knays Manuka odeketoy* 'Manes [...] erected (the monument), his wife Manuka **_will-place/establish_'. A far more natural reading would see *odeketoy* analysed as another form in the past indicative, which requires the presence of an augment. On the basis of this consideration, *odeketoy* is best segmented as *od=e-ke-toy*, i.e. as a conjugated verbal form *eketoy* (3sg aor. mid. to a root *ke(y)-* < PIE **k*^{w}*ei-* 'to make', cf. Gr. ποιέω < **k*^{w}*oi-eie-*) preceded by a preverb *od-*.[631],[632] The two clauses are then much more in line: '*Manes [...] erected (the monument), his wife Manuka made/caused-it-to-be-made*'.

In οττιττετικμενος, we may note that the participle τετικμενο- is preceded by two preverbs: oC and τιτ.[633] Since a final dental in a preverb assimilates to a following dental, we have no way of telling whether it is the preverb οδ that appears in this sequence, but it is certainly a viable possibility.

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[629] This is in addition to the fact we would need to assume that the New Phrygian imperfect middle αδδακετορ would need to have levelled out the zero-grade at some point on the basis of the active.
[630] For the semantics of this category, see §V.1.2.
[631] Preverbs in Phrygian always appear before the augment; cf. εν=επαρκες.
[632] See also §V.3.2.2.
[633] Obrador-Cursach (PhL 109) lists the preverb as simply *o*, but a final consonant in this preverb is needed to account for the geminate spelling οττ-.

The meaning of οδ cannot currently be clearly ascertained. The origin of the element *o-* is unknown at this point. The desinence *-d*, however, can quite likely be equated to that found in αδ; i.e. it derives from an original directional adverbial suffix *-*dʰi*. This suggests some prepositional affinity between αδ and *od.*

VI.1.7 The preverb οπ

The preverb οπ- appears a single time in the Phrygian corpus, in οπεσταμεναν (PhL 110). Its precise meaning is unknown. However, since its synchronic form is οπ-, a reasonable guess may be made as far as its etymology is concerned. Of the particles found in PIE, **h₁ep-* (as found most famously in Greek ἐπί) is the most prominent one ending in *-*p.* Most likely, then, οπ- reflects this particle in the *o*-grade, the form most likely originally ending in *-*i*: **h₁opi* (cf. Gr. ὀπι- (in ὀπίσω) (Chantraine 1999: 808-809), Mycenaean *o-pi*, Latin *ob,* Oscan *op*, Old Armenian *u*) (PhL 110).

VI.1.8 The preposition *por*/πουρ

The preposition *por*/πουρ is used to indicate the beneficiary or the goal of a verbal action and is best translated as "to, for" (PhL 109). It is used alongside a nominal in the dative or accusative case; there is no discernible difference in meaning between the two.
It is used in the following instances:
[e]daes por mater[ey/an] °W-05b 'he placed for the mother (dat./acc. sg.)'
Manes (...)por niyoy est[a]es °B-07 'Manes for *niyos* (dat. sg.) erected'

πορ κοροαν °W-11 ‘for the girl (acc. sg.)’
πουρ κε ουανακταν ουρανιον ισ̣τεικετ διουνσιν °88[C] ‘and to heavenly king (acc. sg.) Dionisius[?] may-he-be-responsible’

The fact that the preposition appears written as *por* in Old Phrygian and as πουρ in New Phrygian suggests that the preposition originally included a long vowel; as such, it would have had the form **pōr* in Proto-Phrygian.
The preposition must be ultimately descended from some variant of the PIE preposition **per/pr̥/pro/*etc. (cf. PhL 109).
At first glance, the most tempting scenario would see the Phrygian form originate in the PIE variant **pr̥* (> Gr. πάρ, Lat. *por*) with a development **r̥* > **ōr* / $C_{[+labial]}$_#. The *o*-vocalism of the reflex of a syllabic resonant when next to a labial is consistent with other likely Phrygian reflexes (cf. μροτις < **mr̥tis*). The different order of the vocalic and consonantal segments compared to the intervocalic reflex of **r̥* can be explained by the word-final position of the syllabic resonant; indeed, the same situation can be found in some Greek dialects, cf. πάρ < **pr̥* and Homeric κραδίη < **kr̥dijā* > Attic καρδία ‘heart’.
Problematic, however, is the length of the vowel in this preposition. Certainly, this length cannot be the result of a development **-or#* > *-ōr#*, which is counter-indicated by the retention of the short vowel in the verbal ending -τορ < **-tor*. Monosyllabic lengthening is a theoretical possibility, though this would need to be an entirely separate Phrygian development unconnected to any proposal positing this development for PIE (cf. CIEL 143), since such a sound law was not operational at the earliest stages of Greek and thus cannot have been productive in Proto-Graeco-Phrygian either. There is also no other form that would suggest such a development,

and it seems to be actively counterindicated by PIE **h₁en* > *en*/εν, and not ***ān* or ***ḛ̄n*.

Since no other reflex of a word-final vocalic resonant is known, a development where a word-final vocalic resonant would develop into a sequence of a long vowel and a resonant is generally possible, but is not appealing at all. Phrygian seems to have had a tendency toward preserving the moraic weight of a syllable, and turning a word-final light syllable into a super-heavy syllable is an unlikely development.

Perhaps the best solution is in making note of the fact that many Phrygian prepositions and particles had some secondary element added as the desinence. If this happened with this preposition as well, a very likely candidate would be the addition of *-*s*. Such an addition would solve two issues with a single stroke: 1) the long vowel can be explained by compensatory lengthening through the following sequence of developments: **pr̥* > **por* >> **por* + *-s* > **pors* > **pōr*;[634] b) since the formant *-*s* was apparently used to impart an accusatival force to the a preposition (cf. αδ using the dative, but αδ + ς > ας using the accusative), this can explain why the preposition seemed to have allowed the use of the accusative case to indicate the beneficiary of a verbal action.[635]

In fact, such an addition of *-*s* need not have been a late Phrygian-exclusive innovation. One may directly compare Armenian *aṙ* 'at, to, near' < PIE **pr̥s(V)* (Martirosyan 2009: 100-101).

[634] Recall that the Phrygian corpus includes no examples of a resonant and sibilant cluster.
[635] Also note that PIE **pr̥* likely paired with the dative case (as is the situation with Greek πάρ and Latin *por*).

VI.1.9 The preverb *tit*

The preverb/preposition τι(C)- appears in the following forms: τιτ-τετικμενος, τιγ-γεγρειμεναν, τι-δρεγρουν, *tit-edatoy* (cf. PhL 110). What the examples clearly show is that the final consonant of this preverb was assimilated to the following consonant. The identification of what this final consonant was currently hinges on analysing *titedatoy* as being composed of the preverb *tit-* and a verbal form *edatoy*, which seems valid.

Lubotsky (2004: 235-236) has proposed that the two constituents of τιττετικνενο-, i.e. the preverb τι(C)- and the verbal root τικ, can be directly compared to the two elements of Greek διαδικάζω 'judge (< to point at)', the preverb δια- and the verbal root δικ- 'to point'. This is formally and semantically appealing.

The Greek preposition διά 'in two, apart, through' originated as **diha* < **dis-a,* where the element *-*a* was adopted from prepositions such as μετά, παρά, κατά, etc. **dis-* is a regular reflex of PIE **dis* 'apart' (as in, e.g., Latin *dis-*) (EDG 327).

Assuming that Greek διά and Phrygian *tit-* are etymologically related and in some type of a derivational relationship, we may draw some preliminary conclusions. The addition of -ά was most likely a purely Greek development, since no Phrygian prepositional or adverbial form shows this desinence. It would thus seem to follow that one Proto-Graeco-Phrygian variant of this preposition was simply **dis*. The Phrygian evidence, however, clearly suggests that an earlier form of its preverb *tit-* was **di-t/d.*[636] We may reasonably conclude that this final stop was not added in

[636] Even if one were to entirely disregard the somewhat contentious *tit=edatoy* as a piece of evidence, Phrygian τιC could not have originally ended in *-*s,* since word final *-*s*, in a clitic or otherwise, never assimilated to a following dental stop at any point in Phrygian

Proto-Graeco-Phrygian, since that would not have been phonotactically permissible at the time. Thus, either a final stop was added comparatively late, analogically to other prepositions/preverbs ending in -τ, once Proto-Phrygian began to allow word final stops again, or what is synchronically a final stop in τιτ- was originally an adverbial suffix ending in a vowel that was later syncopated (i.e. *-*t/dV* > *-*t/d*). In the latter case, the addition of this suffix could have taken place at any point between Proto-Graeco-Phrygian up to any point shortly before the advent of written Phrygian.

If we take *tit=edatoy* as legitimately showing the final consonant of *tit*, as seems most prudent with the available data, it suggests that there existed a Proto-Phrygian prepositional suffix *-t*. Whether it was a simple late addition of a prepositional *-t* or whether both derive from an earlier syncopated suffix *-*tV*, we must in either case analyse *tit* as having lost its *-*s* element: a simple agglutinative process of **tis* (< **dis*) + *-t* would have produced a preverbal ***tist-* before a vowel, whereas the associated preposition would have surfaced as **tis*.[637] The fact that *-*s-* does not appear in *tit-* suggests that **dis* > PPh. *tis* was metanalysed as **ti-s*. It was thus not the full imparseable form **tis* that was suffixed, but rather an extracted stem **ti-*.

What the origin of this prepositional suffix *-t* in Phrygian was is currently best left to speculation. In purely comparative terms, if inherited, it must have originated from PIE **t/dV*.[638]

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history; see ας Τιαν. Furthermore, inherited *-*sT-* clusters never underwent assimilation in Phrygian; cf. *estates*, οπεσταμεναν.

[637] In accordance with *-C_1C_2... > -C_1. See further §II.3.2.3.10.

[638] Formally, any number of possible sources that have cognates in Greek are possible; cf. e.g. Gr. -τι (as in πρό-τι), Gr. -δε (as in ὅδε), etc. We have no formal way of differentiating between these in Phrygian.

VI.1.10 Other possible prepositions and preverbs

Some other sequences that have been proposed to be prepositions or preverbs are: *an, per, pos, o,* οτ*, art, ando* (PhL 108ff.). Since it is unclear whether these are separate forms and whether they are prepositions at all, no comprehensive analysis can be performed on them.

VI.2 Particles and conjunctions

VI.2.1 The conjunctions *ai* and *aini*

The conjunction *ai* appears a handful of times in the Phrygian corpus; by far the more common is its variant *ayni* (PhL 113).

ai seems to have the meanings ‘when’ and ‘if’ (cf. LL 1822, PhL 166).

ayni has the meanings ‘if’, ‘or’ (PhL 166-167), and likely ‘when’.

The element *ai* with its meaning ‘when’ and ‘if’ is almost certainly cognate to Greek dialectal αι ‘if’ (PhL 113). Both can be quite easily derived from a fossilised form of the pronoun originating in **h₁e-*, specifically the locative singular feminine **h₁eh₂i* ‘in/at this (fem.)’ (cf. PhL 113, Chantraine 1999: 316, EDG 379)). **h₁eh₂i* would develop regularly into

Greek αἰ and Phrygian *ai*/αι and the semantic development of such a fossilised form is very trivial: 'in/at this' > 'where' > 'when' > 'if'.[639]

For the discussion of the creation of *ayni* through the addition of *-ni*, see §VI.2.3.

VI.2.2 The enclitic conjunction *ke*

The coordinating enclitic conjunction *ke*/κε uncontroversially derives from the PIE coordinating enclitic particle **k*^{w}*e* (PhL 113). The formal and semantic match is perfect, as is the syntactic behaviour.

This conjunction can be used both as a clause and phrase connector; most commonly, the conjunction is used to link two nouns. The conjunction *ke*/κε is always enclitic and binds to an immediately preceding fully accented element (PhL 113).
Syntactically, the conjunction *ke*/κε is placed after the second of the two phrases or clauses that it binds together (LL 1829). If the two linked elements are clauses, the conjunction appears after the first fully accented word of the second clause.

An example of *ke* linking two nouns:
ζεμελως δεως κε '(among) men gods=and' 'among men and gods'

[639] The masculine locative singular form of the same pronoun, i.e. **hɪei*, would have regularly developed into Attic Greek εἰ 'if', following the same semantic trajectory.

An example of *ke*/κε linking two clauses in the apodosis of a curse formula: °99^{NW} [τιτετικμενος ας τιαν ειτου] [με κε οι τοτοσσειτι βας βεκος] '[condemned by Ti- may-he-become] [away=and from-him may-give Bas bread]' '[may he become cursed by Ti-] *and* [may Bas give bread away from him]'

Two nouns can also be linked by both having the enclitic *ke*/κε appended (PhL 113). Such sequences are best compared directly to the Greek τε ... καί or the Sanskrit *ca ... ca* constructions; a Phrygian X=*ke* Y=*ke* is best translated as "both X and Y" (LL 1829).

> με ζεμελως κε δεως κε 'among men=and gods=and' 'among both men and gods'

When the coordinating conjunction *ke*/κε is followed by a vowel, its final vowel may be lost (PhL 268):
°106^{E} γεγρειμενον κ̲ εγεδου ορουενος ουτον

VI.2.3 The modal particles ni/νι, αν, κε

The independent particle *ni*/νι appears exclusively after pronominal forms, in almost all cases after an indefinite relative pronoun *yos*/ιος, and a handful of times after an anaphoric pronoun τος. It is always the second word in a clause, immediately following the introductory pronoun, which suggests it was an enclitic element. This pattern of use can be seen time and again in the New Phrygian curse fomulae, the canonical version of which began as ιος νι σεμουν κνουμανει [...].

The particle *ni*/νι also appears as the second element of the conjunction *ayni*/αινι 'if, or'. The conjunction *ay*/αι is treated in the §VI.2.1.

Some analyses have interpreted the particle as imparting an indefinite force on a preceding relative pronoun (as in PhL 309-310), shifting its meaning from 'who' to 'whoever', but the fact that this particle is not obligatory in New Phrygian curse formulae and also appears to be optional in Old Phrygian conditional relative clauses rather suggests this interpretation to be incorrect. Also, while one could see the conjunction *ayni*/αινι, which is composed of a de-pronominal adverb *ai*/αι 'when' < *'at this (time/location)' (**h₁eh₂i* 'this (loc. sg.)') and *ni*/νι, as giving credence to the fact that *ni* was originally an element attaching itself exclusively to pronouns, the syntax is unlikely to bear this out.

In inscription °96^{W}, the protasis of the curse formula is written in Greek, apparently translated from the canonical Phrygian formula, and the Greek counterpart of Phrygian νι appears to be the modal particle ἄν.

°96^{W}	ὃς	ἂν	τούτῳ	τῷ μνημείῳ	κακῶς	προσποιήσει	...
Phr. transl.	ιος	νι	σεμουν	κνουμανει	κακουν	αδδακετ	

Table #62: A comparison of the Greek part of inscription °96^{W} to the standard Phrygian malediction formula protasis.

In inscription °44^{S}, the curse formula in Phrygian replaces νι with αν:
°44^{S} ιος αν σ[εμουν κακουν] κνουμμανει δοκετ ...
It seems probable that the particle αν in this inscription is borrowed from Greek. While a Phrygian origin of this αν and its cognacy to Greek ἄν cannot be entirely excluded, the fact it only appears a single time in the corpus, in an inscription with two unusual spellings (i.e. κνουμμανει for

usual κνουμανει and δοκετ for δακετ), suggests that it is not of native origin.

The use of Greek ἄν to translate νι and the likely Greek-inspired replacement of νι with αν in °44^{S} suggest strongly that νι functioned as a particle in conditional and possibly other types of *irrealis* clauses.
It should be noted it was not an obligatory element in conditional clauses, as can be observed in a number of examples in both Old and New Phrygian. See, for instance:
°W-01b *yosesait materey eveteksetey ovevin onoman da*Ψ*et ...*
°78^{E} ιος σεμουν [κ]νουμανε κακουν αδ[δ]ακετ ...
Likely, then, the particle was used as an optional modal intensifier in conditional clauses.

In a number of New Phrygian inscriptions we appear to find the particle νι replaced by κε:
°27^{S} ιος κε σεμον το κακον οδ[
°34^{E} ιος κε σεμν κνουμανει κακουν αδδακετ
°36^{E} ιος κε σεμουν κνουμανι κακουν αδακετ
°37^{SW} ισος κε σεμουν κνουμανε
°54^{E} ος κε σεμουν κνουμανει κακουν δοκετ
One possibility, of course, is to analyse this κε as an enclitic connective particle κε, the same as the conjunction κε < **k*^{w}*e* (as is done by PhL 113).[640] It would be unexpected for the curse formula to begin with a

[640] For the discussion of which see §VI.2.2.

connective particle, though this might be simply a stylistic choice on the part of the author.[641]

What we may note, however, is that the inscriptions in which this particle is seemingly used in place of νι all show some unexpected peculiarity, with the sole exception of °36^{E}. Both °27^{S} and °54^{E} spell an expected Phrygian <α> as <ο> (the spelling οδ[likely being the beginning of a verbal form that is usually spelt αδδακετ in °27^{S}; the spelling δοκετ for usual δακετ, which we may directly compare to the spelling δοκετ in inscription °44^{S}, which likewise uses another particle in place of expected νι). In °37^{SW} and °54^{E}, the relative pronoun ιος is spelt incorrectly, ισος and ος, respectively, with ος °54^{E} likely being due to Greek influence. In °34^{E}, the spelling σεμν is likely to be a rendering of phonetic [semə̃], usually spelt as σεμο(υ)ν, suggesting the scribe's unfamiliarity with this particular spelling convention of Phrygian.[642],[643] Furthermore, inscriptions °34^{E} and °36^{E} use "γεγρειμεναν εγεδου τιος ουταν" 'may he hold the written punishment of Ti-' as their apodosis, an element of the Phrygian curse formulae that only appears in the eastern part of the area in which New Phrygian inscriptions have been found. The other inscriptions, °27^{S}, °37^{SW}, and °54^{E}, are all also located on the southern periphery of the area where New Phrygians inscriptions have been found.

Taking all of these peculiarities into account, it seems quite probable that the κε used was not a connecting particle, but rather a locally used modal particle with the same function as νι.

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[641] Compare the Hittite *nu* whose original connective value had eroded substantially by the New Hittite era, when it could be used as an entirely semantically empty element.

[642] For more on the phonetic realisation of a final vowel-nasal combination in New Phrygian, see §II.2.3.1.3.

[643] Note also that inscription °44^{S} shows the spelling κνομμανει for usual κνουμανει, presumably likewise as a means of rendering Phrygian nasalization.

A modal particle *ke(y)* likely existed in Old Phrygian as well. The inscriptions in which it might appear are found in the western and northwestern areas of the Phrygian speaking area.

°B-05:7: *kelmis ke umniset ...*

°W-01b: *yos=[...] ... da*Ψ*et, lakedo key ...*

Inscription °B-05 is poorly understood, so the modal value of the *ke* is uncertain. The use of *key* in °W-01b, where it is used as a particle alongside an imperative verbal form in the apodosis of a curse formula, on the other hand, precludes its function as a simple conjunction.

What this seems to suggest, then, is that Phrygian did possess an actual modal particle *ke(y)*/κε that was mostly homophonous to the conjunction *ke*/κε. The precise function of this particle is unknown at this time, as is the case with *ni*/νι.

We may note that the particle *ni*/νι in both Old and New Phrygian is almost exclusively used in the protasis of a curse formula; next to the formulaic New Phrygian examples, we may also adduce Old Phrygian *yos niy art* [...] °B-05 and *ios ni akenan egeseti* °P-04. It is likely, then, that the modal particle *ni*/νι was preferred in certain syntactic environments.

The Old Phrygian example of the use of *key* in °W-01b in the apodosis of a curse formula suggests that this particle was not originally the preferred choice in the same syntactic environments as *ni*/νι. The use of the modal particle κε < **ke(y)* instead of *ni*/νι in a relative conditional clause would have likely been an innovation of the peripheral southeastern dialectal area of New Phrygian.

The etymological origin of the modal particle *ni*/νι is difficult to ascertain.

An emphatic point that can be made regarding its final vowel is the following: Phrygian prepositions and clitics tend to, and always do in New Phrygian, lose a final *-i.* The fact that *ni*/νι was an enclitic element is strongly suggested by the fact that it appears exclusively as a second word in a clause and in the compounded conjunction *ayni*/αινι 'if, or'. As such, to explain the entirely non-optional presence of *-i* in the New Phrygian inscriptions, we need to assume that this final *-i* is not the reflex of an inherited **-i*, but rather the reduced from of something like an inherited **-ḗ* < **-ī* or **-ei*.

Most likely is the origin of the Phrygian particle *ni*/νι in the PIE negation **ne* 'no, not'. Descent from the PIE variant **nei-*, whence also Latin *nī,* Lithuanian *nei* 'neither', Proto-Slavic **ni* 'none, nor', would perfectly account for Phrygian *ni*, which would have undergone reduction from **nei* as it became cliticized. A negative particle could have developed a modal meaning as a result of the complex interplay between modality and polarity.

As already noted above, *ay* of *ayni* 'if, or' originated in a locative pronominal form **h₁eh₂i* '(at that) > 'where > 'when', which would have had a secondary meaning 'if'. The addition of *ni* << **nei* to the primary meaning 'when' would have been a means of re-enforcing the indefinite meaning 'when'.

Extremely appealing is the derivation of *ayni* 'or' if we assume *ni* originated in the PIE negative particle **ne*. Typologically, a disjunctive connective is easily derived from: 1) a denied conditional clause (cf. It. *sennò* 'otherwise' < *se* 'if' + *no* 'no'); 2) a negative particle (cf. Nakanai *ka* 'not' > *ka* 'or') (Ramat & Mauri 2011: table 54.2).

Assuming the former trajectory (1), **ai* 'when, if' + **ne* 'not' > *aini* 'or' is very simple: **'A when/if not B'* = '*either A or B'*. This does assume that **ai* could have already had a secondary function of a conditional conjunction/adverbial on its own, which is supported by its use in °64[E] (αι κος 'if anyone' for usual ιος 'whoever') and Aeolic αἰ.
The latter trajectory (2) puts the onus for the creation of the meaning 'or' on the *ni* element first, with *ai* being the deictic addition: **A ni B* 'A not B' = 'A or B' > *A ai=ni B* '(A there=or B >) A or B'. This option is less likely, since it is not clear why an additional deictic would need to be added, though re-enforcement is always a possibility.

A number of other proposals exist for the origin of this particle.
Commonly suggested as Greek cognates of *ni* are Attic νή, Aeolic ναί 'indeed, so', which may, in turn, be related to TocharianB *nai* '(affirmative particle)' (EDG 993 and Adams 2013: 368) and Latin *nē* '(*id.*)' (EDG 993). The problem is that a connection between the latter three is speculative to begin with: Beekes (*ibid.*) and Chantraine (1999: 738-739) draw a connection with **(h₁e)no-* 'that one', but fail to explain the lack of the initial vowel or the apparent non-thematic form,[644] whereas Adams (2013: 368) mechanically reconstructs **neh₂i* to explain the Greek and Tocharian reflexes. While Beekes draws a connection between Attic νή and Latin *nē*, this seems dubious; the Attic term is likely to be secondarily derived from Aeolic ναί (Chantraine 1999: 733) and Latin *nē* is better derived from **ne* 'no, not'.[645]

[644] The **no-* on its own would actually only be the remnant of the original derivational suffix and no explanation is provided for the lack of an initial vowel which we would expect in this form. Chantraine's explanation simply cites a non-laryngeal **(e)no-*, thereby sidestepping the issue entirely.
[645] Or, alternatively, was borrowed from Greek νή (Chantraine 1999: 733).

If we take Adams's mechanical reconstruction of **neh₂i* without delving into the etymology of it further, such a form can only be formally related to Phrygian *ni* by assuming that the final diphthong (either **-ai* if from **neh₂i* or **-āi* if from zero-grade **nh₂i*) was reduced to *-i* as a consequence of being a clitic.

A borrowing scenario for the particle cannot be expressly excluded, though borrowing from known Greek dialects certainly can be: Aeolic ναί certainly would not have been borrowed as Phrygian *ni*, and the vowel of Ionic νή would have still been low during the Old Phrygian period and would not be borrowed as *i*.

One issue with this account is that the particle is used exclusively in hypothetical conditional clauses, where we would not expect to find an emphatic affirmative particle, since the semantics of the sentence themselves deal with a merely imagined or supposed reality, not one that can be affirmed. The original meaning could have been bleached, but we would generally expect to find such a particle in the resultative clause as an affirmation of the projected consequence, rather than the conditional clause.

Obrador-Cursach (PhL 310) suggests that the use of *ni* in Phrygian can be compared to Pamphylian καί νι +*imperative* constructions. For its origin, he draws attention to Greek -νε/-νι, which appears following some dialectal pronominal forms, e.g. Thessalian ὅνε, τόνε, τάνε and Arcadian ὀνῑ (Chantraine 1999: 738-739). Arcadian also uses ὅ-νυ; this -νυ rather uncontroversially derives from PIE **nu* 'now'; cf. Greek νῦν (Chantraine 1999: 758). The -νε forms are more likely to be a blending of the -δε and -νυ type pronominal forms: cf. Cypriot ὅνε and ὅνυ used in the same manner as ὅδε of Idalion (a city in Cyprus). In the case of the -νι forms, Chantraine

(1999: 738-739) suggests that Arcadian ὀνῑ forms are derived from the desinence -νε extended with a deictic -ῑ. As far as the Pamphylian construction is concerned, we ought to be wary of connecting the obviously verbal particle of the καί νι imperatives with the Arcadian-exclusive pronominal forms in -νι. The Pamphylian imperative particle is far more likely to be an independent development or a borrowing.

Obrador-Cursach (PhL 320) also gives the possibility that Phrygian *ni* originates from the PIE preposition **ni-* 'here, inside, within', citing Dunkel (LIPP 225, 229-230). The problem with this proposal is that the semantic shift required for the development of this preposition into a modal particle is difficult to motivate. The introduction of an element with a proximative meaning into hypothetical conditional clauses, where the reality described is merely supposed, could only have happened if that element had previously been sufficiently semantically bleached.

As far as the etymology of the modal particle *ke(y)* is concerned, we ultimately have only one reasonable option available: a derivation from PIE **k*^{w}*e.* Formally, no other known PIE particle fits the initial *k-* of Phrygian.[646] Semantically, the reflex of the PIE particle **-k*^{w}*e* 'and' could also be used with the meaning 'if' in some specific constructions in the daughter languages; e.g. Vedic *ca* 'if, and not', Hittite *-kku* 'if', Got. *nih* 'if not' < **né k*^{w}*e* (LIPP 703-704), as well as in PSl. **at'e* 'if' < **ōd k*^{w}*e* (cf. OCS *ašte* 'if') (Snoj 2009: 80-81).

[646] One may wish to suggest a common descent of Phrygian *ke(y)* and the Greek modal particle κεν, but this is formally not viable: Phrygian *k* would not correspond to a Greek κ before a front vowel. While one could argue that the Phrygian *k* could have been levelled from some other variant of the modal particle that also gave rise to Greek κεν, no model appears to be possible. Beyond the initial velar, another problem is the Greek -ν: there is no trace of it in Phrygian.

The semantic and formal match is strong enough that any alternative explanation seems exceedingly unlikely. The only unsolved question concerns the Old Phrygian spelling *key*. If it betrays a phonetic reality, i.e. a realisation with a diphthong, the reflex of the particle *k^we* would have been secondarily extended with the addition of *-*i*. If we are dealing with a purely graphical addition of the final glide, however, no subsequent derivation from an original *k^we* needs to be assumed. Until more attestations of the modal particle *ke(y)* are found in Old Phrygian, no concrete answer can be given. At best, we may suppose that the forms with conjunctive and modal functions of the reflex of PIE *k^we* may have behaved differently in accentual terms, with the former being a purely enclitic element prone to loss of its final vowel, and the latter being independently accented and preserving its vocalism; even this is purely speculative, however.

VI.2.4 The intensive particle *ti*

A particle written as *ti, t,* τ, or το/του is found commonly in the Phrygian corpus, both in Old and New Phrygian. Its precise meaning is unclear, but since the New Phrygian curse formulae appear both with and without it, it most likely did not have a semantic function that would drastically change the meaning of a clause.
The particle most commonly, but not always, appears immediately following a demonstrative pronoun *si-*, suggesting it was used as an enclitic intensifier of the pronoun.

The enclitic nature of this particle is strongly supported by its spelling. In Old Phrygian, it is for the most part written simply as *t,* without a following

vowel, except once in inscription °B-05, where the particle is explicitly written as *ti*. It may be premature to draw the conclusion that the underlying form of the particle was **ti* from this example; in the context in which it appears, both the preceding and the following vowel is /i/.

In New Phrygian, the particle surfaces as τV, with the vowel being somewhat random in quality: e.g. σεμιν τ °76[E], σα του μανκα °82[C], σεμ[ουν] το °119[W], σα του σορου °124[C]. This specific spelling does have ramifications for our understanding of enclitic vowel reduction: whereas in a proclitic environment, a final vowel was apparently lost,[647] in an enclitic environment, the final vowel was apparently not lost, but merely lost its distinctive features and remained preserved as a neutral vowel liable to assimilation.[648],[649]

Rarely, this particle may have been used as a preverb, most clearly in *t=edatoy* (cf. PhL 110). Another potential example is τευτους < [+]τ=ευτους.[650] What meaning the particle would have imparted before a verb, either as a preverb or as an independent element, is unclear.

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[647] Though the other examples we have suggest this only happened for *-i* (cf. *s=materan* < **si*[?], αδ < **adi*), the process may well have been used for other vowels as well.

[648] This is assuming that a vowelless particle τ did not secondarily innovate a vowel at some point before New Phrygian. While possible, the lack of such an innovation in other clitics suggests otherwise.

[649] It would then seem to be the case that Old Phrygian pre-consonantal spellings of this particle as <*t*>, e.g. *yos=esai=t,* actually encoded a phonetic [tə] with a reduced vowel which was not written. This also explains the disparate spellings *sin t imenan* and *sin ti imenan* in °B-05 if we assume that this late Old Phrygian inscription already shows a stage of the language when the neutral vowel was echoed: the actual phonetic sequence being written, i.e. [sin ti imenan] < [+][sin tə imenan], would permit both spellings.

[650] For which see §III.3.9.

Etymologically speaking, the origin of *t(V)* is uncertain. Obrador-Cursach (PhL 365-366) connects it to the anaphoric pronoun *tos*, but there is nothing to suggest that that pronoun would have become an indeclinable element. Noting its tendency to attach itself to a demonstrative pronoun, drawing a parallel with Greek pronominal constructions like ὅδε seems preferable. If we assume an etymological connection between the two, PGPh. *=*de* would have developed regularly into Greek δε, whereas it would have developed into Phrygian **tə*, with its final vowel reduced as a result of its nature as a clitic element.

VI.3 Phrygian numerals

Only one Phrygian numeral has been identified so far. Lubotsky (unpubl.; also LL 1820) has made a compelling argument that NPh. πινκε means 'five'. Formally, πινκε is an entirely regular reflex of PIE **penk^{w}e* 'five'. Semantically, his argument is based on an analysis of inscription °116^{W}: [...] ιοσος κε δετουν υψοδαν κε ταν σαυναμαν κε κνουμαν κ ακροδμαν κε [...] πινκε τας δακερης ονομανιαις μιρου ικ κναικαν εδαες. Lubotsky (1993: 130-131) noted that there are five conjoined nominal phrases in the first sequence, where at least some refer to the grave or what is likely to be a part of it: '*iosos* and thing-that-is-placed above and this *saunama* (cf. Hitt. *šaman-* 'foundation') and grave and high-beam [...] five these placed-things named *mirou* for-benefit-of wife he-placed'. There can be little doubt that Lubotsky's identification of the numeral is correct. Even if we did not know the meaning of any of the five elements, the very fact that a sequence of five conjoined nominal phrases in the accusative case appears in an inscription and that subsequently a clause containing the elements πινκε,

which formally perfectly fits PIE **penk*^{w}*e*, and εδαες 'he placed' is found in the same inscription, would be reasonable enough confirmation for a language such as Phrygian that the word for 'five' has been identified. The fact we can actually identify other words in these two clauses and that they seem to fit this meaning precisely simply solidifies this identification.

VI.4 Phrygian adverbs

The various different languages originating in PIE would have created novel strategies of forming adverbs; it is generally unclear which, if any, of these would have been present in PIE itself. In addition, a great many adverbs in these post-PIE languages originated in fossilised nominal forms.

Determining which Phrygian forms actually function as adverbs is very difficult; if a particular sequence is not understood well, potential adverbial forms may formally appear identical to nominals in specific cases and determining which syntactic reading is optimal can often be uncertain. To further complicate matters, some generic adverbials are liable to becoming grammaticalised as prepositions.

Probably the best example of what must clearly be an adverb in Phrygian appears in °B-07: *mekos aniva*Ψ*eti smanin* 'greatly may-he-*anivak* (this)=Manes'.
The adjective meaning 'great' in Phrygian is known to be *meka*-, which declines like an *a*-stem adjective: *mekas, mekas, *mekai, mekan*. There is no possibility for this adjective to appear in a case-form without *a*-vocalism (*contra* Gusmani and Polat 1999: 160). Clearly, *mekos* must be a form that

falls outside the declensional paradigm. When compared to Greek, the desinence *-os* in an otherwise *a*-stem adjective would most obviously fit an -ως adverbial ending. Should this be the case, we have two alternatives:

a) *-*ōs* was an original PGPh. adverb-forming suffix which was attached directly to an adjectival **megh₂* to produce **megh₂ōs* > Phr. *mekōs*;[651]
b) *-*ōs* was an original PGPh. adverb-forming suffix that remained productive into Proto-Phrygian, where it was attached to an adjectival **meka-* to produce **meka-ōs* > *mekōs.*

This OPh. adverbial desinence *-ōs* would have developed regularly into a New Phrygian /-us/ <-ους, -υς).

Obrador-Cursach (PhL 296-297; 2021b: 51ff.) and Hämmig (fthc.) provide a different interpretation of *mekos* 'greatly', but their analysis cannot be endorsed here. They segment the sequence into *me*= and =*kos*, 'not' and 'anybody', but, as we note in §VI.1.5, *me* cannot be a reflex of PIE **meh₁*. Furthemore, in the immediate syntactic environment of an following a relative clause functioning as a protasis, the expected pronoun would be the anaphoric pronoun *to-*, not an indefinite *ko-*.[652]

[651] In this case, a PGPh. adverb **megōs* would have been lost in Greek and replaced with PGr. **megalōs* > μεγαλῶς, whose stem **megalo-* would have been extracted from the oblique stem of the adjective.

[652] Obrador-Cursach (2021b: 51ff., 54) argues that the entire clause *mekos aniva*Ψ*eti smanin* can be compared to Aramaic *ʔyš ʔl yʕml* 'let no one do harm' of inscription °KAI 318, where the use of the indefinite pronoun is due to calquing the Aramaic expression, which, if we were to accept that *me* can mean 'not', is at least a possible explanation. The pronoun *ko-* in Phrygian has an indefinite function that is better understood as meaning something closer to 'whoever', though, so the phrasing would certainly be very odd.

In New Phrygian, προτυς °15^{NW} is likely to be an adverbial form with this desinence (cf. Lubotsky 1993: 132). Most likely, it means 'before, firstly'. The Phrygian adverb seems to derive from an earlier adjective **proto-* < **pr̥-to-* 'having the characteristic of being before, in front', apparently ultimately from the preposition **pr̥* (whence also Phr. *por* and πουρ).

There are few other examples of other known adverbs in Phrygian.
Well-established as an adverb is *upsodan* 'above, on top' (Lubotsky 1993: 131-133). The initial sequence of sounds can be directly compared to Greek ὑψόθεν 'from on high' (*ibid.*). The endings of Greek and Phrygian do not match, but in Greek dialects there does exist a locatival adverbial desinence -θα, ostensibly a zero-grade variant of -θεν < **-d^{h}en*, i.e. **-d^{h}n̥* (*ibid.,* PhL 111).
The Phrygian adverb *upsodan*, then, can be directly compared to a hypothetical Greek *ὑψόθα. This specific Greek form is not attested, but this may well be due to chance, since the adverbial desinence -θα is comparatively less common than forms with -ε- (cf. Lejeune 1939: 356-362). The building blocks for the creation of *ὑψόθα must have certainly existed in Proto-Graeco-Phrygian and later in Proto-Greek as well. The hypothetical Greek form and the attested Phrygian form can be unified as originating in a Proto-Graeco-Phrygian **upsod^{h}n̥*. Even if this individual form did not exist at this stage yet, there can be no doubt that Proto-Graeco-Phrygian did possess an adverbial locatival desinence **-d^{h}n̥*.
Lubotsky (1993: 132-133) notes that the distinction between Greek -θα and -θεν is likely one of a pure locatival (where?) against an ablatival (whence?) meaning, citing the pair ἔνθα 'there, thither' and ἔνθεν 'thence' as supporting evidence. This example is quite telling, and it seems very reasonable to assume that this was indeed the original distribution between

-θα and -θεν. Formally, the two ablaut variants would have been unlikely to originate within Greek; it is practically certain that both *-*dʰn̥* and *-*dʰen* did exist in Proto-Graeco-Phrygian. In terms of their meanings, it is currently best to assume that their distribution in PGPh. matches that found in Greek (as is also done by Lubotsky (*ibid.*)).

If PGPh. did possess the two ablaut variants *-*dʰn̥* and *-*dʰen*, both of which were preserved in Greek, there is certainly a marked possibility that both variants could have survived into Phrygian as well. Thus, while only *-dan* < *-*dʰn̥* is actually attested in Phrygian, it is entirely possible that a ⁺*-den* < *-*dʰen* also existed in the language, which ought to be taken into consideration should such a desinence ever appear in a Phrygian inscription.

Another adverb we find in Phrygian is OPh. *kakey* °B-05, NPh. κακε °21^{C}, °88^{C}, °99^{NW}, °124^{C}, meaning 'badly', derived from the adjective *kako-* (PhL 264-265).[653] The final *-y* in the Old Phrygian form is graphical (as assumed in PhL 265) or a result of word-final diphthongization specific to inscription °B-05 (cf. *ituv* for ⁺*(e)itū*), as suggested by the consistent New Phrygian spelling κακε, meaning that the canonical forms of this adverb would have ended in a monophthong /e/.[654] The adverbial desinence *-e* most likely originates in the zero-grade of the PIE athematic instrumental singular ending *-*h₁* (CIEL 186ff.; cf. PhL 111-112). As the instrumental case fell out of use in Proto-Phrygian, the ending *-*e* of remaining

[653] The similar appearing forms κακεν, κακην, and κακιν are to be understood as spellings of the common adjective κακουν with the vowel quality affected by nasalization (cf. also σεμιν for usual σεμουν; for the process refer to section §II.2.3.1.3), rather than the adverb κακε with a hypercorrect nasal (as assumed by Obrador-Cursach (PhL 265)).

[654] While -ε is used on occasion to spell expected -ει in New Phrygian, κακε appears twice in inscriptions (°88^{C} and °99^{NW}) where a final -ει is faithfully represented in dat. sg. κνουμανει.

fossilized forms would have been reinterpreted as an adverbial marker and its use extended.

Finally, beyond the adverbs in *-ōs, -dan*, and *-e*, we should add a few notes on other adverbial desinences we may potentially find in Phrygian.

Primary among these is the desinence derived from **-$d^{h}i$*, imparting a generic locative meaning, which would develop into Phrygian *+-di* or *-d*. In Phrygian this adverbial desinence can be found in the prepositions that end in *-d*. In the attested examples, the adverbial suffix was added to an original prepositional element; whether the addition of the suffix to a prepositional element produced an adverb that later once again developed into a preposition or whether a prepositional element extended with this suffix simply absorbed its semantic function without becoming a different part of speech cannot be ascertained with any degree of certainty. The final **-i* of the suffix was eventually lost due to appearing in a preposition, which would have accentually behaved like a proclitic.[655]

In Greek, -θι < **-$d^{h}i$* was used to impart a generic locative meaning as well, though it does not seem to have been synchronically productive by the historic era. Forms extended with -θι could have the function of adverbs (θηλόθι 'far away'; cf. τέλος 'end'), conjunctions (ὅθι 'where'; cf. ὁ- '(dem. pron.)'), or prepositions (ἐγγύθι + gen. 'near'; cf. ἐγγύς 'near').

A locatival adverbial desinence **-$d^{h}i$* must have existed in Proto-Graeco-Phrygian. While the only traces of its existence in Phrygian are found in the prepositions ending in *-d*, it is possible that the locatival adverbial suffix *+-d(i)* remained productive in Phrygian for some time and could be attached

[655] For which see the sections on the preposition αδ, §VI.1.1, and others.

to non-prepositional parts of speech, as was the case in Greek. As such, any Phrygian form ending in *-d* or *-di* could potentially be an adverbial form utilising this suffix; do note that the variant *-d* is only expected in clitics.

Some other Phrygian words that have been proposed to be adverbs are: *ekey,* ερα, *kan*/καν (PhL 112). Too little is known of them to permit any meaningful analysis at this stage.

Appendix 1: Selected Old Phrygian Inscriptions

The following is a selection of Old Phrygian inscriptions as read and interpreted in this work.

Following the transcription of each inscription is the location in *The Phrygian Language* (PhL) where the transcription of each inscription is found. Some minor adjustments have been made to make this list easier to read, but if the reading of an inscription in this work differs in any relevant way from the one found in *The Phrygian Language*, that is explicitly noted and the author of the reading being followed, if it has been proposed before, is provided. References to all alternate readings and interpretations are provided on the relevant pages of *The Phrygian Language.* In the few instances where an inscription cannot be found in that work, the reader is directed to the relevant literature.

Epigraphic conventions:
[X] - restored letter
X̣ - poorly legible letter
(X) - letter(s) emended by editor
{X} - letter(s) deleted by editor
<X> - letter(s) inserted by editor
⟦X⟧ - legible letter(s) deleted by engraver
[.] - a gap, not restored by editor, each dot counts as approximately one letter
[---] - a large gap of an indeterminate number of letters
? - dubious reading

°M-01a
ates ⁝ arkiaevais ⁝ akenanogavos ⁝ midai ⁝ lavagtaei ⁝ vanaktei ⁝ edaes

See PhL 427.

°M-01b
baba ⁝ memevais ⁝ proitavos ⁝ kΦiyanaveyos ⁝ sikeneman ⁝ edaes

See PhL 427.

°M-01c
matẹṛ.. atatas ṃ[?]onokaua

See PhL 428.

°M-01d
I
midas
smateran
tvemes eneparkes[?]

II
matera[---]
avi[---]

III
a b?[---].[.]*nm*.[---]
[---]…[---]

See PhL 428.

°M-01e
.. a o.. mạteṛey . ag[?]a …

See PhL 428-429.

°M-01f
[---]*as ⁝ tuave/niy ⁝ ae ⁝ esuryoyoy ⁝ totin ⁝ ẹḍaẹ*[*s*]

See PhL 429.

°M-02
bba ⁚ memevais ⁚ proitavo[*s*]
k↑ianaveyos ⁚ akaragayun
edaes

See PhL 429.

°M-03
[---]*abas iṃaṇ akio*[---]

See PhL 430.

°M-04
ạkinanogavaṇ ⁝ tiyes / moḍroyanak ⁝ avarạ[.*?*]

See PhL 430.

°M-05
apelan (vac.) *mekas tevanọ*[---]

See PhL 430.

°M-06
ṛekun ⁚ deiatiteeạ[.*?*]
davoi iman

See PhL 431.

°M-09
[---]*ạkeṇ*$^{?}$*ano*[---]

See PhL 431.

°M-11
[---]*ṣ ẹṣtạẹṣ*

See PhL 42.

°M-101
ṣaragịṣ

See PhL 432.

°W-01a
II *materan ⁝ areyastin*
III *bonok ⁝ akenanogavọṣ*
I *vrekun ⁝ tedatoy ⁝ yostutut*[..]*ạ*[.]*m*[.]*noy ⁝ akenanogavos / aey*

See PhL 432-433 and the image in §III.3.4.1.

°W-01b
yosesait ⁝ materey ⁝ eveteksetẹ$^{?}$*y ⁝ ovevin ⁝ onoman ⁝ da*Ψ*et ⁝ la-kedokey ⁝ venavtun ⁝ avtay ⁝ materey*

See PhL 433.

°W-01c
ataniyen ⁝ kuryaneyon ⁝ ta|n egertoy

See PhL 433.

°W-04
matar kubileya [---]*toy*/*en*

See PhL 434.

°W-05a
natimeyon nạ

See PhL 435.

°W-05b
[---]*nst*[---*e*]*daes por mạtẹ*[…]

See PhL 435.

°W-07
[---]*ṭ*[---] ⋮ [---]*ṇ*[---] *ẹsagas ⋮ akenạṣ* [---]

See PhL 435.

°W-08
[-?-]*ates agomoi*
*sa*Ϙ*ta tedaes*
alus si↑*eto*
bateles bab[-?-]

See PhL 436.

°W-09
si↑*eto ae*
alus

See PhL 436.

°W-10
ạtai edae lel/ravo
vi↑e atevo atoios
alụs si↑eto das

See PhL 436.

°W-11
μανκα μεκας σας κιυιν εν κε βιλατα δε-
ναν νεκοινουν : ποκραιου κη γλουρεος γαμενọụ̣ν
ọ̣ạ σοροι ματι μακραν : βλασκον κε τακρις κε λọụ̣ν-
ịọụ μροτις λαπτα ματια οινουν : νικοστρατọς
ḳ̣λευμαχοι μιρος αιδομενου ματιν κισυις : μọ̣-
κρος υιταν παρτιας πλαδε πορ κοροος [..]
ρọς παντης : πεννιτι ιος κοροαν δετουỵ̣
ọ̣ọụ̣ν ομαστα ομνισιτους

See PhL 524. Obrador-Cursach (*ibid.*) segments ματι αοινουν in line 4; for the argument that the more likely segmentation is ματια οινουν, see §III.3.3.3.

°W-14
atas
iman meu ter-
[.[?]]*mos tekise-*
ton dagoy

See Tamsü Polat et al. 2020: 45-67.

°B-01
si bevdos adi[....]
kạyarmọyo imroy edaes etoves niyo[$y^{?}$]
matar kubeleya ibeya duman ektetoy
yos tivo [*t*]*ạ spereṭạ ayni kin tel*$^{?}$*ẹmi*
[..]*toyo*[.]*is* [.]*er ktẹvoys ekey dạ[b]ati*
opito [*k*]*ey oy evẹmẹmesmeneya anato* [.$^{?}$]
kavarmoyun matar otekonov [.$^{?}$]
kesiti oyvos aey apaktneni
pakray evkobeyan epaktoy

See PhL 438. Obrador-Cursach (*ibid.*) segments *ibey a duman*.

°B-03
ẹṣk…a[---]*a*[.....]
evtevey aỵ yosyos yenvṛạ | *etit evtevey me.oun laked?ọ* | [-?-]

See PhL 439.

°B-04
[---]
[.]*ạ/ḍi*$^{?}$*kn*[...$^{?}$]*ạ/ḍ*[.]e[...]*ạ/ḍ*[---]
ḷami$^{?}$*b*$^{?}$*aỵ*$^{?}$*ạymokveṣ • amp*$^{?}$*i*
ạ$^{?}$*m*$^{?}$*ọp*$^{?}$*tov*$^{?}$*a↑iy • ạ*$^{?}$*ẹ*$^{?}$*lavọy • ue*
eḍạviy p$^{?}$*is*$^{?}$ *• ạṇernevey*
ỵ$^{?}$*ạ.oe*$^{?}$*ạp.eạrvi*$^{?}$*s*$^{?}$ *•*$^{?}$ *bạto*$^{?}$*ạntẹ*
.$^{?}$*lạkẹṣ*$^{?}$ *bṛạterạis pạtriyiọ*$^{?}$*is*$^{?}$ *k*[*e*]

See PhL 439.

°B-05
sint imenạn kạliyạ titedạt[*oy* .]*edekm*[...]*mẹạṣ*[ʔ] *ḍ*[ʔ]*ụ*[ʔ]*mịḍ*
iben edạtoy dạkerạn ạtriyạs dạvoi okiṃạḳịyạ[---]
vrekạn vitạrạn artimitoṣ krạniyạs [---]
pạntạ vebrạṣ ạdun p[ʔ]*os key estạt pator.*[ʔ]*ike*[...]*ẹ*[..] *ạndạti*
vạy niptiyạy dạker kạrạtu enpsạtus mekạ[---]*ạsiyạ..*[ʔ]
nidus ạd kạliyay kạrạtụ pạnạto ạndo popostois kḷạṃiv
kelmis ke umniṣet evrạduṣ dạḳerạiṣ key iverais [..]
ạtikrạiu yos niy ạrt sint imenạn kạkạ oskạvos kạkey
kạn dedạsitiy tubetiv oy ṇẹvos derạliv mekạṣ key
koṛis ạbretoy nun ibey neẏotạn ṇiptiyan sirun mireyun
ivimun inmeney ạsenạn dạket torvetun ↑irạy ạyni yoy
tubnuv nevos mederitoy koris ke ạbretoy nun oy nev
yos isekosos ↑emeney ṗupratoy vebạn ituv

See PhL 439-440. The reading *kḷạṃiv* follows Brixhe; Obrador-Cursach reads *kḷạṇiv*. The readings *koṛis* (line 10) and *koris* (line 12) follow Neumann and Brixhe; Obrador-Cursach reads *kovis*. The reading *ivimun* broadly follows Brixhe (who reads *ivimum*); Obrador-Cursach follows Hämmig in correcting it to †*iv*† ⟨*s*⟩*imun*. Obrador-Cursach follows Hämmig in correcting the ending of line 12 to *oy nev*⟨*otan*⟩. The reading *pupratoy* follows Neumann and is now seemingly confirmed by *puprayoy* °G-12 (Oreshko 2023: 77-78); Obrador-Cursach reads *ḍ*[ʔ]*upratoy*.

°B-06
sṭaḷ[ʔ]*ake : ↑ekṃ*[ʔ]*[at]ẹṣ keẏ[---]ạ*[ʔ]*yọ*[ʔ]*[---]*
ḍẹṣ[---] : ẹvent noktoy : ẹṃetẹtariyois
[---]y : yos tumoy : ↑ekmatin
[---]atonkeyen

See PhL 440-441.

°B-07
tat : smanes iyungidas manitos apelev porniyoy esṭ[a]
es va ḳnais manuka odeketoy meros ke manes isyos tiv[a]
n ke devụṇ ke umnotan ordoineten mekos anivaΨeti smaniṇ

See PhL 441. Obrador-Cursach assumes lines 1 and 2 begin with [..], but this is unnecessary. Obrador-Cursach reads *k umnotan*, but *kẹ* or *kẏ* is clearly visible.

°B-08
I
[---]
[---] *ḳavarmoyo* [---]
[---] *epav[?]es niyoy* [---]
[--- *mata*]*r ḳụbeleẏ*[*a* ---]

II
si tadila[---]
[---] *bevdos key* [---]
[---] *key dabati* [---]
[---]
[-?-]

See PhL 441-442.

°B-108
saragis :[?] mago[?][*s[?]* ---]

See PhL 443.

°G-01
A
[---]*vo*[---]
[---]*ṣạẏuve*[---]
[---]*ọ[?]lavị*[---]*isvolkay*
⋮ *dumeyay* ⋮ [---]*ḍeḍa*[---]

B
[---]*ita*.[---]*ṭerkeya ask*
[---]

C
[---*e*]*ṇ*[*e*]|*p*|*arkes v*[---]

See PhL 444.

°G-02
A *agariṭoi ⁝ pẹtes ⁝ adoikavoi*
B *ios oporokitis.*[?]
C *kakoioi tovo ⁝ podaskai*[?]

See PhL 444-445.

°G-03
[-?-]*kakrayun ni*[-?-]

See PhL 445.

°G-11
A *u*[?]*l*[?]*ekey*
B, C *sit kraroy̨ veao*| *yọy*[.[?]]
dis

See PhL 446-447.

°G-12
…] *antiyokoy · śilẹykoy̨-kẹy̨* (vac.)
…]*n manaṇ mlalin śit-t* (vac.)
…]*ṃetebaẹs eḳ ṃroteś-key* (vac.)
…] *parśaparnas · eś-k ṃrey veiṣ-t perkąmąṇ*[eis]
… *i*]*ḅey Gordiyoy puprayọy̨ veban* (vac.)
…]*ṇin-key oḷvomun · opoś-key iḅẹy* (vac.)
…]*ọy ąẹy̨-t maneis* (vac.)

See Oreshko 2023: 53-94.

°G-115
ΨuvaΨaros

See PhL 450.

°G-130
[---].*es servas*⟦*p*⟧*bo.*[---]

See PhL 454. *b* is written above *p*.

°G-142
[---]*ṭvitenorola*[---]

See PhL 457.

°G-144
estatoi avun

See PhL 458.

°G-145
voineio⟦Ψ⟧*s uriienois ḳu*[---]

See PhL 458. *s* is written over Ψ.

°G-150
A *olgiavos*
B [---]..[---]
C *asakas*

See PhL 459.

°G-183
A *tiveia*
B *imenia*

See PhL 466.

°G-224
A *ata*
B *garies*
C Ψ*uv*

See PhL 475. Line B may read *paries*.

°G-229
mamutas sokposa
mamutas itoiesgloka

See PhL 476.

°G-249
*se*Ψ*el t*
ias

See PhL 480.

°G-250
[-?-].*eivanouṣ*[-?-]

See PhL 480.

°G-342
apel

See PhL 498.

°G-346
nana muksos
si↑idos
ˈurunis

See PhL 499.

°P-02
sest bugnos va-
sos kanutii[ʔ]evanoṣ[ʔ]

See PhL 501.

°P-03
vasous iman mekas
ḳanutieivạịs
deyọs ke meḳạs

See PhL 502.

°P-04
A *otuvoi vetei etlnaie*
ios ni ạḳenan egeseti
ọ[ʔ]ḳ[ʔ]irterḳọ[...]. *tekmoṛ*
ot.[....]*seti vebru*

B *ios er[ʔ]v[ʔ]ot[ʔ]s[ʔ]ati kakuioi*

C *iman olitovo*
ẹdạẹ[s] *mekas*

See PhL 502.

°P-05
vasus kanutiẹ[---]

See PhL 503.

°P-101
ạini | *dabp*$^{?}$*ula ịsini*

See PhL 503.

°T-02
A
[---]*ọ*[---]
[---].*tade*.[---]
[---]*pipi*.[---]
[-?-]
[-?-]

B
[---]
[---]*ṭumida* ⋮ *memeuis*⋮[---]
[---]*a* ⋮ *tesan* ⋮ *a*↑*ion* ⋮ *v*[---]
[---]*oitumen* ⋮ *mịḍạ*[---]
[---]*n* ⋮ *a*↑*ios* ⋮ *mi*[---]
[---]*ṇ* ⋮ *batan* ⋮ *e*.[---]

C
⋮$^{?}$ *ea*.[---]
[---].*na*
[---]
[---]
[---]↑
[---]

See PhL 506-507.

°NW-101
AI *deΨeti*
AII *to↑i a tiei*

B *as-*
na isnou

See PhL 509-510.

°HP-114
30² …ẹkẹs 30² i²
.. 30² ẏ²ṛ²ekẹṣ²
.30² knays 30² ṣ²
i²ẏ²ṛ²i 40² knạẏḳẹ²[*s*]*²*
.² 40² m²akeṛes 40²
[---]
[-?-]
.. ạṇamakạ

See PhL 522.

Appendix 2: New Phrygian Inscriptions

The following is a list of all known New Phrygian inscriptions as read and interpreted in this work.

Following the transcription of each inscription is the location in *The Phrygian Language* (PhL) where the transcription of each inscription is found. Some minor adjustments have been made to make this list easier to read, but if the reading of an inscription in this work differs in any relevant way from the one found in *The Phrygian Language*, that is explicitly noted and the author of the reading being followed, if it has been proposed before, is provided. References to all alternate readings and interpretations are provided on the relevant pages of *The Phrygian Language.* In the few instances where an inscription cannot be found in that work, the reader is directed to the relevant literature.

Epigraphic conventions:
/ - line break
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<X> - letter(s) inserted by editor
[.] - a gap, not restored by editor, each dot counts as approximately one letter
[---] - a large gap of an indeterminate number of letters
? - dubious reading

°2^{W}

ιος τα μανκαι κακουν αδδακετ τι/ε τιτ[τ]ετικμενος ειτου / υ κε ακαλα οουιτετου ουα

See PhL 530-531. Obrador-Cursach (*ibid.*) reads σα μανκαι. The reading τα μανκαι follows Ramsay.

°3^{W}

ιος νι σεμον κνουμανει κακον αδ̣δακετ / τ̣α̣ι̣καν̣ τ̣ο̣ς̣ ν̣ι̣ μ̣ε̣ [δ]ε̣[ως κε ζεμελως κ]ε τιε / τιττετικμ/ενος ειτου

See PhL 543-544. Obrador-Cursach (*ibid.*) reads αδδακετ [αινι]? μα̣νκαι. The reading τ̣α̣ι̣καν̣ broadly follows Lubotsky (τ̣α̣ι̣και).

°4^{W}

ιος νι σεμον̣ [κνουμανει] κακουν αδακετ αινι οι / θαλαμειδη διως ζεμελω[ς τιτετ]ικμενος ειτου

See PhL 546-547.

°4b^{W}

ις νι σεμου κνο[υμανει

See PhL 543.

°5^{W}

ις κε σεμουμ κ<ν>ουμινος <κακουν> / αδακεν με διω[ς ζ]εμελως τιτετικμενος ητου

See PhL 547-548.

°6^{W}

[ιο]ς νι σεμουν κνουμανε ḳ[ακον] / αββερετ ατ νου[.] μου[ρου]ν / τος νι με ζεμελος κε δεος / κ̣ε τιη τιττετικμενος ε[ι]ṭου

See PhL 548.

°7^{W}

[ιος νι σεμου]ν κνουμανι κακα / [αδδακ]εν δεος κε ζεμ[ελος κε] / [---] ạ κε οι ειροι α τιε τιττ[ε/τικμενοι ειν]νου

See PhL 544-545. Obrador-Cursach (*ibid.*) segments ạκε.

°8^{W}

[---]μενος ειτου

See PhL 557.

°9^{W}

υς δουμ$^{?}$ετυου πασε / δεκμουταις κινο[υ]/μα ẹτι μ<α>νκαν οπεσταμ/ẹναṿ δαδιτι νεν[υε]ρια / παρτυς ουβρα

See PhL 553-554.

°10^{S}

ιος νι σεμουν του κνου/μανει κακουν αδδακετ / [τιττ]ετικμενος ειτου

See PhL 568.

°11^{S}
[ιος σε]μον κνου/[μανε]ι κακων / [....]αν αββε/[ρετ τι]τετικμε/[νος α]τ τι αδε/[ι]του

See PhL 570.

°12^{S}
ειος νι σεμουν κνουμανι κακον / αδδακετ ζειρα κε οι πεṭες κε τιτ/τετικμενα ατ τιε αδειννου

See PhL 570-571.

°13^{S}
[--- κ]ạκουν αββερετ αιṿ[ι ---] / [---] αδειτου

See PhL 571.

°14^{NW}
ιος νι σεμουν κνο/υμανει κακιν αδα/κετ αιν’ αδ ατεαμạ/ς τιτετικμενος α/ς τιαν [ειτο]υ

See PhL 534-535.

°15^{NW}
ξευνη ταν ειξα υψο/δαν προτυς σ[ε]σταμ/ẹναν μανκαν αμị/ạσιαν ιοι αναρ δορυκα/[νος ---]

See PhL 527.

°17^{W}
[---με]ṿος ειτου

See PhL 538.

°18^{W}
[---]οι κνουμα ετι δεα̣δ̣α̣ μανκα/ν μ̣ιμογαδις ακ(ε̣)νικου οκαυγοσι / μ̣ιδακας δαδου λευκιωι δακαρ / λευκις μ̣ιμογας κε ματαρ ευγεξα/ρνα̣ι κ’οτ ατ̣ι̣αμα κνουμεν ταν ε/[.]τας ται κολταμανει ιος νι ουκρα/ον λατομειο̣ν εγδ̣αες μουρσα̣ / αινι κος σεμουν κνουμανει κ/ακουν αδδακετ αινι μανκα β̣ε<κ>ο/ς ιοι με τοτοσσει$^{?}$τ$^{?}$ι σαρναν

See PhL 538-539.

°19^{N}
ιος σεμου κνου/μανει κα[κον] <αδδακ>ε<τ> τιτετεικμενος ειτο[υ]

See PhL 531.

°20^{C}
ιος νι σεμ[ον κνου]μανει κακουν αδακετ τ̣ιτετικμενος αας κνουμ̣[---]

See PhL 603.

°21^{C}
ιος σα σορου κακε / αδακετ με ζεμελως τιττετικ/μενος ειτου

See PhL 604.

°25^{SW}

ιος νι σιμουν / κνουμανι κακουν αβ/βιρετο<ι> αινι μμυρα τος / νι δ̣[εως ζ]ιμ̣ελως τι μεκα / τ[ιε] τιττετικμενος ειτου

See PhL 566. Obrador-Cursach (*ibid.*) reads αββιρετο αινι and restores δ̣[ιως]. The restoration δ̣[εως] follows TITUS.

°26^{S}

ιος νι σεμον κνουμα/νε κακον δακετ αινι / μανκα τιε τιττετι/κμενος ειτου

See PhL 567.

°27^{S}

ιος σεμον το κακον οδ̣[---]

See PhL 567.

°28^{SW}

ιος νι σεμουν / κνουμανε / κακουν αδα/κετ ι$^{?}$ος τιτετουκμε/νουν ειτου

See PhL 564.

°29^{SW} = °125^{SW}

ιος σεμουν κνουμανε / αινι μαν̣κ̣α̣ κ̣α̣κ̣ον αδδακ/[ετ ---]

See PhL 562-563.

°30[S]

[.....]ι επρι̣ / [.....] ει κ ονομα/ [.....] δ̣ουδας ακαλας ευκιν αργου σιβη / [.....] ουεβαν εγερετοι αυτω αυταη κε ταν εινᵛο̣υ̣

See PhL 568-569.

°31[S]

ας σεμουν κνουμαν αδιθρερακ / ξευνεοι αδικες ειαν / μανκαν ιαν εσταες βρατερε / μαιμαρηαν πουκρος μανισ/[ο]υ ενεπαρκες δετουν / [... ξ]ευναν αι δμως βροκειω / [.....] δεκμουταης ιου / [.....]προ τοσου

See PhL 571-572. Obrador-Cursach (*ibid.*) reads εσ[?]αν μανκαν. The reading ειαν follows Calder.

°32[E]

ιος νι σεμουν κνουμανει/ κ̣α̣κουν αδδακεκ γεγρειμ̣ενα/ν εγεδου τιος ουταν

See PhL 596-597.

°33[E]

ιος νι σεμουν κνουμανει κακον αδδακετ γεγ<ρ>ειμεναν ε/γεδου τιος ουταν α̣κ̣ κε οι βεκος ακκαλος τιδρεγρουν ειτου // αυτος κε ουα κ ο̣[?]ροκα γεγαριτμενος ας βαταν τευτους

See PhL 597-598. Obrador-Cursach (*ibid.*) reads γεγειμεναν and segments α̣κ̣κε οι βεκος and κο̣[?]ροκα. The correction to γεγ<ρ>ειμεναν follows Haas, the segmentation ακ κε follows TITUS, and the segmentation κ ο̣[?]ροκα broadly follows Haas and Waelkens (κ εροκα).

°34[E]

ιος κε σεμν κνουμανει κακουν αδδακετ γεγρειμεναν / εγεδου τιος ουταν

See PhL 598. OC restores σεμ<ου>ν. I propose an unemended reading σεμν (see §II.2.3.1.3).

°35[E]

ιος νι σαι κακο/υν αδδακεμ μανκαι ας ανανκαι οι παντα κενα <ι>ννου

See PhL 599.

°36[E]

ιο/ς κε σεμουν κνουμαν/ι κακουν αδακετ ερα γεγ/ρειμεν[α]ν εγεδο[υ] / τιος ουταν αυτος κ ου/α κ οροκα [γ]εγ[αριτ]με[ν]ο/ς α<ς> βαταν τ/ευτους

See PhL 599-600. Obrador-Cursach (*ibid.*) segments κοροκα and reads α βαταν. The segmentation κ οροκα follows Haas. The correction to α<ς> βαταν follows TITUS.

°37[SW]

ισος κε σεμουν κνουμανε [κακουν αδδακετ τετικμενο]ς ειτου

See PhL 565-566.

°38[W]

[---] κακο[υν ---] / [..... τι]τετικμενος ειτου τιτεṿ[.]/ [.....]ις

See PhL 558.

°39[SW]

ιος νι σ[εμ]ον τ[ου] κνου/μαν[ε] κακουν τι ạδ[δ]α/κετ διος [κ]ε ṣζεμελως / κẹ τιτ[τ]ε[τ]ικμεν[ος] ẹι/του ατ τιη κε αδειτου

See PhL 560-561.

°40^{W}

ιος νι σεμουν κνουμανε κακεν / αδδακετορ δεως ζεμελως κε τιτ/τετικμε•νος ειτου

See PhL 555-556.

°42^{W}

ιος νι σεμον [κ]ν[ου]μανε[ι κακ]ο[υν ---] / [τ]αι σα τρα[---]τη [---] [ζε]/μελως κε ο̣[υ]ε̣λ̣α̣σ̣κοννου κε ισνιο[υ] / αι παρτης

See PhL 552-553. Obrador-Cursach (*ibid.*) reads [δ]ε[ω]ς με κοννου κε ισνιο[υ]. The reading ο̣[υ]ε̣λ̣α̣σ̣κοννου follows Hämmig (2022: 89ff.).

°43^{W}

[ι]ο̣ς νι σεμουν κνου[μ]/ανει κακουν αδδακετ αινι α / [τεαμας$^{?}$ ---]

See PhL 553.

°44^{S}

[ι]ος α̣ν̣ σ̣[εμουν κακου]ν̣ κνου̣μ̣/μανει δοκε[τ ατ τ]ι αδειτου

See PhL 569.

°45^{SE}

ιος σεμου[ν κ]νουμ̣/ανει κακευ[ν α]δδακετ / τιττετικμενος ατ τι/ε αδειτου

See PhL 573. Obrador-Cursach (*ibid.*) reads κα̣κ̣ο̣υ[ν]. The reading κακευ[ν] follows MAMA (κακευ̣ν).

°47^{E}
ιος νι σεμ[υ]ν / κνουμᾰ/νει κακο[υ]ν / ᾰδᾰδᾰκᾰτ [---] / [---]

See PhL 592-593.

°48^{NW}
ε[..]γενṭουμενος / νιοισιος ναδροτος / ειτου μιτραφατα / κε μας τεμρογε/ιος κε πουντας / βας κε ενσταρνᾰ / δουμε κε οι ουε/βαν αδδακετ ορου/αν

See PhL 526.

°51^{SE}
[ιος σεμ]ον ρε/ḳτεοṿ [κακου]ν αδα/κε ατε[τικμενο]ς ατ τ[ι] / αδει[του ....] ᾰσγ

See PhL 579.

°53^{SE}
ιος νι σεμουν κν[ου]/μμανει κακουν [α]/δδακετ ταικαṿ / τιττετικμεν[ος]/ ας τιαν ειτου

See PhL 578-579. Obrador-Cursach (*ibid.*) segments [α]δδακεττ αι καṿ. The segmentation αδδακετ ταικαṿ broadly follows Haas (αδδακετ τ[α]ικ[α]ι [ε]τιττετικμεν[ος]).

°54^{E}
ος κε / σεμουν κνο[υ]μα/νει κακουν δο/κετ ατ τι αδει[του]

See PhL 582. OC restores [ι]ος κε σεμουν.

°55[E]
ιο[ς νι σεμ]ουν / κ[νουμα]νει / κ[ακου]ν αδδα/κ[ετ ..]ι οι που/σ[....]ι διισιν

See PhL 582-583.

°56[E]
[ι]ος σας του σκερεδ/ṛιας κακουν δακετ [τ]/ẹιττετικμενος / ạṭ ṭịε ειτου

See PhL 587.

°57[E]
ιος νι σεμουν κνου/μανε κακουν αδ/δακετ τιττετικμ/ενος ατ τι αδει/του

See PhL 587-588.

°58[E]
μοναν μροτιη ιον εγεσι/τ γε/γρι/με/νο/ν

See PhL 588-589.

°59[E]
[---] / κακ[ου]ṿ αδδακε/τ/ γεγρειμεναν ε/γεδ[ου τ]ιος ου<τ>αν

See PhL 594-595. The τ of αδδακε/τ is written above the line. Obrador-Cursach (*ibid.*) reads ουαν. The correction ου<τ>αν follows Calder, Friedrich and Mitchell.

°60[E]
ιος νι σαν / κακουν αδ[δα]κε / μανκαι γεγ[ρε]ιμε/ναν εγεδου τιος /ουταν

See PhL 595.

°61^{SE}

ιος σεμουν / του κνουμα/νει κακον α/δακετ τιτετι/κμενος ατ τιε / αδειτου

See PhL 575-576.

°62^{C}

ιος νι σεμυν κν^{o}υ/μανει κακυν αδδα/κε ταικαν ατ τιη κε / δεως κε τιττετικμε/νος ειτου

See PhL 551. Obrador-Cursach (*ibid.*) reads αδδακετ αι καν.

°63^{C}

ιος νι σεμουν κνουμανε κακουν αδδα/κετọρ δεως ζεμελως ḳε τιτε{τε}/τ̣ι̣[κμενο]ς [ειτου]

See PhL 550.

°64^{E}

αι κος [σεμουν του κνουμαν]/ει κα[κουν αδδακετ] γεγρ̣[ειμεναν εγεδου τιος ουταν κε τοτο]σσει[τι βας βεκος]

See PhL 589-590.

°65^{SE}

ιος σεμου κνουμαν[ει κα]κου[ν] αδ̣[δακε]τ̣ ατ τι/η θ̣ιτ[τ]ετικμενọ[ς αδ]ειτου

See PhL 577-578.

°67^{SE}

ιος / σα τι σκελεδριαι / κακουν δακετ α/τετικμενος ατ / τι αδειτου

See PhL 576-577.

°68^{SW}

ιος νι <σ>εμ̣[ουν κνουμανε$^{?}$ κα]/κουν αδακε[τ --- ατ τι]/ε τιτετικ[μενος ειτου]

See PhL 561-562.

°69^{SE}

εινεα̣ μ̣/δους ξευ/νε πειρ α/ρεοπ αδε/ν<π>ατω κν̣ο̣υ/μαν [ο]υ̣εκρ/ω δαδωνε/ι ονουεια̣ ει/ροι τε̣ αδ̣ενπ/α̣τη̣ς δεουε̣/ιας μα̣νεις / δαδων κε / οκ κ αυγοι / ουρν̣ουσαε/ν ιος σαι κα/κον αδδα/κετ μανκ/αι τ̣[ος] νι/ ζως κ̣ε π/εις κε τιτε/τικμενος / ειτου

See PhL 574-575. Obrador-Cursach (*ibid.*) segments οκκαυγοι. The segmentation οκ κ αυγοι follows Hämmig (οκ κ αυτ$^{?}$οι).

°70^{SE}

ιος [νι σεμουν] / κν[ουμανει κ]/ακο[υν αδδα]/κετ̣ [τιττετικ]/με[νος ατ τι]/ε α[δειτου]

See PhL 576.

°71^{W}

τις κε γερε[ν/τ] / τιττετικμ̣[ε]/νοι ιννου

See PhL 559-560.

°72[E]

ιος [νι το σ]εμουν / κ[νο]υ<μανει> {σεμον} κακον / αδακετ [τ]ιτετικμε/ṿος [ατ] τι αḍειṭου / [αι] κος ḳ[ακον αδα]κκιτορ [.] κε [.....]ε α[ụ]/τος ειτου

See PhL 590-591. OC restores ιος [νι κε σ]εμουν. A common reading of κ[νο]υ<μανει> {σεμον}is κουσσ̣λ̣λον, following Haas.

°73[W]

ιος νι σεμον κνουμανι κακον αββερετορ αịνị σας μδ̣ẹι[ς δεως] / ζεμελως τιε τιττετικμενος ειτου

See PhL 541. OC restores σας μδ̣ẹι [δεως].

°74[W]

[---]μ̣ḛνος ειτο[υ]

See PhL 539-540.

°75[E]

ιος κακον αββερ̣ετορ̣ κνουμανει αινι [---] / ζεμελως (τι)ε τιττετικμενος ειτοụ

See PhL 584.

°76[E]

ιος νι σεμιν τ κνουμανει κακουν / αδδακετ τιττετικμενος ατ τι αδει/του ακ κε οι βεκος ακκαλος τιδρε<γ>ρουν ει/του γεγρειμεναν / (κ ε)γεδου/ τιος / ου/τα/ν

See PhL 584-585. Line 5 of the Phrygian portion of the inscription reads γεδου κ ε with a large gap in the middle, and the line is to be read as κ εγεδου (cf. inscription °106). Obrador-Cursach (*ibid.*) segments σεμιντ and ακκε οι βεκος and reads unemended τιδρερουν. The segmentation σεμιν τ follows Waelkens and the correction to τιδρε<γ>ρουν follows Haas (τιδρεγρουν).

°77[E]
[ιος νι κνουμα]/[ν]ει κακ[ου]ν αδ/δακετ τιττετικμενος ατ τι αδειτου

See PhL 585.

°78[E]
ιος σεμουṿ [κ]/νουμανε κα/κουν αδ[δ]ακετ [τ]ετικμε[νο]ς / ẹι[τ]ο[υ ---] Ṭ[?]Λ[?]Ǫ[?]

See PhL 590.

°79[E]
[ι]ος σεμουν / [κνο]ụμανει κα/[κου]ṿ αδδακετ / [αββ]ẹρετορ [.....]ęμερη / [...]ụ ορβουν / [....] τος τυ / [.. γεγ]ąριτμ/[ενος ειτου]

See PhL 593-594.

°80[E]
[ιος σεμο]ụν κνου/[μανει] κακουν / [α]δδακετ τιṭ/[ετ]ικμενο[ς] ατ τι αδ/ειτου

See PhL 583.

°81[E]
ιος κṿ[ουμανει ---]

See PhL 580.

°82[C]
ιος σα του μανκα κακουν αδ/δακετ τ̣ι̣τετικμενος ειτου

See PhL 601-602, where it is mistakenly listed as °124.

°84[E]
ιος σεμ[ουν του] / κνου[μανει ---]

See PhL 580-581.

°85[E]
[--- τετικμεν]ǫ̣ς ατ τι αδειτου

See PhL 581.

°86[W]
ιος νι σεμουν κ[νου]/μανι κακουν αδδ[α]/κετ αινι μανκης βα[ς] / ιοι βεκος μεβερε[τ] / ạ̣τ τιη κε τιττετικμ[ε]/νος ειτου

See PhL 535.

°87[W]
ιος νι σεμουν κνουμανει / κακουν αδακετ αινι τια/μας α τι αδειτου ǫ̣υε̣λ̣ασκε/του κε ισνου αστοι παρτης

See PhL 536. Obrador-Cursach (*ibid.*) reads ǫ̣υε̣λ̣ας κε του. The reading ǫ̣υε̣λ̣ασκετου follows Hämmig (2022: 91ff.).

°88[C]

ιος / νι σεμουν κνουμανει κακε / αδδακετ αωρω ουεναουιας τιγ/γεγαριτμενος ιτου πουρ ουανα/κταν κε ουρανιον ιστ[?]εικετ διουνσιν

See PhL 531-532.

°89[C]

ιος νι σε[μουν ---]

See PhL 555.

°90[W]

[ιος σεμουν / κνουμ]ανε κακουν αδδακετ ε̣ττετικμενος ειτο[υ]

See PhL 545. Obrador-Cursach (*ibid.*) corrects the reading to <τ>ε̣ττετικμενος, but that may not be necessary.

°91[W]

[ιος νι σε]μ̣ον [κνουμανει]/ [κ]ᾰκου̯[ν α]ββερετοι α<ι>νι/ ᾰ̣σταᾰ̣ σᾰ̣ μ[ανκ]ε [τιτ]/ τετικμενος ειτου

See PhL 545-546.

°92[W]

ιος νι σ[εμουν κνου]/μανε κακουν [αδδακετ αι]/νι κορου ουε̣[βαν με ζεμ]/ελωσι κε δεως [κε τιε] / κε τιτετικμ[ενος ειτου] / κε οτ εκτει[...]

See PhL 558-559. Obrador-Cursach (*ibid.*) suggests ουε̣[βας[?]]. The restoration ουε̣[βαν] follows Haas. Obrador-Cursach (*ibid.*) interprets the final line as Greek κε οτ' ἐκτεί[σει] "and he shall pa[y] 370 (drachmae)", but this is questionable. The Phrygian reading κε οτ εκτει[...] follows Orel.

°93^{SW}

ιος νι σεμον / κνουμανε κακοṿ / αδακετ δεως / ζεμελως τιτετικ/μενος ειτου

See PhL 563.

°94^{S}

[ιος σ]α μακκα κακουν αδακετ / ατ τιε τιτετικμενος ειτου

See PhL 567-568.

°95^{SW}

[---] ιος σεμουν κνουμανε κακουν [.....] / [---]

See PhL 564-565.

°96^{W}

μ̣ε δεως κε / ζεμελως κε τιτετικμενος ειτου

See PhL 549. The immediately preceding protasis is in Greek: ὃς ἂν τούτω τῷ μνημείῳ κακῶς προσποιήσει ἢ τοῖς / προγεγραμμένοις ὑπεναντίον τι πράξῃ "who damages this monument or contravenes the foregoing injunctions".

°97^{W+}

ιος νι σεμον κνουμανε κακεν αδακετ αινι / μανκα, με ζε<με>λως κε δεως κε τιε τιτε-τικμ[ενος ειτου]

See PhL 529-530.

°98^{NW}
δακαρεν πα/τερης ευκιν / αργου

See PhL 526.

°99^{NW}
ιος νι σ̣εμον κνουμανει κα̣/κε̣ αδακετ τιτετικμενος / ας τιαν ε̣ιτου με κε οι / τοτοσσειτι βας βεκος

See PhL 533.

°100^{E}
ιος σεμιν κνουμανε μουρου[ν δα/κετ αι]νι κακουν κιν τιτετικμεν[ος / ατ τ]ιε αδε̣[ι]του

See PhL 596.

°101^{SE}
[ιος νι σεμουν κνο]υνμανει κακουν αδ/δακετ [τιτ$^{?}$τετικμε]νος ατ τι αδειτου

See PhL 573-574.

°102^{S}
[ι]ος νι σεμον κνουμανε / [κα]κον αδακετ αινι α τεα̣μ̣/[ας α] τιε τιτετικμενος ειτ/[ου]

See PhL 572-573.

°103[C]
[ιος] σεμον τι κνουμανι κ[ακ/ον α]βερετι ζει[ραι] παρταν το[ς] / [νι με] ζι[μελως] α τι ατιτικμενος / [ειτ]ου

See PhL 605-606.

°104[C]
τιττετι]/κμενος ειτου [---]

See PhL 603-604.

°105[E]
ιος νι σεμουν κνου/μανει κακουν αδα/[κ]ετ γεγρειμεναν εγεδο/υ τιος ουτ[αν ---] / [---]

See PhL 600.

°106[E]
ιος νι σεμουν κνου/μανει κακουν αδοκετ / ζειραι τιτετικμενος ατ / τι αδειτου γεγρειμενον / κ εγεδου ορουενος ουτον

See PhL 594.

°107[E]
ιος σεμιν κνο/[υμανει ---] / [---]

See PhL 591-592.

°108[E]
ιος ν[ι σεμουν κ]νουμανει / κακο[υν αδδακ]ẹ̣τ τιττετ/τικμε[νος α]τ [τι] ạ̣ḍειτου / γεγρειμε[ναν κε εγεδ]ου / τιος ουτ[αν ακ κε οι] βεκ/ος ακκαλọ̣[ς τιδρ]ẹ̣γρο/υν ειδο[υ]

See PhL 586. Obrador-Cursach (*ibid.*) segments [ακκε οι] βεκος.

°109[E]
ιος νι / [---

See PhL 586.

°110[E]
ιος σεμουν κνο[υ]/μ̣[αν]ẹ̣ι καḳ[ουν] / [---]

See PhL 581.

°111[NW]
[---] ιος αδακετ βας ιοι β(ε)κος μεβερετ [---]

See PhL 533-534.

°112[W]
[ι]ος νι σεμον κνουμανε κακον αδακ/ẹ̣τ αινι ατεαμας με δεως τιε τιττετικμ/ενος ειτου

See PhL 536-537.

°113^{W}
[---] / [κακο]υν αββερετοι με σζεμελως κε δυως κε τιτ̣/[τετικμενος ειτου]

See PhL 537-538.

°114^{SW}
ιος νι [σ]εμον κν[ου]μανη κακον αβ̣β̣ε̣/ρετ ατ νουκτον μρος σας ιος / κε βρειτ περβεδαν τιη τιτ/τετικμενος ειτου

See PhL 560.

°115^{W}
ιος νι σεμον κνουμανει κακον αδακετ αινι σα τ[ο]υ τεαμας / τιε τιττετικμενος ειτου

See PhL 556.

°116^{W}
ξ̣ε̣υνε ιοσος κε δετον̣ [ο$^{?}$υ]/ψοδ̣αν κε τα̣ν σαυναμαν [.$^{?}$]/ κ̣νο̣υμαν κ ακροδμαν κε λο̣[ι]/δ̣ιμ̣ον μειομον ριδιτι ται τοα̣ / μ̣ε̣ ο̣ν̣ομανιας εναρκε ερμω[λ]/α̣ο̣ς κναικο εκα̣τηας / ο̣μ̣ο̣υσας αιπος εκανες ακα[..]/ δ̣εο ποκ γονιον τευτωσι ιε[.]/ ν̣ο̣υταις εδαες πινκε τας δ̣[α̣]/κ̣ερης ονομανιαις μ̣ι̣ρου ικ̣[.$^{?}$] / κ̣ναικαν εδαες ις αργμενα[.$^{?}$] / ο̣π̣αρικο οαν οεαυται ις κε εν̣ / τοισ̣ινιοι κνουμαν τιαν τε[.] / [.]μαρδ̣ι ιδετοι οινις

See PhL 542-543. Obrador-Cursach reads λο̣δ̣ιμον, corrects the reading of κναικο to κναικο<ς>, and segments ο̣μ̣ο̣υσας αιπος εκανες as ομουσασαι ποσεκανες.

°117^{S}
ιος σεμο[υν κνου]/μανει κακ̣[ουν αδ]/δακε[τ ---]

See Laminger-Pascher (1984: 35).

°118^{W}

ιος νι σεμον / κνουμανει / κακον αδδ/ακετ / τετι{ο}/κμενος ειτου διως / κε ζεμελως κε παρ/της

See PhL 554-555. OC reads unamended τετιο/κμενος.

°119^{W}

ιο̣ς̣ νι σεμ̣[ουν] τ̣ο / κνουμανε κακεν αδδακετ με ζεμελως κε δεως κε / τιτετικμενος ειτου

See PhL 546.

°120^{W}

[--- π]αρτυς ουεβρα ιος νι σεμον το / [κνουμα]ν̣ε κακον αδδακετ αιν' ατεαμαις τιε τι/[τ τετικ]μ̣ε̣ν̣ος ειτυ ουελασκοννου κ' ηνκ/[---]υ̣ο̣ι̣ς γ̣ε̣ν̣τ̣ι̣ β̣ε̣π̣α̣ι̣ κε π̣αρτης β̣ε̣κος̣

See PhL 542. OC segments ατεαμα ις and reads ουελας κοννου. The reading ουελασκοννου follows Hämmig (2022: 95).

°121^{W}

ι̣ς̣ ν̣[ι κακου]ν̣ [αδδ]/α̣κετορ διως ορ ζεμ̣[ελ]ω̣ς τιττετικμενος̣ / [ειτου]

See PhL 540.

°122^{C}

[ιο]ς [σε]μ̣ου̣ν [κ]ν̣ουμαν̣ει κακουν [αδ]δ[ακετ] / [ατ τιε τιττετικμενος] ειτου

See PhL 540-541.

°123^{C}
ιος νι σεμ̣[ουν κνου]μ̣α/νει κ̣ακ[ουν αδ]δ̣[ακ]ετ / τιε τιτ̣τ̣ε̣ι̣κμ̣ε̣νος / ειτ[ου]

See PhL 601.

°124^{C}
ιος σα του σορου κακε / αδδακετ με ζεμελως οττιττετικμε/νος ειτου

See PhL 604-605.

°126^{W}
ιος νι σεμουν / κνουμανε κακ[ου]ν αδ/δακετ τι•ε τιτ•τε[•]τι/[κμενος] ε̣ιτοῠ

See PhL 557.

°127^{SW}
ιος νι σεμον κνουμανι κακον α̣δ̣ακ(ετ) τιε τιτετικμεῠ[ος ειτου]

See PhL 565.

°128^{C}
ιος νι σεμουν κνου/μανε κακουν αδδα/κετ με δδεω με ζεμε/λος τιτετικμενος / ειτου / ας βαταν ορουεναν κε

See PhL 550-551.

°129^{W}
ι̣ος νι σα μ̣α̣ι̣[ε]/ρε κακον αββ̣ε̣/ρ̣ετοι αινι σερ̣/οα τος νι με ζ̣εμελω̣[ς ....] / [---]

See PhL 549-550.

°130^{NW}

αινι ουεβαν δεδασσιννι πατρ̣ο/ς σεμουν κορο[υ]μανη σως κη / γουμεις, καρπυς ειλικρινη εγο/[υ]ννου // αινι κος κακην αδδακετ κορο/[υ]μανη σως κη γουμεις, τιττετι/[κ]μενος ειτου εικ αδ αυτον μεκ/αν τιαν

See PhL 527-529. Obrador-Cursach (*ibid.*) reads πατρ̣ες, γουμειε, and γουμειε.

°131^{C}

ιος νι σεμουν κνουμα/νει κακουν αββερετοι αινι α/τεαμα τος νι με σζεμε/λως κε τιε κε τιττετικμε/νος ειτου

See PhL 532-533.

°132^{SW}

ιος σεμουν κνουμανε [---]

See Anfosso (2021: 112-113 and 118-119).

°133^{N}

[ιος νι σεμον κνου]μανει κακον αδδακετ τιτετικ/[μεν]ος ειτου

See Güney and Yanik (2022: 165-166).

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Samenvating in het Nederlands

Titel: Een historische grammatica van het Frygisch

Dit proefschrift is de eerste volledige grammatica van het Frygisch, een taal die gesproken werd in centraal Anatolië van het begin van het 1e millennium v.Chr. tot het midden van het 1e millennium n.Chr. en die in totaal in ongeveer 500 inscripties geattesteerd is. De taal wordt onderverdeeld in twee fases: het Oud-Frygisch, geschreven in een inheems alfabet, beslaat de periode van de vroegste Frygische inscripties tot ongeveer 300 v.Chr., terwijl het Nieuw-Frygisch, geschreven in het Griekse alfabet, ongeveer 120 inscripties uit het begin van het eerste millennium n.Chr. omvat. Eerder onderzoek heeft zich voornamelijk gericht op de interpretatie van Frygische inscripties, de woordenschat van de taal, of individuele grammaticale kwesties; dit werk beoogt een volledige synchrone en diachrone grammatica van de taal te zijn, met een prominente focus op de dialectale positie van het Frygisch binnen de Indo-Europese taalfamilie.

Het eerste hoofdstuk geeft een kort overzicht van de geschiedenis van Frygië en zijn taal, en licht vervolgens het doel en de methodes van het proefschrift toe. De belangrijkste methodes voor het analyseren van de Frygische taal zijn de combinatorische methode, waarbij de Frygische teksten onderling vergeleken worden om het gebruik van bepaalde vormen te verduidelijken, en de etymologische methode, waarbij kennis over de historische ontwikkeling van het Frygisch en andere Indo-Europese talen gebruikt wordt om inzicht te krijgen in bepaalde grammaticale categorieën

en lexicale elementen van het Frygisch. Er worden argumenten aangedragen voor het bestaan van een Graeco-Frygische tak binnen het Indo-Europees, die een belangrijke basis vormt voor de analyses in dit werk. Er wordt een nieuw nummeringsysteem voor Frygische inscripties voorgesteld dat de continuïteit met eerder onderzoek wil behouden maar tegelijkertijd ook cruciale informatie over de vindplaats van individuele inscripties verschaft. Tot slot wordt de terminologie die in dit werk gebruikt wordt gedefinieerd.

Het tweede hoofdstuk richt zich op de fonologische en fonetische structuur van het Frygisch. Het schrift dat voor het Oud-Frygisch gebruikt wordt, wordt gepresenteerd en geanalyseerd, inclusief een bespreking van grafemen waarvan de waarde moeilijk vast te stellen is. Het synchrone fonologische systeem van het Oud-Frygisch wordt uiteengezet. Daarop volgt een analyse van het Nieuw-Frygische fonologische en fonetische systeem, met bijzondere aandacht voor de manier waarop de metriek van de Frygische vloekformulies bepaalde fenomenen in de taal kan verhelderen. Op basis daarvan wordt een relatieve chronologie van Nieuw-Frygische inscripties voorgesteld. De tweede helft van het tweede hoofdstuk behandelt de klankontwikkelingen tussen het Proto-Indo-Europees en het geattesteerde Frygisch, waarbij de stadia die deze ontwikkelingen doorlopen hebben expliciet onderscheiden worden: Proto-Indo-Europees, Proto-Graeco-Frygisch, Oud-Frygisch en Nieuw-Frygisch.

Het derde hoofdstuk behandelt de nominale vormen (d.w.z. de zelfstandige en bijvoeglijke naamwoorden) van het Frygisch. Het gebruik van de individuele naamvallen wordt bepaald en alle geattesteerde naamvalsuitgangen worden gepresenteerd en geanalyseerd vanuit

historisch perspectief. Alle geattesteerde nominale stamtypen, en de derivationele morfologie die gebruikt wordt om nominale stammen te vormen, worden besproken.

Het vierde hoofdstuk is gewijd aan het voornaamwoordelijke systeem van het Frygisch. Eerst worden alle geattesteerde Frygische voornaamwoorduitgangen beschouwd vanuit historisch oogpunt; een nieuw type uitgang wordt erkend en geanalyseerd. Vervolgens worden alle geattesteerde Frygische voornaamwoorden en al hun verbogen vormen afzonderlijk geanalyseerd en besproken.

Het vijfde hoofdstuk richt zich op het werkwoordsysteem van het Frygisch. Eerst worden de bekende categorieën van het werkwoordsysteem gepresenteerd en wordt hun betekenis uitgelegd. Het medium met actief-achtige syntaxis krijgt een nieuwe interpretatie als een causatief zonder uitvoerder. Vervolgens worden alle geattesteerde werkwoorduitgangen en hun voorgeschiedenis bestudeerd. Daarop volgt een behandeling van alle werkwoordstamtypen die in de taal voorkomen; de meeste typen gaan uiteindelijk terug op het Proto-Indo-Europees, maar de categorie van formaties met het suffix *-si-*, de sigmatische optatief, wordt erkend als een Frygische innovatie. Speciale aandacht wordt besteed aan de werkwoordwortels *da-* en *dak-*, die een gemeenschappelijke oorsprong hebben, omdat ze binnen het corpus verreweg de grootste verscheidenheid aan werkwoordstammen laten zien.

Het zesde hoofdstuk behandelt alle andere woordsoorten: voorzetsels, voorvoegsels, partikels, telwoorden en bijwoorden. Elke geattesteerde

woordsoort wordt afzonderlijk geanalyseerd en waar mogelijk voorzien van een etymologie.

Curriculum vitae

Aljoša Šorgo was born on 15 April 1988 in Maribor, Slovenia. He attended the primary school in Podčetrtek from 1995 to 2002. He attended *Prva gimnazija Maribor* from 2002 to 2006. He studied English language and literature and comparative Indo-European linguistics at the University of Ljubljana from 2006 to 2015, where he graduated with his thesis *Pre-Germanic: A tentative description of the substratum language in Proto-Germanic based on Guus Kroonen's Etymological Dictionary of Proto-Germanic*, for which he received the faculty Prešeren prize. From 2016 to 2020 he was employed as a PhD candidate at the University of Leiden under the supervision of Alexander Lubotsky and Alwin Kloekhorst as part of the project *Multilingualism and Minority Languages in Ancient Europe*, funded by *HERA*, where he worked on the history of the Phrygian language. During this time, he also continued working on the question of the Germanic substrate. This dissertation is the culmination of almost ten years of research on the Phrygian language.

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