A historical grammar of Phrygian

Sorgo, A.

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 (< **h*$_1$*e-h*$_1$*s-e* + *-i*), with *ā*- being the reduplicated perfect stem of the verbal root $^{+}$*es*- ('to be'; < PIE **h*$_1$*es*-), *-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 **h*$_1$*e-h*$_1$*s-* > *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^h*er-e-t* > Proto-Graeco-Phrygian *b^h*er-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* (= [ḛ]) 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_1ei- '*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_1ei*- '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 **h₂eidʰ*- '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 *$d^{h}V$-$d^{h}eh_1$-.[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 *$d^{h}eh_1$- 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 **dʰe-dʰē-*, to Sanskrit **dádhā-* 'to put' < **dʰe-dʰē-* 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 (< **dʰeh₁-*) 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 ἡκ-.

[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^{h}eh$_1$-* = **d^{h}ēk-* ~ perf. stem **d^{h}e-d^{h}oh$_1$-* >> perf. stem ** d^{h}e-d^{h}eh$_1$-* = *d^{h}ed^{h}ēk-*.[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 *$dedĕ$- < *$də_2dĕ$-,[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 **$d^{h}eh_{1}$-* > **dē-* > **dā-* > 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- < **-tō-* < **-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 **dedā(s)s-* and **totō(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 *dedăss-* and *totŏss-*. The development between vowels was then:

pre-Old Phrygian *-V̌(s)sV-* >> New Phrygian *-V̌sV-* <VσV>;

pre-Old Phrygian *-V̄(s)sV-* >> New Phrygian *-V̌ssV-* <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. **ō* > NPh. *ŭ* <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 <ο>, 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 [ĕ̝], 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.

**-ih₁-s-ih₁-*.

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*> **[-ḛ̄sḛ̄t] and *tekiseton* **[-ḛ̄sḛ̄tōn]. 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 /ḛ̄/ < **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* [-sḛ̄ti] as showing a spelling with <*i*>, whereas *umniset* [-sḛ̄t] 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 **h_1es-* 'to be': **h_1e-h_1s-* (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 **$\bar{e} > \bar{a}$*, 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*^{h}*eh*$_{1}$- '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*^{h}*eh*$_{1}$- 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 *da*Ψ*e-*, 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 /*daʃʃ̨ēt*/ < */*dāsę̄t*/ (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 *$d\check{e}(k)$- shared a great affinity with the aorist stem *$d\check{e}(k)$- 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/ο- 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^heh_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^heh_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 αἴθω ‘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 **bʰreiH*- '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$_{1}$*) > *brē̯-* <*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}reı̯-i̯e-* > **breje-* > *brē̯-*.

[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.